the state of food and agriculture 1973

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

SPECIAL CHAPTERS

In addition to the usual review of the recent world food and agriculture situation, each issue of this report from 1957 has included one or more special studies of problems of longer term interest. Special chapters in earlier issues have covered the following subjects:

1957	Factors influencing the trend of food consumption
	Postwar changes in some institutional factors affecting agriculture
1958	Food and agricultural developments in Africa south of the Sahara
	The growth of forest industries and their impact on the world's forests
1959	Agricultural incomes and levels of living in countries at different stages of economic development
	Some general problems of agricultural development in less developed countries in the light of postwar experience
1960	Programing for agricultural development
1961	Land reform and institutional change
	Agricultural extension, education and research in Africa, Asia and Latin America
1962	The role of forest industries in the attack on economic underdevelopment
	The livestock industry in less developed countries
1963	Basic factors affecting the growth of productivity in agriculture
	Fertilizer use: spearhead of agricultural development
1964	Protein nutrition: needs and prospects
	Synthetics and their effects on international trade
1966	Agriculture and industrialization
	Rice in the world food economy
1967	Incentives and disincentives for farmers in developing countries
	The management of fishery resources
1968	Raising agricultural productivity in developing countries through technological improvement
	Improved storage and its contribution to world food supplies
1969	Agricultural marketing improvement programmes: some lessons from recent experience
	Modernization of institutions to promote development
1970	Agriculture at the threshold of the Second Development Decade
1971	Water pollution and its effects on living aquatic resources and fisheries
1972	Education and training for development
	Accelerating agricultural research in the developing countries

THE STATE OF FOOD AND AGRICULTURE 1973

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WORLD REVIEW

REVIEW BY REGIONS

AGRICULTURAL EMPLOYMENT IN DEVELOPING COUNTRIES

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 1973

The statistical material in this publication has been prepared from the information available to FAO up to 1 October 1973

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

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CONTENTS

Annex tables

FOREWORD

The world food situation in 1973 is more difficult than at any time since the years immediately following the devastation of the second world war. As a result of droughts and other unfavourable weather conditions, poor harvests were unusually widespread in 1972. Cereal stocks have dropped to the lowest level for 20 years. In the new situation of worldwide shortage, changes are occurring with extraordinary rapidity. Prices are rocketing, and the world's biggest agricultural exporter has had to introduce export allocations for certain products.

World food production in 1972 was slightly smaller than in 1971, when there were about 75 million fewer people to feed. This is the first time since the second world war that world production has actually declined.

There have now been two successive years of poor harvests in the developing countries. After a series of encouragingly large harvests (especially in the heavily populated Far East) in each of the four years 1967-70, 1971 brought only a small increase in food production in the developing countries as a whole. In 1972 the Near East was the only developing region to record a large increase, and with a substantial drop in the Far East (3 percent) no increase occurred in the total food production of the developing countries.

The main difference between 1971 and 1972 — and which makes the disappointing production results in the developing countries in 1972 all the more serious — lies in what happened in the developed parts of the world. In 1971 the small increase in the developing countries was accompanied by a large increase in the developed countries, so that at the world level there was a fairly comfortable rise. But in 1972, largely (although by no means entirely) because of disastrous weather in the U.S.S.R., stagnant production in the developing countries was accompanied by a fall in the developed ones.

In the face of a constantly growing population, these events are extremely disquieting. Per caput food production in the developing countries as a whole is now below the level of 1961-65. In the Far East it is 8 percent below the peak level of 1970. The threat of food shortages has already become a harsh fact in the Sahelian zone of west Africa, where because of prolonged drought more than 6 million people are close to famine. Even where the situation is less dramatic, many millions must have been added to the large number of people already inadequately fed. Food prices have risen almost universally, bringing additional hardship to the poorer consumers who have to spend most of their income on food. Imports of the staple cereals have become very difficult to obtain, even for those countries that can afford to purchase them out of their own foreign exchange.

Mainly because of massive purchases contracted by the U.S.S.R. in 1972, world stocks of wheat have been drawn down to the lowest level for 20 years. Rice is also in very short supply. There is thus little if any margin against the possibility of another widespread harvest failure in 1973, and the world has become dangerously dependent on current production and hence on weather conditions. The real measure of our anxiety is that while a marginal shortfall in expected production in a major area in 1973 could lead to a serious deficit at the world level, a marginal improvement would not much relieve what is already a dangerous situation.

A number of governments, including those of such major producing countries as Canada, China (which resumed its place in FAO on 1 April), India, the United States and the U.S.S.R., have taken special measures to increase production in 1973. In the United States it is reported that two thirds of the crop area formerly set aside is now back in production. Some developing countries are facing additional difficulties in 1973 as a result of the current shortages and high prices in world fertilizer markets.

Action has been taken at national and international levels to meet the emergency situations that have arisen so far. The United Nations has mounted special relief operations for Bangladesh, and FAO is doing the same for the Sahelian countries on behalf

of the United Nations system. In these countries and elsewhere the United Nations/FAO World Food Programme is operating to the limit of its resources. Within FAO I have strengthened our procedures for keeping the position under regular review in order to help us identify incipient supply shortages and emergencies as quickly as possible. I have kept in regular contact with the major exporting countries, and have circulated to the developing countries periodic factual assessments of the cereal supply situation.

The precarious food situation of 1973 has aroused public opinion all over the world. Indeed, it seems that most people take an interest in the world's farmers only when things appear to be going either very badly or very well for them. This results in sharp swings between pessimism and optimism about food supply prospects. After two successive years of widespread bad harvests in the developing countries in 1965 and 1966, pessimism was the rule. With better weather and the beginnings of the so-called "green revolution" (especially in the crucial areas of the Far East) in 1967-70, there was a shift to exaggerated optimism in many quarters. Now we are back again in a wave of pessimism.

In 1968, my first year as Director-General of FAO, I stated that the introduction of the high-yielding varieties of cereals gave grounds for "cautious optimism." While I did not share the general belief of that time that the world's agricultural problems were all but solved, I still firmly believe — notwithstanding recent events — that the scientific and technological advances that we have witnessed provide the potential for the necessary increases in agricultural production to meet not only the further population growth that is already inevitable, but also the needed improvements in nutritional levels. Population growth cannot continue unchecked, but provided it is slowed down in time technological progress can provide the food that is required. However, for the scientific and technological potential to be mobilized to the full implies many far-reaching changes in the agricultural and rural sectors of both developing and developed countries.

It would indeed be a blessing in disguise if the precarious world food situation of 1973 could lead to the longer term measures that are required to ensure that such a situation can never occur again. It is intolerable that, on the threshold of the last quarter of the twentieth century, the world should find itself almost entirely dependent on a single season's weather for its basic food supplies. For many years we have been protected from such a situation by the large surplus cereal stocks accumulated in a few rich countries. These surpluses have now disappeared, and it can hardly be expected that the same countries will deliberately build them up again. I have therefore put forward for the consideration of governments a proposal for the achievement of a minimum level of world food security through a limited degree of coordination of national stock policies. This proposal has already received an encouraging amount of support in the Economic and Social Council of the United Nations and in the FAO Council, and there is a considerable measure of agreement on the common responsibility involved. I am hopeful that the discussions at the seventeenth session of the FAO Conference will lead to concrete action to implement it. I believe it is vital for governments to seize this opportunity, before it is too late, to set up an orderly world food security system. Some additional obligations may be involved for some countries, especially the richer ones, but the cost of continued inaction would be infinitely greater. That the developing countries can themselves play an important part is demonstrated by India's achievement in building up reserves of more than 9 million tons of foodgrains by the middle of 1972, without which the present difficulties would have been even worse.

A viable system of world food security cannot, of course, be established overnight, especially as it is likely to be some time before supplies are again available for adequate stock building. In the meantime contingency planning is necessary, and I have therefore suggested as a first step that the major grain-exporting countries should make joint commitments to continue food aid at least at the level of recent years for as long as the threat of a world shortage lasts, and to earmark sufficient supplies from the new crops to meet the essential commercial import requirements of developing countries for direct human consumption.

Returning to the longer term measures that are needed, it is clear that the agriculture of the developing countries — quite apart from the effects of the weather — has not been making the progress that is essential if it is to contribute fully to their economic and social development. Since 1961 the developing countries as a whole have expanded their agricultural production at an average rate of 2.7 percent a year. This is slightly faster than their population growth, and is already a considerable achievement. But it is a long way short of the target of an average increase of 4 percent a year in agricultural production that is a major part of the international strategy for the Second United Nations Development Decade. Moreover, with such poor results in the first two years of the decade,

increases averaging almost 5 percent a year are now needed in the remaining eight years if the target is to be reached. This target is, of course, an average for the developing countries as a whole, and the particular circumstances of individual countries may call for higher or lower rates of growth, as the case may be. Assessing the performance of individual countries is therefore a complex matter, but it is nevertheless highly disturbing that in almost half the developing countries (including many of the larger, heavily populated ones) production has failed even to match the growth of population since 1961.

Many of the developing countries must seriously reconsider their investment priorities if the agricultural sector is not to remain a drag on their overall development. The windfall receipts that some of them have obtained from the recent price rises could, if wisely used, provide part of the investment resources needed to inject a new dynamism into their agricultural production. But it is not just wise government investment that is needed. As FAO has emphasized on countless occasions, substantial changes are necessary in government services to farmers and in the general institutional framework in which they live and work — in land tenure, credit, education, extension, farmers' organizations, marketing and price systems, to mention only some of the most important aspects. These rural institutions and services not only serve as the delivery system through which the necessary inputs or means of production are made available to farmers. They must also provide them with the incentive to use these inputs and make extra effort, and to a great extent they determine the distribution of the fruits of increased production.

Far-reaching as they are, the changes required in rural institutions and services can be accomplished by individual governments, drawing where needed on outside technical assistance. Indeed, most of the necessary effort to increase agricultural production in the developing countries clearly has to be made in these countries themselves. But their possibilities of increasing production depend on international as well as national measures.

The present difficult production situation is no reason for overlooking or playing down the general importance of orderly adjustment of world agriculture. On the contrary, it demonstrates even more sharply than before the need for the concerted measures of international agricultural adjustment that are to be a major theme of this year's session of the FAO Conference. I see my proposals for minimum world food security as an integral part of such adjustment.

Supply must be continuously adapted to demand, both from year to year and over the longer run, and in ways which accord with objectives accepted by the world community. This can only be achieved by the establishment of real links among the hundred or more national policies to which the necessary adjustment is now left. There is a pressing need for international consultative machinery on adjustment in agricultural production and trade, supported by arrangements for the more systematic appraisal of developments. I emphasize the need for the machinery to cover production as well as trade, since in nearly all countries production is many times the larger, and it is national production conditions that determine governments' approaches to trade questions.

If such machinery had been functioning in the last few years, governments would have been in a much better position to take timely corrective action to safeguard world food supplies. In my report on international adjustment to the FAO Conference I am suggesting for the consideration of governments some first steps toward the establishment of the necessary consultative arrangements. Progress in this direction would both contribute to and complement the forthcoming negotiations in the framework of the General Agreement on Tariffs and Trade, and the subsequent implementation of the agreements reached there.

Recent developments in international trade in agricultural products have been as dramatic as those in production. Superficially, 1972 was a good year for the developing countries in respect of agricultural trade, for their agricultural export earnings increased sharply in comparison with the previous year. This increase came mainly from the price rises that have occurred for so many agricultural products, and that have continued even more steeply in 1973. Some developing countries have made temporary gains, which — as mentioned earlier — provide an additional opportunity for constructive investment in development. But it is necessary also to stress some less favourable aspects of the present trade situation. The prices of temperate zone products, exported mainly by developed countries, have generally risen more steeply than those of tropical products. Inflation and currency changes have eroded the value of the increased export earnings, and developing countries have had to pay more for their imports of food and of fertilizers. A period of unstable export prices such as could be foreshadowed, among other factors, by the removal of the cushion provided by the North American surplus stocks of grain, would

benefit neither developed nor developing countries. Moreover, it will be necessary to ensure that the current high prices do not stimulate ill-judged plans to expand the production of certain commodities for export at a rate not justified by longer term demand possibilities.

Naturally enough, our principal preoccupation at the present moment is with the production problems of the developing countries. But this must not lead to neglect of the much wider role that has to be played by agriculture in the economic and social development of countries whose people still find their livelihood predominantly in this sector. There is a serious danger that the poor production results of 1971 and 1972 may lead governments to neglect social objectives even more than in the past, on the grounds that production must be increased at all costs and that preoccupation with such objectives could slow it down.

It is therefore appropriate that the special chapter in The state of food and agriculture 1973 *is concerned with agricultural employment in developing countries. Employment promotion has a key role in the better income distribution that is crucial for the improvement of human welfare, including the nutritional improvement that is one of FAO's central objectives. The chapter attempts to bring together the findings of the considerable amount of research that has been carried out on agricultural employment in the last few years. I hope that it will be found useful by the many governments that are concerned about employment problems and wish to plan the expansion of agricultural production in such a way as to take full account of the need to create additional employment opportunities.*

The unhappy developments of 1971 and 1972 have brought into sharper relief than ever before the basic problems facing the world's agriculture. Mounting the necessary concerted effort to overcome these problems is one of the greatest challenges facing the world community in the remaining years of the Second Development Decade.

A.H. BOERMA
Director-General

EXPLANATORY NOTE

The following symbols are used in statistical tables:

— none or negligible

... not available

1971/72 signifies a crop, marketing or fiscal year running from one calendar year to the next. 1971-72 signifies the average for two calendar years.

Figures in statistical tables may not add up because of rounding. Percent changes from one year to another have been calculated from unrounded figures. Unless otherwise indicated, the metric system is used throughout.

Production index numbers[1]

The indices of agricultural production are calculated by applying regional weights, based on 1961-65 farm price relationships, to the production figures, which are adjusted to allow for quantities used for feed, seed and waste. The indices for food products exclude coffee, tea, tobacco, inedible oilseeds, animal and vegetable fibres, and rubber. They are on a calendar year basis and are therefore not comparable with the indices for crop years published in the 1966 and prior issues of this report.

For fishery production, quantities are weighted by the average unit values of fishermen's landings in 1961-65. For forest production, roundwood production is weighted by 1961-65 prices.

Trade index numbers[2]

In calculating trade index numbers of agricultural production for the present issue, both commodity and country coverages have been enlarged to include all the commodities and countries shown in the 1972 issue of the FAO *Trade yearbook*. For this reason, the present series are not comparable with the indices for earlier years published in prior issues.

All the different indices are calculated independently for the value, volume and unit value of exports and of imports.

Value indices represent the current values of exports (f.o.b.) and imports (c.i.f.), all expressed in U.S. dollars. If some countries report imports valued at f.o.b., these are adjusted to approximate c.i.f. values. This method of estimation shows an error whenever the trend of insurance and freight diverges from the commodity unit values at export level.

Volume and unit value indices represent the changes in the price-weighted sum of quantities and of the quantity-weighted values of products traded between countries. The weights are respectively the price and quantity averages of 1961-65, which is the base reference period used for all the index number series currently computed by FAO. The Laspeyre formulas were used in the construction of the index numbers.

Regional coverage

The regional grouping used in this publication follows the recently adopted "FAO country classification for statistical purposes." The coverage of the groupings is in most cases self-explanatory. It should be noted, however, that in line with the decision to divide countries into three broad economic categories (developed market economies, developing market economies, and centrally planned economies) Japan, Israel and South Africa have been removed from Far East, Near East and Africa respectively and are presented under the separate heading of "Other developed countries." For this reason, tables for the three regions are not always comparable with those shown in earlier issues.

The trade index numbers of a country group are based on the total trade of each country included in the group irrespective of destination, and in consequence generally do not represent the net trade of the group.

Among other regions, it should be noted that western Europe is defined as including Yugoslavia, and the Near East as extending from Cyprus and Turkey in the northwest to Afghanistan in the east, and including from the African continent Egypt, the Libyan Arab Republic and the Sudan.

[1] For full details, including a list of weights, see FAO. *Production yearbook 1972*. Rome. 1973.

[2] For full details see FAO, *Trade yearbook 1972*. Rome. 1973.

HIGHLIGHTS

- First indications for 1973 suggest that world agricultural output increased by 2 to 3 percent over 1972, when a slight drop in production caused severe repercussions on agricultural trade, prices and stocks. Both developed and developing regions had a better year. Conditions remain serious in the Sahelian zone of Africa.

- World food production declined in 1972 for the first time since the second world war. Production per person fell by 3 percent (in the Far East region by 6 percent). Drought was the principal cause.

- The world fisheries catch was smaller in 1972 for the second consecutive year, by 9 percent, reflecting in part a serious fall in Peru's anchoveta catch.

- World roundwood production continued to expand.

- The dramatic change in the world wheat situation in 1972 was caused mainly by a poor harvest in the U.S.S.R. which led to massive purchases on the world market. World wheat production was only slightly below the record 1971 level but this coincided with a poor rice harvest.

- The value of world trade in agricultural, fishery and forest products in 1972 increased about 7 percent in real terms. Wheat exports expanded by one fourth, reducing wheat stocks in major exporting countries to dangerously low levels.

- Food prices increased in 1972 much faster than normal in developed countries. Sharp increases in developing countries were the result of scarce staple foods, higher priced imports, inflation, and currency revaluations.

- Agricultural employment in developing countries is examined in Chapter3. Special measures are needed to maximize employment. A review of agricultural and rural employment in national development plans indicates that few countries have a concerted employment policy. A new integrated approach is needed for rural development where the integrating factor would be the provision of employment.

Chapter 1. - WORLD REVIEW

World agricultural production declined slightly in 1972, probably for the first time since the second world war. Fishery production also fell, by about 1 percent, while forest production increased by some 2 percent. The total output of agricultural, fishery and forest commodities showed a slight decline (Table 1-1). Widespread unfavourable weather — particularly drought — was the principal factor responsible for the reduction in agricultural output. This drop, together with a world population growth of 2 percent, led to a 3 percent decline in the per caput level of food production. The disappointing performance of agriculture mainly reflected a lower output of cereals from the record level of 1971. An unusual scarcity of wheat coincided with a rice shortage in the Far East. Even so, world cereal production was the second largest ever recorded. By the end of 1972, however, a precarious balance developed between supply and demand, and world prices rose sharply. The 1973/74 season opened with stocks at levels so low that they gave little assurance of adequate supplies to meet world demand if output was below normal in one or two major producing areas. The world food situation is therefore almost entirely dependent on the 1973 harvests.

First indications for 1973 suggest that world agricultural output is likely to increase by about 2 to 3 percent. Production rose in developed and developing regions.

Because of the increasing difficulty in providing a safeguard against food shortages, the Director-General of the Food and Agriculture Organization of the United Nations (FAO) submitted a proposal to governments for the achievement of a minimum level of world food security through a limited degree of coordination of national stock policies. Large surplus stocks are no longer available in North America to cushion unexpected reductions in output, while the amount of reserves required to guarantee minimum world security is growing in line with population and consumption. The margin of safety, therefore, has been steadily shrinking. Moreover, since most cereal production is directed to domestic markets, even small percentage variations in output in large countries such as China, India and the U.S.S.R. will continue to exercise substantial pressure on the world market. And if poor crops in several large growing areas coincide, commercial stocks in exporting countries designed to meet "normal" import demand would not be sufficient.

By September 1973 the world's wheat supply situation was considered to be "extremely tight but not critical." Potential wheat export availabilities were then put at 59 to 62 million tons and import requirements at 62 to 65 million tons. Major concern is now focused on the outcome of the rice crop, especially in the Far East.

Many developing countries continue to be extremely vulnerable to shortages. Nowhere is this more clearly demonstrated than in the Sahelian zone of Africa where, as a result of prolonged drought, famine continues to threaten more than 6 million people. International emergency relief measures are being coordinated by FAO on behalf of the United Nations system, in close cooperation with governments and multilateral organizations.

The longer term trends in agricultural production

TABLE 1-1. – INDICES OF WORLD PRODUCTION OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1968	1969	1970	1971	1972[1]	Change 1971 to 1972[2]
	... *1961-65 average = 100* ...					*Percent*
TOTAL PRODUCTION	116	117	120	124	124	—
Agriculture	116	117	120	124	124	—
Fishery[3]	127	130	135	136	134	— 1
Forestry[3]	109	112	114	116	119	+ 2
POPULATION	110	112	114	117	119	+ 2
PER CAPUT TOTAL PRODUCTION	105	104	105	106	104	— 2
Agriculture	106	104	105	107	104	— 2
Fishery[3]	115	116	118	116	113	— 3
Forestry[3]	99	99	100	99	99	—

NOTE: For details of the methodology and coverage of these indices, see the explanatory note on page *xi*.

[1] Preliminary. – [2] Percent changes from one year to another have been calculated from unrounded figures. – [3] Excluding China.

in the developing countries are also giving rise to considerable concern. The strategy for the Second United Nations Development Decade calls for a 4 percent average annual increase in the agricultural output of the developing countries if this sector is to play its full potential role in economic and social development. This target contrasts sharply with the 1 percent gain in developing countries in 1971 and the stagnant position in 1972. Although the annual rate of growth of 2.8 percent during 1961-71 already represents a considerable achievement, a much greater and sustained effort is needed in agriculture in most developing countries.

Per caput food production in the developing countries as a whole is now below the average level of 1961-65, which preceded a series of generally good harvests in 1967-70. There has been a particularly sharp fall in the heavily populated Far East region. Per caput production is not, of course, a complete measure of food consumption, which is also affected by imports and exports. But with the scarcity of cereals on world export markets and generally rising prices there is no doubt that the consumption of the lower income groups has been sharply affected in many areas, even where dramatic shortages have not been reported.

Agricultural production

Production 1972 [1]

World agricultural production is estimated to have fallen slightly in 1972, compared with a 3 percent increase in 1971 (Table 1-2). This is the first time since the second world war that world production has actually declined, if the estimates for 1972 are confirmed.

The reversal in 1972 reflected poor harvests in both developed and developing regions. A large gain in the Near East and smaller gains in Latin America and Africa did not offset reductions elsewhere. The most disquieting situation was in the Far East, where both agricultural and food production, severely affected by the failure of the monsoon, fell by 3 percent. This followed only a slight increase in 1971. Per caput food production fell by 6 percent in 1972, and was 8 percent below the peak level of 1970. In nearly all countries of the region food production per caput dropped for the second consecutive year and rising prices of scarce staple foods severely affected low-income groups. Cereal production was even more disappointing in 1972 than in 1971. Harvests of rice, the main staple, cultivated mostly in rainfed areas, fell by 4 percent. All important rice-producing countries of the region had poor or very poor harvests. Serious food shortages developed in some parts of the region.

China was also affected by drought, although water storage and conservation facilities helped to reduce its effect. Grain production in China fell from the 1971 record, but the advances in industrial and cash crops partly offset this decrease.

In sharp contrast to other regions, an impressive gain of 7 percent was recorded in the Near East, mainly as a result of a large increase in cereal production above the already high level of 1971. There were record crops in Iraq, the Libyan Arab Republic and the Syrian Arab Republic, and good crops were harvested in Egypt, Iran, Jordan, Lebanon, and Saudi Arabia.

In Latin America, agricultural production in 1972 again grew by only 1 percent and per caput output fell. However, the situation varied considerably from country to country in the region. The improved performances of Argentina, Brazil, Bolivia, Colombia and Paraguay were offset by slower increases elsewhere. Regional beef production recovered from the low 1971 level.

In Africa, agricultural production increased by only about 1 percent. As a result of prolonged drought an extremely serious situation developed in the Sahelian zone. The countries especially affected were Chad, Mali, Mauritania, Niger, Senegal and Upper Volta. Emergency relief, coordinated by FAO, was initiated in early 1973. For the region as a whole, however, growth in agricultural production in 1972 largely reflected an increase in grain crops, particularly in northwest and east Africa.

Among the developed regions, agricultural production dropped 1 percent from the record levels of 1971 in North America and western Europe. Grain harvests were smaller in both the United States and Canada. In western Europe, grain production remained at a high level, but beef production declined.

In Oceania, the drop in production reflected reductions in Australia, where drought adversely affected most grain crops. The region's livestock production, particularly of meat, increased.

In eastern Europe and the U.S.S.R., the 1 percent fall in agricultural production in the U.S.S.R. caused by the poor grain harvest was offset by increases elsewhere. Results were generally good in eastern Europe, where grains did particularly well.

[1] See Chapter 2 for further details of regional and country agricultural production in 1972.

TABLE 1-2. – INDICES OF WORLD AND REGIONAL FOOD AND AGRICULTURAL PRODUCTION

	Total						Per caput					
	1968	1969	1970	1971	1972[1]	Change 1971 to 1972	1968	1969	1970	1971	1972[1]	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
Food production												
Western Europe	115	115	117	122	121	— 1	111	109	111	114	113	— 1
North America	115	115	113	124	121	— 2	108	107	104	113	109	— 3
Oceania	128	123	121	129	126	— 2	117	110	106	111	107	— 4
Other developed market economies[2]	124	123	122	123	128	+ 4	116	114	112	111	113	+ 3
DEVELOPED MARKET ECONOMIES	116	116	116	123	122	— 1	111	109	108	113	111	— 2
Latin America	114	120	124	126	126	—	99	102	102	100	97	— 3
Far East[3]	113	118	125	125	121	— 3	100	102	105	102	97	— 6
Near East[4]	119	122	125	126	136	+ 8	104	104	103	101	106	+ 5
Africa[5]	113	118	119	124	126	+ 1	100	102	101	102	101	— 1
DEVELOPING MARKET ECONOMIES	114	119	124	125	125	—	100	102	103	102	99	— 3
Eastern Europe and U.S.S.R.	126	123	130	132	132	—	119	116	121	122	121	— 1
China and other Asian centrally planned countries	112	116	122	125	124	— 1	103	104	107	108	105	— 3
World	117	118	122	126	125	— 1	107	105	106	108	105	— 3
Agricultural production												
Western Europe	115	114	117	121	120	— 1	110	109	110	114	112	— 1
North America	111	110	109	118	117	— 1	104	103	100	108	105	— 2
Oceania	124	121	119	124	121	— 3	113	109	105	107	102	— 5
Other developed market economies[2]	123	122	120	121	126	+ 4	115	113	110	109	111	+ 3
DEVELOPED MARKET ECONOMIES	114	113	113	120	119	— 1	108	106	105	110	109	— 2
Latin America	113	119	122	123	124	+ 1	98	101	100	98	96	— 2
Far East[3]	113	118	124	125	121	— 3	100	102	104	102	97	— 5
Near East[4]	119	122	124	127	136	+ 7	104	104	103	102	106	+ 4
Africa[5]	112	118	119	124	125	+ 1	100	102	100	102	100	— 1
DEVELOPING MARKET ECONOMIES	113	119	123	124	124	—	100	102	103	101	98	— 3
Eastern Europe and U.S.S.R.	125	122	129	132	132	—	119	115	121	122	121	— 1
China and other Asian centrally planned countries	113	116	122	125	124	— 1	103	104	107	109	105	— 3
World	116	117	120	124	124	—	106	104	105	107	104	— 2

[1] Preliminary. – [2] Japan, Israel and South Africa. – [3] Excluding Japan, and China and other Asian centrally planned countries. – [4] Excluding Israel. – [5] Excluding South Africa.

Production of main commodities [2]

The dramatic change in the world wheat situation in 1972 was caused mainly by crop shortfalls in one important grain-producing country, the U.S.S.R. World wheat production, at an estimated 348 million tons, was only 5 million tons, or 2 percent, below the record 1971 level. In western Europe the total wheat crop was slightly below the 1971 level. Better crops were harvested in eastern Europe and China; and production in most developing regions showed impressive overall gains. The decline in United States output was due partly to the wheat programme and partly to lower yields. In Australia marketing quotas calling for an increase in production were in operation but drought reduced harvests.

World production of coarse grains also declined by about 3 percent, to an estimated 630 million tons from the very high level reached in 1971. The decline affected maize and barley less than sorghum, oats and rye. In spite of lower maize crops in North and Latin America and the Far East, total maize production appears to have decreased only slightly as better crops were harvested in eastern Europe and the U.S.S.R. and part of Africa. World barley production increased marginally; smaller crops in

[2] For a more detailed review of the commodity situation, see *FAO commodity review and outlook 1972-1973*, Rome, 1973.

North America coincided with increases in western Europe, the U.S.S.R. and the Near East. In sharp contrast, world production of oats and rye declined by about 12 percent, with smaller harvests in North America, western Europe and the U.S.S.R. The drop in sorghum production of about 9 percent was mainly caused by drought in Latin America and the Far East; reduced output in the United States also contributed to the overall decline.

The world rice crop, at an estimated 297 million tons (paddy), fell by 4 percent, mainly due to drought in China, India and other developing countries of the Far East. The disruptive effect of war in some Far Eastern countries was another important factor. Higher yields were responsible for a substantially larger crop in Japan, despite the land diversion programme.

Total world output of pulses remained unchanged in 1972. India's production dropped again, by about 6 percent, offset by increases in other countries.

World production of the four major meats in 1972 was about 1 percent higher than in 1971. The increase was mostly confined to poultry meat, which reached a new record. Higher output of beef and veal in Latin America was largely offset by the substantial reduction in production in western Europe, particularly in the original six countries of the European Economic Community. There was a marked decline in pigmeat production in North America but total world output remained at the 1971 level. Mutton and lamb decreased by 3 percent.

The continued slow expansion of beef production was accompanied by a more rapid increase in world cattle numbers than occurred in 1971. There was a significant recovery in western Europe. Cattle numbers rose faster in North America but the strongest expansion occurred in Argentina, Australia and New Zealand. There was a significant increase also in eastern Europe. The prolonged drought in large areas of Africa, especially in the Sahelian zone, caused heavy losses in cattle populations.

The restocking of sheep flocks also contributed to the meat shortage. For the first time since 1969 world sheep numbers increased. This factor, together with drought in sheep-grazing areas in Australia and New Zealand were the main causes of the shortfall in mutton and lamb production. The 1972 wool clip remained at the level of the previous two (calendar) years.

After three years of declining output, world milk production expanded in 1972. Rates of increase were particularly high in the enlarged EEC and New Zealand, although since the end of 1972 production in Oceania has been affected by drought. World egg production continued its steady upward trend.

World output of centrifugal sugar for the third season in succession will fall short of consumption, and by the end of the 1972/73 season the world carryover is expected to decline by nearly a million tons to about 15.7 million, the lowest since 1965 and equivalent to little more than 2 months' supply. However, after remaining virtually stable for three years world production is expected to increase by about 5 percent to 76 million tons raw sugar equivalent. Cane sugar is expected to account for this increase, and main expansion will probably be in Latin America, especially Argentina, Brazil and Mexico. Production in Cuba and India is likely to recover from the low levels of 1971/72.

Output of all three main citrus fruits — oranges, lemons and grapefruit — was again expected to reach a new record in 1972/73. At a level well above 40 million tons this would be the fifth consecutive record crop. Production of oranges and tangerines in the northern hemisphere is estimated to have increased by 11 percent over the previous year. There were sharp increases in three major producing countries — the United States, Spain and Japan — where new trees came into bearing and growing conditions were favourable. World production of grapefruit was a record with a 6 percent increase in the United States, the largest producer.

World output of oils and fats reached a record level in 1972 with a 2 percent rise over 1971. The largest increases took place in developing countries, in contrast to the long-term trend. In developed countries, where both output and exports have been showing the most dynamic expansion, production increased only marginally while gross exports actually declined. In the United States, the world's largest producer and exporter, the upward trend was reversed for the first time in seven years. The exceptionally large rise in world output of coconut oil, the principal lauric oil, was almost entirely accounted for by increased production in the Philippines. New high levels were also reached in gross exports of palm oil but the expansion in world output was somewhat less than expected.

Among the soft oils, soybean oil, the most important, had the largest increase in production. World output rose by 7 percent, with the increase shared almost equally between Brazil and the United States. Groundnut oil showed some recovery. World production and gross exports of rapeseed oil rose by 2 and 5 percent, respectively, but trade in sunflowerseed oil was further reduced below the already depressed volume of 1971, despite a marginal recovery in world output. Production in the U.S.S.R., the leading producer and exporter, fell sharply for the third consecutive year. World output of olive oil reached a new peak. Fish oil production fell dramatically, following the disappearance of anchoveta off the coast of South America. Scientists at the Peruvian Sea Institute reported that if the conditions

of June 1973 continued, fishing would resume in the latter part of the year.

The 1972/73 world coffee crop was expected to be relatively good, possibly slightly smaller than the previous year but otherwise well above all crops since 1965/66. Nevertheless, it was again likely to be less than current requirements and stocks will continue to decline. For the seventh consecutive season Brazilian output was expected to fall short of demand for exports and domestic consumption. Prolonged and heavy rains in late 1972 lowered the output and quality of coffee in Paraná, the major producing state. Output in the rest of the world was likely to be slightly higher than in 1971/72. Colombia's production, after two years of poor harvests due to excessive rainfall, would be much closer to the level of previous years. Output in Africa was expected to be at about the same level as in the previous three seasons. Production has expanded in India and Indonesia but in both countries remains below the exceptional crops of 1970/71.

Cocoa bean production was about 10 percent below the world's record 1971/72 figure. Crops in west African countries have generally suffered from drought. Rains, when they came, were at the wrong time for pod formation and stimulated disease. Output in Ghana, the world's largest cocoa producer, fell by 8 percent and in Nigeria it declined for the second year in succession. Crops in Latin America were about the same, as a record main crop in Brazil was offset by a poor second (*temporão*) crop, severely damaged by prolonged drought.

World tea production reached a new record in 1972, with a 5 percent gain over 1971, which had also been a record year. Good results were obtained in India and in most African producing countries, particularly Kenya. Output was again down in Sri Lanka, by 2 percent, partly due to drought.

Tobacco output recovered slightly from the low level of 1971, mainly because of further gains in developing countries. Downward trends in developed countries were halted and although output recovered in the United States, production control measures checked a more vigorous growth. In western Europe there were notable gains in France and Yugoslavia.

World production of cotton, which expanded by almost 10 percent in 1971/72 after two years of decline, rose by another 3 percent in 1972/73 despite drought in India and China, chiefly due to a bumper crop in the United States and to further expansion in the U.S.S.R. and the Near East. Production in developing countries fell slightly from the 1971/72 peak but was still much higher than in 1966-70.

World output of jute recovered from its low 1971/72 level, increasing by about 11 percent due to significantly larger crops in Bangladesh and Thailand. Output in Bangladesh rose by more than 50 percent from the exceptionally low level of 1971/72. Higher prices were responsible for increased plantings in Thailand which resulted in a further rise in kenaf output.

The droughts in east Africa in 1971 affected the production of sisal and henequen in 1972, and plantings again declined fractionally. The largest reductions were reported in Tanzania, which also experienced serious floods late in the year. Kenya's production fell by 9 percent but Brazil, since 1971 the world's largest sisal producer, increased its output by 10 percent.

World output of natural rubber in 1972 was roughly the same as in 1971. Consumption increased more rapidly than it has done for several years, resulting in a sharp drop in stocks in importing countries. There was no change, or possibly a slight drop, in rubber production in Malaysia and Indonesia. Output in both India and Thailand was substantially larger, and it was slightly up in Brazil. It declined again in African producing countries.

Production 1973

Because of the disappointing results in 1972, the outcome of the 1973 harvests has been awaited with considerable anxiety. At the time of writing (early October) only preliminary data, based to a substantial degree on estimates, are available. These suggest that world production increased by 2 to 3 percent in 1973, compared with the slight drop in 1972 (Table 1-3). Thus production probably increased approximately in line with or slightly more than population, so that per caput production is only moderately better than in 1972. It is clear that the tight supply situation, especially for cereals, will persist for at least another season, and that it will be some time yet before stocks can again be built up to safe levels.

Production increased in both developed and developing regions in 1973. Tentative estimates for eastern Europe and the U.S.S.R. (up 3 to 4 percent) suggest that the good grain harvests in that region, and particularly in the U.S.S.R., have enabled it to overcome the setback of 1972. Unofficial estimates for China (up 2 to 3 percent) indicate that, with both rice and wheat crops expected to be larger than last year and approaching the record 1971 levels, the rise in production is close to the longer term upward trend. Among the developing regions the best results appear to be in the Far East (up 2 to 3 percent), but final performance depends on the rice crops still to be harvested. In Latin America production is estimated to have increased by only 1 to 2 percent. The drop of 2 to 3 percent in the

TABLE 1-3. – ANNUAL CHANGES IN WORLD AND REGIONAL AGRICULTURAL PRODUCTION

	1961-63 to 1970-72 (annual average)	1969 to 1970	1970 to 1971	1971 to 1972	1972 to 1973 [1]
	..... *Percent*				
Western Europe	+ 2.2	+ 2	+ 4	— 1	+1 to +2
North America	+ 1.8	— 1	+ 9	— 1	+2 to +3
Oceania	+ 2.4	— 2	+ 4	— 3	+5 to +6
DEVELOPED MARKET ECONOMIES [2]	+ 2.0	0	+ 6	— 1	+2 to +3
Latin America	+ 2.7	+ 2	+ 1	+ 1	+1 to +2
Far East [3]	+ 2.6	+ 5	0	— 3	+2 to +3
Near East [4]	+ 3.3	+ 2	+ 2	+ 7	—3 to —2
Africa [5]	+ 2.6	+ 1	+ 4	+ 1	0 to +1
DEVELOPING MARKET ECONOMIES	+ 2.7	+ 3	+ 1	0	+1 to +2
Eastern Europe and the U.S.S.R.	+ 3.4	+ 6	+ 2	0	+3 to +4
China and other Asian centrally planned countries [6]	+ 2.9	+ 5	+ 3	— 1	+2 to +3
World	+ 2.6	+ 3	+ 3	0	+2 to +3

[1] Preliminary; while these figures refer to total agricultural production, changes in food production are likely in most cases to have been of a similar order of magnitude. – [2] Including Japan, Israel and South Africa. – [3] Excluding Japan. – [4] Excluding Israel. – [5] Excluding South Africa. – [6] Democratic People's Republic of Korea, Mongolia, Democratic Republic of Viet-Nam.

Near East is not as discouraging as it may first appear, as 1973 production is compared with a year in which there was an exceptionally large increase. The most discouraging situation is in Africa, where production in 1973 may not increase by as much as 1 percent; drought was mainly responsible, not only in the Sahelian zone but in other countries of west Africa and also in east Africa. Generally excellent results in western Europe and North America and a sharp recovery in Oceania are likely to provide the world with additional supplies of grain to help meet the demand of the developing countries, but the margin of safety in food supplies still appears to be very small indeed.

Cereal production continued to dominate the agricultural scene in 1973. Although world production has recovered from the setback of 1972 and is expected to reach the record level of 1971, the supply/demand situation will continue to be very tight, and could still worsen if prospects for any of the major grain and rice crops not yet harvested were to deteriorate. Present prospects are for a record wheat crop in the United States of 47 million tons, up 12 percent from the previous year, and an estimated 16.5 million tons in Canada, 14 percent higher than in 1972. Production is also expected to increase sharply in Australia, but to decline slightly in EEC countries. In Argentina, output will be reduced because of unfavourable weather during the sowing period.

In spite of the better crops, it is forecast that total exportable supplies of wheat for the 1973/74 season will be substantially smaller than in the previous year. Based on present crop prospects and foreseeable domestic demand, as well as on the expectation that exporters will again substantially reduce carryover stocks, the International Wheat Council forecast issued on 19 September 1973 foresees exportable supplies for 1973/74 as ranging from 59 to 62 million tons, compared to actual exports in 1972/73 of 69 million tons. Import requirements are now expected to range from 62 to 65 million tons; the lower figure assumes that the U.S.S.R. will make no further purchases for delivery this season, and that some developing countries will cut imports below requirements because of high prices and insufficient credit facilities.

The further tightening in the wheat supply/demand situation in the 1973/74 season is evident from recent movements in world market prices. On 29 June 1973 the export price of U.S. No. 2 Dark Northern Spring, 14 percent f.o.b. Gulf, was $109.13 per ton; U.S. No. 2 Hard Red Winter, Ordinary, f.o.b. Gulf, $103.14 per ton; and Canadian No. 1 CWRS, 14 percent, f.o.b. St. Lawrence, US$128.82 per ton. These prices were 71, 72 and 83 percent respectively higher than on 1 July 1972. Between 29 June 1973 and 24 August 1973 they rose a further 72, 90 and 67 percent respectively, so that at their 24 August levels they were approximately 200 percent more than on 1 July 1972. They remained high in September.

The situation for coarse grains will continue to be tight as import demand will probably remain high and may rise to new record levels. World production is likely to increase, with larger crops in North America, western Europe, the U.S.S.R. and China, as well as in parts of Latin America, more than offsetting prospective declines in Africa and the Near East. However, with rising consumption in exporting and importing countries, some further decline in carryover stocks seems likely if current demand is to be met, in spite of the larger production. On the basis of present production forecasts, total exportable supplies of coarse grains in all countries other than the United States will be only slightly larger than in the previous season. For the United States, the major exporter, an increase in exports above the high level of 1972 will be possible if stocks are drawn down still further. Since the size of United States stocks would allow some further reduction, it should be possible to meet import requirements providing that current crop expectations materialize in exporting countries, especially in the

United States, where September estimates indicate a record maize crop, 4 percent higher than in the previous year. However, the balance between supply and demand remains precarious.

There is a severe shortage of rice in several of the main consuming countries, especially in the Far East. Rice stocks have fallen to a dangerously low level in a number of countries and international trade is virtually at a standstill. Rationing has been introduced in some countries and prices for the small quantities still being traded have risen well above the previous high levels recorded during the 1967/68 shortage. The very tight supply situation on the world market has been reflected in rising domestic prices in exporting countries, thus leading to a widening of export restrictions. Exporting countries that have already introduced restrictions include Brazil, Burma, the Khmer Republic, Nepal and Thailand, while they have also been introduced by the European Economic Community and, on reexports, by Singapore. Although the monsoon has so far been satisfactory in many countries of the Far East, paddy crops were damaged by floods during August in Bangladesh, India and Pakistan. Damage appears to have been most serious in Pakistan, which has recently emerged as one of the largest rice exporters. The United States rice crop is good but export supplies in 1973/74 may be only moderately larger than in 1972/73 owing to depleted stocks.

World meat production is likely to show only a small rise in 1973, reflecting the unfavourable effect on production in western Europe and North America of developments in the feedgrain and protein supplement markets. Preliminary estimates indicate moderate increases in poultry and pigmeat production in western Europe, but in North America output will remain below the 1972 volume. With record cattle inventories, production of beef and veal is expected to be higher than in 1972 in both regions because of heavy slaughterings during the second half of the year, but the increase in North America may be small. Production cutbacks in the pig and poultry sectors and changes in feeding and marketing plans for cattle, in the face of exceptionally high feed costs and uncertain market prospects, have been the apparent causes restraining meat production. In Oceania, cattle production is continuing to expand but little change is expected in mutton and lamb supplies. In the major Latin American producers, beef output is expected to remain at the high levels of the previous year. The considerable expansion in livestock numbers since 1970 in eastern Europe and the U.S.S.R. is likely to ensure higher meat output in 1973.

Prices of all kinds of meat continued to rise well into 1973, but they tended to level off around the middle of the year under the impact of government stabilization measures and growing consumer resistance to higher meat prices. Cattle prices in particular came under pressure in western Europe following the seasonal upturn in slaughterings at the end of the summer. Price declines in the European Economic Community were sufficient to lead to the reimposition of customs duties on imported live slaughter cattle and beef. In North America, the expected sharp increase in autumn cattle marketing is likely to result in similar pressures. It is not likely, however, that major declines will occur in meat prices in the short run.

Western Europe

Agricultural production in 1973 is expected to increase by 1 to 2 percent above the 1972 level. At about 131 million tons grain production will be equal to the level of the last two years. The wheat crop (some 50 million tons) is slightly less, mainly because of smaller area, but a larger area of other cereals will make up the difference. The Federal Republic of Germany expects a cereal crop of 21 million tons, which would equal the 1971 record. In France provisional estimates are for a total of 29 million tons, including an exceptional maize crop of 10 million tons. A record cereal crop (slightly above 15 million tons) has been harvested for the second year running in the United Kingdom. Poor weather in Italy reduced the soft wheat crop by about 15 percent and hard wheat by about 20 percent but the maize and rice crops are likely to be good. In Denmark the total area planted to cereals has slightly decreased.

Sugar crops will be larger than normal, as the area planted to sugar beet has risen by 6 percent in the region as a whole (7 percent in the enlarged European Economic Community). Production estimates suggest an increase of 10 percent in EEC (29 percent in the United Kingdom, 10 percent in France and 9 percent in the Federal Republic of Germany), with an overall increase of 9 percent for the region.

Fruit production in the original six countries of EEC should be about 13.6 million tons, compared with 13 million in 1972, but still below the average level of the last five years.

Livestock production has risen slightly. The number of milk cows increased in all EEC countries and some other countries of the region, with the largest increases in Ireland (8 percent), the Netherlands (5 percent) and Denmark and the United Kingdom (4 percent). Milk production will be higher, but the expansion could slow down in the latter part of 1973 owing to high prices of feed and government measures to discourage increased production. Butter production will increase faster than that of milk

and, in spite of the various measures to stimulate consumption, stocks in the enlarged Community are likely to be higher at the end of 1973 than they were a year earlier. Cheese production has increased less rapidly and in the first seven months of 1973 had risen by only 1 to 2 percent. Beef output is likely to increase only slightly in 1973 but moderate expansion is expected in poultry and pigmeat production.

Eastern Europe and the U.S.S.R.

Indications are that 1973 has been a favourable year for the agricultural sector of the region as a whole. The U.S.S.R. is certain to obtain much better production results than last year. Crop output in particular seems to have recovered well from the heavy 1972 setback, but the animal sector is also likely to register satisfactory progress. In eastern Europe, where generally very good results were obtained in 1972, the majority of countries expect further moderate increases in production. Weather conditions in the region were generally satisfactory.

Grain crops are reported as good or very good in practically all countries of the region. The U.S.S.R., with almost 128 million hectares under grains (6 percent more than in 1972), reported good harvests or harvest prospects in the Ukraine, in the areas situated along the Volga river, in Siberia and Kazakhstan. On the other hand, in some parts of the European U.S.S.R. crops were rather seriously affected by heavy summer rains. It now appears that the ambitious 1973 plan target of 197.4 million tons will not be reached. Estimates from various sources suggest a reasonably good U.S.S.R. grain harvest of some 180-185 million tons.

Harvests of grains in Czechoslovakia and Poland are provisionally estimated at slightly over 9 million tons and at 21 million tons respectively, which in both cases would represent records. Excellent wheat crops and good maize crops were reported in Bulgaria and Hungary. The wheat harvest in Romania was very satisfactory, but maize output may not reach the 1972 record.

Output of potatoes in the U.S.S.R., Czechoslovakia and Romania is expected to be above average, whereas the main eastern European producer, Poland, expects only an average crop. Sugar-beet output in the U.S.S.R. is likely to set a new record; in eastern Europe it will be smaller than last year, but many countries report a higher sugar content. Vegetable and fruit crops are estimated as good in the U.S.S.R., whereas in eastern Europe the situation has varied from country to country.

Information on developments in the livestock sector is sketchy and limited to the first half of 1973, but for countries for which it is available it appears encouraging. At the beginning of July, the cattle population in the U.S.S.R. was about 2 percent above that of a year earlier, while sheep, goat and poultry numbers all increased by more than 3 percent. During the first six months of the year (compared with the corresponding period of 1972) milk production increased by 6 percent, eggs by 13 percent, beef by 5 percent, mutton by 10 percent and poultry meat by 14 percent. Output of pork decreased.

Poland, which in 1972 obtained better results in the animal sector than any country in the region, expects further increases for most animal products in 1973. During the first six months of 1973 deliveries of beef rose by 8.5 percent, of pork by 11.4 percent and of eggs by 6.4 percent. In contrast, those of veal declined sharply.

Total animal production in the German Democratic Republic expanded by about 6 percent in the first six months of 1973 and in Czechoslovakia by a somewhat smaller percentage. Judging by the volume of purchases there was only a small increase in total output in Bulgaria. In Hungary a favourable trend in cattle population was registered in the first half of the year.

North America

Preliminary estimates indicate that agricultural production in North America exceeded the 1972 level by about 2 percent and was at the record level of 1971. The increase was accounted for almost entirely by grains and oilseeds, as the anticipated expansion in livestock production, especially of meat, failed to materialize. The larger harvests were the result of increased areas rather than of higher average yields.

The region's wheat harvest, estimated at a record 63.5 million tons, was 12 percent larger than in 1972 and 5 percent above the previous record crop in 1968. The wheat area was increased by an estimated 16 percent in Canada and 14 percent in the United States, but average yields were slightly below 1972 in both countries. The Canadian harvest is estimated as 13 percent larger than in 1971 and 1972, but about 6 percent below the 1967-69 average, whereas the United States harvest, 12 percent higher than in 1972, is 14 percent above the 1967-69 average. The United States rice harvest, as a result of increased area which more than offset a small reduction in average yields, is calculated as 15 percent larger than in 1972 and second only to the record crop of 1968.

North America's total production of feedgrains in 1973 is about 5 percent larger than in 1972, and close to the record level of 1971. In Canada, there was an 11 percent increase in oats production, and

a 7 percent reduction in the barley crop, apparently the result of land being shifted to wheat production. The United States maize harvest is forecast as 4 percent larger than in 1972 and about 2 percent above the previous record crop of 1971. The increase in area (7 percent) was somewhat less than the Government had indicated as desirable, partly because of spring floods and partly as a result of the very favourable outlook for soybean prices. Grain sorghum production is forecast as 19 percent over 1972, almost entirely as a result of larger area.

Oilseed production in North America increased sharply in 1973. The United States soybean crop, which accounted for most of the increase, is estimated at 43.5 million tons (25 percent over 1972) as a result of a 23 percent increase in area and a 2 percent increase in average yields. Flaxseed production was also larger in both countries, but cottonseed output in the United States and rapeseed output in Canada were below 1972 levels.

In the United States, the 1973 cotton harvest is estimated to be about 6 percent below 1972, mainly as a result of spring flooding in the Mississippi delta. The sugar-beet crop is estimated as 13 percent below 1972 because of smaller area and lower yields. The surgarcane harvest, however, is larger than in 1972, as increased area more than offset a reduction in average yields.

In contrast to the record level of total crop production, preliminary estimates indicate that total livestock production in North America was unexpectedly lower in 1973 — perhaps 3 to 5 percent below 1972 levels. Higher feed prices, uncertainties about feed supplies, and United States Government price control operations appear to have contributed to the failure of the expected increase in meat production to materialize. For the first half of 1973, United States beef and pork production levels are reported as 5 and 6 percent respectively below those of 1972, although during the second half of the year production may approach 1972 levels. Milk production has also fallen short of 1972 output in both countries; high feed prices and a strong market for slaughter cows are reported to have kept the culling of dairy herds at a high rate.

Oceania

Early indicators suggest that Australia's 1973 grain harvest will show a sharp recovery from the drought-stricken level of 1972. With stocks depleted and continued strong export demand, the area planted to wheat (for harvest in late 1973 and early 1974) is reported to be 20 percent larger. With normal growing conditions, a harvest of about 11 million tons (some two thirds larger than the 1972 crop) is anticipated. The area planted to oats is up by almost 50 percent and, if growing conditions allow, the harvest will be more than double that of 1972. Although the area planted to barley is reported to be smaller, with normal growing conditions the crop should be about 30 percent larger. Harvests of grain sorghum and maize were seriously reduced by drought. The rice harvest was almost 30 percent above the 1972 level, mainly as the result of increased area.

New Zealand's 1973 grain production was lower (wheat by 6 percent, barley by 17 percent, oats by 13 percent and maize by 11 percent), principally because of smaller areas, although average yields were also generally lower because of drought. Preliminary reports suggest further reductions in the areas planted for the 1974 grain harvest.

Cattle production continues to expand in Australia and New Zealand, but mutton and lamb supplies are likely to show little if any change.

Latin America

Preliminary estimates for 1973 suggest an increase of 1 to 2 percent in regional output. Wheat harvests may be marginally lower than in 1972 but other grain crops and soybean and livestock production are expected to be higher. The Argentine wheat crop will be reduced because of unfavourable weather during the sowing period, but production of most other grains is likely to be increased. Despite flood damage in central and northeast Mexico the wheat and maize crops are expected to be higher. Brazil's wheat crop, although greater than in 1972, will be less than the 1971 level of 2 million tons, as a significant amount of wheat land has been planted to soybeans. At current prices soybeans generally offer greater profit and less risk. Soybean production continues to make notable increases in Argentina and Colombia. Regional production of maize, rice, coarse grains and soybeans are all reported to be above 1972 levels.

Sugar production in the region increased in 1973. Output in Cuba, at about 5.4 million tons, while higher than in 1972 was at the second lowest level since 1959. Increases in sugar production were reported in Argentina (over 14 percent), in Brazil (7 percent), and in Colombia (4 percent).

Brazil's coffee crop is likely to be lower than in 1972, but better crops are anticipated in Colombia, El Salvador, Guatemala and Mexico. A record tobacco crop is expected in Ecuador. The region's cocoa production is likely to be down; in Brazil it may be as much as 10 percent lower. Regional results for cotton promise to be good, growers having been encouraged by attractive prices. Argentina's

cotton crop is reported to be about 40 percent larger, Paraguay's is a record and increases are expected in Colombia and Mexico, but production is likely to be down in Brazil.

Citrus fruit production is expected to be higher than in 1972. The deciduous fruit crop will undoubtedly be less as Argentina, a large producer, suffered both frost and hail damage during the year.

Livestock production appears to have made only slight gains, but final results may be at or below the 1972 level. Slightly higher production is likely in Brazil, Mexico, Paraguay and Uruguay, and possibly in Argentina. The downward trend in Uruguay's wool production has continued, with a decline of about 2 percent to a level some 25 percent below the 1965-70 average.

In Peru the serious anchoveta shortage continues. The 1973 catch is not likely to exceed 3 million tons, compared with a normal catch of some 10 million tons. The resulting shortage and high prices of fish meal and fish oil will continue to be an important factor affecting the prices of soybeans and soybean products in the world market.

Far East

Following two years of little progress in agricultural production, an improvement in the precarious food situation in the Far East during 1973 is particularly dependent on the performance of the main crops, especially rice, to be harvested in the latter part of the year. Preliminary indications suggest that total agricultural output may increase by 2 to 3 percent. Weather conditions have favoured production, with timely and steady monsoon rains reported in many countries, although floods during August caused some damage in Bangladesh, India (mainly in the north and east) and, particularly, Pakistan, where considerable areas under rice and cotton were seriously affected. Shortages of fertilizers were also reported in some countries, including India. Military activities continued to hinder output in others. In spite of the expected increase in regional production, food shortages could develop in certain countries before the main harvests at the end of the year, particularly because of the very tight supply situation on the world market.

In India the monsoon was satisfactory, with good rains also in those states where very dry conditions had existed. However, the country's target for the production of foodgrains for 1973/74 was adjusted to 115 million tons, partly because of inadequate supplies of such essential inputs as high-yielding seeds, fertilizers and pesticides. To augment food supplies for distribution through fair-price shops, imports of about 6.5 million tons are planned for the fiscal year ending March 1974, but in view of high world prices purchases were temporarily suspended after some 4 million tons had been bought. A loan of 2 million tons of foodgrains was extended by the U.S.S.R. in September.

Normal or above normal rains favoured production in most other countries of the region, and the output of rice may also be expected to increase in response to production incentive policies. In Thailand, the principal exporter, it is expected that the main crop to be harvested at the end of 1973 and the beginning of 1974 may reach the 1971 record. Higher prices have encouraged farmers to practise double-cropping where irrigation facilities are available. In Burma, the official purchase price was raised by 19 percent in an effort to increase procurement. Among the importing countries, in Indonesia rice output is expected to increase, partly as a result of expanded area but also because of greater use of high-yielding varieties and an improved fertilizer supply situation; the procurement price for rice has also been increased substantially. The main rice crop in Bangladesh is likely to recover from the low 1972 level, but import requirements remain high. Output in Malaysia and Nepal has also increased. In the Philippines, with improved weather and no large-scale outbreak of disease, rice production is likely to increase; current shortages are the result of two successive poor crops, affected by particularly bad weather. In Sri Lanka increases in procurement prices were announced to encourage domestic production, but plantings have been affected by continued drought.

China

Despite drought in the north in early 1973, a good grain harvest is expected. Prospects are that this year's crops will recover to the estimated 1971 record of 250 million tons (including pulses and potatoes converted at a 4:1 grain equivalent). This would be some 10 million tons higher than the drought-affected 1972 crop. Wheat production would be several million tons higher as the area planted to winter wheat was increased in several important regions. Early yields of grain are reported to be at the 1972 level, but the good prospects for the total grain crop are based on the harvest from spring sowings, reported to be in excellent condition.

Japan

Japan's total grain production is reported to have been lower again in 1973. The rice harvest is estimated to be slightly higher than in 1972, although the rice land diversion programme continued in effect. A further sharp reduction in the wheat area

was partially offset by higher yields; production is estimated at only 200 000 tons, 30 percent below 1972. The feedgrain area also was again sharply reduced, and harvests of barley and oats are estimated to have been lower by about 30 and 20 percent, respectively. Total meat production during the first half of the year is reported to have exceeded the 1972 level by about 4 percent, as increased production of pork (4 percent) and poultry meat (13 percent) more than offset a 16 percent reduction in beef production. The rate of increase during the latter half of the year may be somewhat lower, however, because of feed prices and availabilities. Total milk production is expected to be about the same as in 1972.

Near East

Provisional figures indicate a probable drop of 2 to 3 percent in total production in 1973, following the record cereal crops of 1972. Periods of drought affected both crop and livestock production in several countries. The hardest hit were Iraq, Jordan, the Libyan Arab Republic and the Syrian Arab Republic, as well as parts of the Sudan and Turkey. Good harvests were obtained from irrigated crops. Wheat production, most of which is unirrigated, is expected to fall by more than 60 percent in Iraq, by 55 percent in Jordan, by almost 65 percent in the Syrian Arab Republic, and by some 15 percent in Turkey. Many field crops have been affected by the dry weather, particularly barley and other nonirrigated coarse grains. However, the wheat crop in Afghanistan is expected to be good and Iran's harvest should exceed that of 1972. In Egypt and the Libyan Arab Republic wheat is expected to be at or above last year's levels and irrigated crops to remain unchanged. Some countries, such as Afghanistan, Cyprus, Saudi Arabia, the People's Democratic Republic of Yemen and the Yemen Arab Republic, have had some breaks in the dry conditions that have lasted several years, but they afforded only partial relief. In Cyprus, for example, rainfall has been less than half the normal amount and imports of foodgrains will have to be doubled this year. In southern Turkey extremely low yields are reported for wheat and other cereals, cotton, vegetables and fruit. Crop prospects in the Sudan were improved by good rainfall and favourable planting conditions in July.

Livestock production is likely to fall because of the poor condition of pastures, despite the increased attention given to livestock improvement in most countries of the Near East. However, these efforts should begin to show results, especially in Iraq, for poultry and egg production, and also for sheep and cattle. No gain is likely in livestock production in Turkey since the drop in output from drought-stricken areas roughly balanced gains in areas where conditions were more favourable.

Africa

The outlook for agricultural production in Africa in 1973 is not favourable. Following a year when there was little expansion in production, difficult food supply conditions could arise in many countries. Although information for 1973 is scarce, preliminary indications suggest that regional production may show little if any increase. Among the countries of the Sahelian zone production continues to suffer the after-effects of the severe drought of 1972. Crop production is lagging, while livestock resources, a major source of livelihood, have suffered enormous losses. In Chad, scanty and unevenly distributed rainfall in the central and northern regions has again adversely affected production and damaged grazing conditions, but in Mali the situation has improved, after a prolonged dry period with only erratic rainfall. In Mauritania, rains were delayed or lacking over most of the country, resulting in late sowing of the main foodgrain crops. In Niger, some areas continued to suffer from delayed rainfall. While prospects for food crop production were encouraging in the south of Senegal, in the north the outlook remained uncertain. Only in Upper Volta was the situation clearly more satisfactory; rainfall was above average and regularly distributed, favouring normal crop growth.

Elsewhere in Africa drought has adversely affected 1973 production prospects. A number of west African countries other than those particularly affected in the Sahelian zone have also experienced below-average rainfall. These include Cameroon, the Gambia, parts of Ivory Coast, northern Nigeria and Togo. The northern states of Nigeria, affected by what was reportedly the worst drought in years, were declared disaster areas by the Government, and a large-scale food crop production programme was initiated in these states; subsequent rains in certain areas somewhat improved production prospects. Earlier fears of poor harvests in Dahomey and Ghana were dispelled with the onset of the rains and a considerable improvement in overall crop conditions. East African countries where the outlook appears less favourable than last year include Ethiopia (due to severe drought), Kenya, Rwanda, Tanzania and Uganda. In Madagascar the crop situation improved and was generally satisfactory, even in the southern region threatened earlier by drought and crop failure. In northwest Africa, production is likely to decline from last year's levels when large cereal crops were harvested. In southern Africa, drought severely affected Botswana, where food crops and pasture conditions are reported to be very poor.

International trade in agricultural products

During 1972 the value of world trade in agricultural, fishery and forest products rose by 14 percent, compared with a 5 percent increase in 1971.[3] Growth in the value of agricultural exports accounted for most of the increase, although earnings from both fishery and forestry exports expanded rapidly (both by 13 percent). The value of world exports of major agricultural commodities [4] rose by about 15 percent, more than double the rate of 1971, and three times the average growth during the 1960s. Not since the trade boom of 1951, during the Korean war, has the annual rate of increase been so large.

Much of the increased value of agricultural trade was the result of price rises, which for many commodities were among the steepest in recent years, reflecting supply shortages and depleted stocks. The substantial but fluctuating expansion of world agricultural exports during the past four years, and the deliberate policies pursued by governments to secure an adjustment of supply and demand in major commodity markets, appeared to have gradually transformed many of these markets, by 1972, from a situation of chronic supply surpluses, burdensome stocks and depressed prices into one of supply deficits, depleted inventories and record price levels which continued to soar in the first months of 1973. Prices of food commodities rose rapidly, but there were even sharper increases for agricultural raw materials. Increases in the volume of exports of most commodities also contributed to higher earnings.

The high rate of inflation in 1972, particularly in developed countries, eroded the real value of agricultural export earnings. The currency revaluations relative to the United States dollar also appear to have adversely affected the terms of trade and import capacity of many developing countries. Although difficult to measure, the effect of the realignment of currencies depends on the interplay of the changes in exchange rates, the associated movements in export and import prices in terms of national currencies, and the character of and shifts in trade patterns of individual countries.

The net effect of exchange rate uncertainties is not clear, even on short-term price movements. However, it seems evident that the lagged and more permanent adjustment in prices, that would be attributable directly to the Smithsonian realignment, to the floating of sterling and to the United States dollar devaluation in February and associated measures in March 1973, is not the main factor in the general increase in price levels experienced in 1972 and early 1973.

Formal and informal international arrangements for the stabilization of commodity export prices and supplies continued to operate with varying degrees of success during 1972.[5] An international cocoa agreement, covering a period of three years, was adopted in October 1972 by the United Nations Cocoa Conference with the primary objective of preventing excessive price fluctuations which adversely affect the interests of both producers and consumers, and to promote the orderly marketing of cocoa. The wide divergences among members of the International Coffee Council, however, resulted in the abandonment of export quotas for 1972/73, the last year of the present agreement, which in early 1973 was extended in a drastically modified form until September 1975 to provide a forum for renegotiation of the agreement. To stabilize the earnings of associate member countries, EEC advanced new proposals in early 1973 consisting of a guarantee of credit equal to the difference between the actual value of exports to EEC of given products and previously agreed reference values.

Export earnings

The large increase in the value of world agricultural trade reflected a sharp expansion in the earnings of both developed and developing countries, by about 19 and 12 percent respectively. However, exports of centrally planned countries declined by 3 percent, mainly as a result of the shortfall in production in the U.S.S.R. which also led to expanded imports of selected agricultural commodities, particularly wheat and coarse grains.

As a result of accelerated inflation the increase in the real value of agricultural exports in 1972 was only about half the increase at current prices. World export unit values of all commodities, including industrial commodities, rose by almost 8 per cent compared with average annual increases of only about 2 percent from 1963 to 1971. Therefore the additional purchasing power of agricultural exports for the world as a whole increased by only about 7 percent.

Part of the 8 percent increase in average world export unit values reflects the revaluation of world currencies in terms of United States dollars. For

[3] In current prices, based on preliminary estimates.
[4] Excluding most processed commodities and wool, hides and skins, for which data were not available as of 1 June 1973.
[5] International action affecting commodity markets is reported in detail in *FAO commodity review and outlook 1972-1973*, Rome, 1973.

agricultural trade the overall revaluation was probably only about 2 percent, since a substantial portion of agricultural exports originate in countries whose currencies were not revalued significantly in relation to the United States dollar. For many individual countries the revaluation of currencies appears to have adversely affected their terms of trade and import capacity, but the full effects of the changes of 1972 and early 1973 must still work themselves out. For 1972, however, the average unit value of imports of all developing countries increased by only 3.5 percent, whereas the greater part of the 11 percent increase in the value of their agricultural exports came from price rises. The United Nations Conference on Trade and Development index of market prices of principal commodity exports of developing countries rose by 9.7 percent in 1972.

A major share of the increased export earnings accrued to developed countries, as in other years of trade expansion, raising their share in world agricultural trade from about 59 percent in 1971 to 61 percent in 1972. In spite of the notable advance registered by the developing countries in 1972 compared with virtually no increase the previous year, their share in world agricultural trade again declined, although marginally, to less than 32 percent, confirming the disturbing longer term trend. Over the past decade total agricultural exports from developed countries expanded at twice the rate achieved by developing countries, whose economic dependence on such exports is of course much greater (Table 1-4). Among the developing regions, growth has been slowest in the Far East, where again in 1972 export earnings increased only slightly as a result of lower prices for certain commodities (such as jute, tea, pepper, coconut oil and palm oil) which are largely exported from this region.

Had developing countries maintained up to 1967-1969 the share of world agricultural exports they held in the early 1960s, the gross benefit, additional to their actual earnings growth of US$2 200 million per year, would have amounted to $1 400 million per year as a result of larger exports to developed and centrally planned countries. Most of this hypothetical growth would have arisen from increased exports of processed agricultural products. Analysis of the pattern of trade among economic classes indicates that the largest single flow in world agricultural trade during the 1960s was that among developed countries, which accounted for 45 percent of the world total.[6] This trade rose by almost 5.5 percent annually against a rate of slightly more than 4 percent for the world total. Exports from developing to developed countries amounted to about 20 percent of world trade, but increased at only about 2 percent annually. More rapid growth took place in their exports to other developing countries (3.8 percent) and to centrally planned countries (4.3 percent), but these flows account for only about 20 and 10 percent respectively of developing countries' exports. If the exports of the developing countries are to grow at rates compatible with targets for the Second United Nations Development Decade, agricultural adjustment is required in both developed and centrally planned countries to improve market access and to assist developing countries in increasing their share of the market for competing products (those grown in both developed and developing countries) which account for 80 percent of world agricultural trade.[7] The negotiations to be held within the framework of the General Agreement on Tariffs and Trade in September 1973 will provide an opportunity for international agricultural adjustment with a view to far greater harmonization of patterns of world trade and production than hitherto.

Commodities which contributed most to the increase of $5 700 million in world agricultural earnings in 1972 mainly originated in developed countries,

TABLE 1-4. – AGRICULTURAL EXPORTS BY REGION, 1959-61 AND 1967-69

	Growth in value of agricultural exports 1959-61 to 1967-69	Share of world agricultural exports	
		1959-61	1967-69
	Percent per year	..... *Percent*	
DEVELOPING REGIONS	2.8	37	32
Africa [1]	2.3	9	8
Latin America	4.0	13	12
Near East [2]	8.5	1	1
Far East	1.4	14	11
DEVELOPED REGIONS	5.7	52	57
North America	4.3	19	19
Western Europe	7.2	24	30
Oceania	3.4	7	6
Other developed countries [3]	6.0	2	2
CENTRALLY PLANNED REGIONS	4.8	11	11
Eastern Europe and U.S.S.R.	5.8	8	9
Asian centrally planned countries	1.1	3	2
World	4.6	100	100

Based on United Nations *Handbook of international trade and development statistics*. New York, 1972.

[1] Including Egypt, the Libyan Arab Republic and the Sudan. – [2] Including Israel. – [3] Japan and South Africa.

[6] See *FAO commodity review and outlook 1972-1973*. Chapter 1. Rome, 1973.

[7] See FAO. *Agricultural adjustment in developed countries*. Rome, 1972.

where the value of agricultural exports increased by about $4 200 million. The grains-feed-livestock sector accounted for 70 percent of the increase, grains alone representing some 40 percent.

Mainly as a result of massive purchases of wheat by the U.S.S.R., beginning in the second half of 1972, the value of wheat exports from developed countries expanded by 25 percent. The value of coarse grain exports increased by 38 percent, due to both higher prices and expanded volume. Export earnings from oil cakes and meals grew by 30 percent while the value of meat exports, accounting for 20 percent of the rise in total value, increased by more than 20 percent, mainly because of higher prices. Among the other commodities which contributed to the rise were dairy products (especially cheese), sugar, wine and tobacco.

More than 80 percent of the increase of $1 700 million in the value of agricultural exports from developing countries came from meat (practically all beef and veal), sugar, tropical beverages (mainly coffee, but also cocoa and tea) and tobacco. Agricultural raw materials, which account for more than 20 percent of the value of agricultural exports from developing countries, contributed only a small share of the increase in 1972. The dramatic upturn in prices which occurred in 1972 took place in most instances in the last quarter of the year and the early months of 1973, and therefore the impact on export earnings will be felt more in 1973. Higher average prices in 1972 were accompanied by an expansion in the volume of exports of cotton, hard fibres, and jute and allied fibres. However, earnings from rubber dropped for the third consecutive year as a result of the lower prices that prevailed for most of the year.

International prices

During 1972 rapid price increases were registered for many agricultural commodities, and the advance in export prices was among the steepest in recent years. The United Nations index of export prices of agricultural commodities rose by 12.5 percent in 1972 — the highest yearly increase for a decade — compared with 5 percent in 1971. Food prices registered a 12 percent increase, while those for nonfood agricultural commodities rose by 14 percent.

For certain commodities, such as foodgrains, meat and sugar, the main cause of higher prices was the inability to expand supplies, in the short term, to meet additional import demands for consumption and stock building. The unusual combination of events which caused shortfalls in wheat and rice production led to sharp price increases. Export quotations for United States wheat climbed to $110 a ton in January 1973, compared with $60 in July 1972, while the FAO rice export price index rose by 33 percent during 1972. Prices of coarse grains rose steeply toward the end of 1972, not only because of a moderate fall in world production and the continuing growth in consumption, but also because of shortages of other food (mainly rice) and feed crops. The continued strong demand for meat, together with a shortfall in red meat production in the major importing areas, resulted in very sharp price increases for all meats, especially in the second half of 1972. The growing shortage of overall supplies of sugar, and uncertainties as to the quantities available and required in the free market sector, led to a 60 percent price rise in 1972.

Cocoa prices rose gradually during 1972 due to increased consumption in importing countries and a smaller supply surplus; they continued to rise in 1973 as a result of a forecast supply deficit following a drop in 1972/73 production. Coffee prices also rose sharply but tea prices continued to decline, reflecting record output and slow growing demand.

For three commodities, tea, bananas and citrus fruit, prices were at the low 1960-65 level.

Prices of virtually all the principal agricultural raw materials were extremely high for part or all of 1972, following the recovery of economic activity in industrialized countries. Although the tight supply situation led to short-term gains in export earnings for many developing countries, in the longer term prospects may be damaged by protracted periods of high prices because of competition from synthetic substitutes. High prices made some natural products (cotton, wool, jute, sisal) directly uncompetitive with these substitutes while for others (rubber, hides and skins) longer term competitive advantages were reduced. Although widely varying factors are responsible for constraints in supplies, including shifts to more remunerative food and feed crop production, there is little doubt that the failure of developing countries to expand production sufficiently has been a main cause of often uncompetitive prices and the growing share of synthetics in total markets.

There is little evidence for attributing the widespread price increases in agricultural commodities during 1972 to speculative activity associated with the currency realignments in December 1971, although the disturbed monetary situation later prevailing played a part in the increases for certain commodities in 1973. For 1972, however, analyses of price movements of storable commodities and available data on monthly stock movements in individual countries indicate that currency uncertainties exercised no systematic effect on prices. At the same time, accelerated rates of general inflation were more a reflection than a cause of rises in international commodity prices. Even for meat, where "demand-pull" infla-

tion, associated with rising cash incomes and a high income elasticity of demand, had some effect, the increase in prices was basically the result of the prevailing downward phase in the production cycle.

Agricultural imports

The increase in the rate of growth of agricultural imports in 1972 reflected shortfalls in output of certain important food commodities in major consuming countries, as well as economic recovery in many industrialized countries. The massive purchases in world markets of grains, soybeans and sugar by the U.S.S.R., and of agricultural raw materials by China and Japan toward the end of 1972, raised import demand for these commodities to unusually high levels. The acceleration of industrial activity, leading to rising levels of employment, high consumer demand and growing inflation stimulated import demand not only for raw materials but also for foods such as meat and fish.

The high demand in 1972 related almost equally to food, feed and raw materials. Higher prices for most food and feed commodities caused the value of imports to grow much faster than the volume, and for agricultural raw materials the higher prices recorded in the latter part of 1972 also sharply increased import costs, although the full effects of these increases were felt in 1973.

Most of the growth in the volume of world imports took place in high-income countries (Table 1-5). Agricultural imports of developed and centrally planned countries increased by about 7 and 11 percent respectively. In contrast, those of developing countries grew by less than 1 percent. As a result of tight supply conditions, expenditures for imports rose by almost 16 percent in developed countries. The unit values of both imported food and raw materials (excluding fish and forestry products) were about 9 percent higher than in 1971. The price of imported meat alone increased by 15 percent. In the centrally planned countries, the more than 10 percent growth in the value of imports resulted from a large increase in volume, reflecting mainly the massive purchases of wheat and coarse grains made by the U.S.S.R. at earlier low prices. On the other hand, the small increase in the agricultural import bill of the developing countries was caused principally by higher prices. Food imports rose by only 1 percent in terms of volume, but the cost was more than 4 percent greater.

In western Europe, the volume of agricultural imports rose by 6 percent, but their value was more than 17 percent higher. The increased volume reflected mostly larger imports of food, but feed and raw materials also contributed to the expansion. Cereal imports declined by 2 percent as a result of a 4 percent reduction in coarse grains imports, mainly barley, only partially offset by a small increase in wheat imports. Imports of meat and meat products rose sharply, by 14 percent, while expenditures rose by 35 percent because of higher prices on the world market. Beef imports alone increased by almost 25 percent, and by 50 percent in value terms. The increase extended to practically all countries of the region, but was particularly great in the EEC countries except for Italy, where imports declined slightly from the relatively high level of the previous year. Imports of pork rose by 30 percent, and increased 45 percent in value. The largest increases took place in the Federal Republic of Germany and Italy. Poultry meat imports were 10 percent greater and showed a 20 percent increase in value. Among the other food commodities, dairy products showed little change from 1971, with butter imports declining slightly and cheese imports growing marginally. However, the value of dairy and egg imports was 15 percent greater than in 1971. Fruit imports rose by 10 percent in volume and 15 percent in value. Increases were registered for apples, bananas and citrus fruit, but imports of fresh grapes were lower. Consignments of vegetables were 14 percent greater. Imports of tropical beverages grew by 6 percent, reflecting mainly

TABLE 1-5. – INDICES OF THE VOLUME OF AGRICULTURAL IMPORTS, BY REGION

	1968	1969	1970	1971	1972 [1]	Change 1971 to 1972
	... *1961-65 average = 100* ...					*Percent*
Western Europe	111	116	121	124	132	+ 6
North America	117	111	115	117	124	+ 6
Oceania	101	107	111	114	118	+ 4
ALL DEVELOPED REGIONS [2]	115	119	124	127	135	+ 7
Latin America	122	123	127	136	151	+ 11
Far East [3]	125	122	126	125	128	+ 3
Near East [4]	119	114	134	162	138	— 15
Africa [5]	113	109	125	133	134	+ 1
ALL DEVELOPING REGIONS	121	119	127	135	136	+ 1
Eastern Europe and U.S.S.R.	103	104	126	129	143	+ 11
China and other Asian centrally planned countries	115	110	139	133	147	+ 10
World	115	116	124	128	136	+ 6

[1] Preliminary. – [2] Including Israel, Japan and South Africa. – [3] Excluding Japan, and China and other Asian centrally planned countries. – [4] Excluding Israel. – [5] Excluding South Africa.

larger purchases of coffee and cocoa. Tea imports declined slightly. Sugar imports rose by about 2 percent, 25 percent in value terms, while oils and oilseeds were about 7 percent greater. Wine imports recovered from the low 1971 level, partly as a result of larger purchases by France, while tobacco imports were 3 percent greater. Raw material imports increased by 5 percent over the particularly low 1971 level, reflecting the economic recovery of the industrialized countries. The volume of textile fibre imports rose by 6 percent, 22 percent in terms of value; wool imports alone rose by some 10 percent.

The 11 percent increase in the volume of imports of eastern Europe and the U.S.S.R. reflected a particularly large increase (about 20 percent) in food imports. Imports of feed also expanded, but raw material purchases were reduced. Developments at the regional level were mainly a reflection of the massive cereal imports into the U.S.S.R., which also had a profound effect on the world food situation. The U.S.S.R.'s imports of cereals were estimated to have more than tripled during 1972, increasing from 4 million tons in 1971 to 13 million tons. The country's imports of wheat and wheat flour appear to have increased from about 2.7 million to 6.7 million tons, the largest amount since 1966. Imports of coarse grains, particularly barley and maize, also appear to have expanded sharply. Regional imports of meat and meat products dropped by 30 percent, while dairy products increased by 7 percent and sugar and honey by 5 percent. Although fruit imports rose by 6 percent and those of vegetables by about 3 percent, levels remain far below those of the early 1960s. Tropical beverage imports rose by some 4 percent, reflecting mainly larger volumes of tea and coffee. Consignments of oils and oilseeds rose considerably because of large soybean imports by the U.S.S.R. The drop in raw material imports resulted mostly from smaller purchases of textile fibres. Wool and jute imports were greater, but those of cotton and sisal declined considerably.

The 6 percent growth in the volume of North America's agricultural imports to record levels reflected not only the rise (4 percent) in food imports, which account for the bulk of the total, but also a large increase in raw material imports (more than 13 percent) and feed imports (up 9 percent). Higher prices for food and feed commodities resulted in an 11 percent increase in expenditure for agricultural imports. Among the foods which accounted for the increase in imports were meat and meat products, which expanded by about 15 percent in volume and 20 percent in value. Imports of beef and veal alone grew by 17 percent (28 percent in value), mainly because of the large increase in purchases by the United States. Important increases were also recorded for pork, mutton and lamb, a d poultry meat. Purchases of oils and oilseeds, dairy products (mainly cheese), fruit (particularly bananas) and vegetables also increased. Imports of tropical beverages declined by about 4 percent, while those of sugar and honey, although 20 percent higher in value, were slightly lower than in 1971.

In Oceania, agricultural imports grew by about 4 percent in terms of both volume and value. Food imports registered little change from the previous year, but those of raw materials expanded by about 10 percent. Among the major food imports, tropical beverages expanded by about 7 percent, principally because of larger purchases of cocoa and tea by both Australia and New Zealand. Imports of edible oil and oilseeds, however, declined by 15 percent. Soybean oil imports were sharply reduced in Australia. Among raw material imports, textile fibres expanded by 30 percent. Cotton and sisal imports were substantially higher in Australia, while those of jute and flax were greater in both Australia and New Zealand. Consignments of rubber rose by 13 percent, reflecting a large increase in Australia where buying recovered from the low 1971 level.

Taking the other developed countries (Israel, Japan and South Africa) as a group, agricultural imports rose by 10 percent, 17 percent in value. Food imports, which account for about two thirds of the total, rose by 10 percent, feed imports declined by 8 percent and those of raw materials increased by 12 percent. Cereal imports rose by 4 percent, reflecting record imports of wheat and wheat flour into Japan, and also increased consignments of coarse grains, mainly maize, to the same country. Meat imports were more than 20 percent larger than in 1971; Japan's imports accounted for most of the increase. Textile fibres contributed most to the growth in imports of raw materials.

Latin America's expenditure on imports rose by 10 percent, mainly because of greater volume. The volume of food imports was 15 percent greater than in 1971, but both feed and raw materials showed sizable reductions. Cereals, which account for about half of agricultural imports, increased by 25 percent. The index of unit values of cereal imports for the region showed little change compared to 1971, and the increased cost of imported cereals was the result of expanded volume. The largest increase took place in Mexico, where wheat imports more than tripled to 650 000 tons, and maize imports rose from 20 000 to about 200 000 tons. In Chile wheat imports doubled to reach a total of approximately 790 000 tons, and maize imports were substantially greater than in 1971. A large increase in cereal imports took place also in Peru, where wheat imports amounted to about 860 000 tons, 160 000 more than the previous year, and maize imports were greater. Brazil's cereal imports increased by about 6 percent,

but the volume was still considerably below levels of the late 1960s. The region's imports of meat and meat products expanded by more than 25 percent and accounted for some 10 percent of total agricultural imports. In Chile, the region's largest importer, meat imports doubled in terms of both volume and value. The region's purchases of dairy products and eggs rose only slightly, while those of fruit and vegetables expanded by 5 and 12 percent respectively. Sugar and honey imports grew by more than 10 percent, but because of higher prices their value rose by 20 percent.

Among the developing regions, the Far East was most affected by increasing prices. The volume of agricultural imports rose by less than 3 percent but expenditures were more than 8 percent higher. Food imports, which account for almost 80 percent of agricultural imports, rose by only 4 percent, but costs were 9 percent higher, reflecting increased prices for rice and certain livestock products. Imports of cereals, mainly rice, expanded by 8 percent. Imports of rice into Bangladesh more than doubled to 660 000 tons, and in Indonesia, the leading importer, they rose to over 730 000 tons, compared with about 500 000 tons in 1971. The Republic of Viet-Nam's imports grew by about 240 000 tons to 380 000, and those of the Khmer Republic rose from 20 000 to 110 000 tons in 1972. On the other hand, India's rice imports dropped by some 100 000 tons (to 420 000) while those of the Republic of Korea declined to 730 000 tons from the record level of more than 1 million tons registered in 1971. Sri Lanka also purchased less rice. In the Philippines imports remained at high levels, about 430 000 tons. The region's wheat imports were only 2 percent greater than in 1971, as increased imports by Bangladesh, Indonesia, the Republic of Korea, Malaysia, Pakistan and the Philippines were largely offset by a further large reduction in India's imports to about 1 million tons. Imports of coarse grains rose substantially in 1972 in the Far East, particularly of maize which increased by 30 percent, mainly reflecting larger shipments to the Republic of Korea and the Philippines. Among other important commodities, imports of dairy products rose only marginally, but their value increased by 11 percent because of higher prices. Imports of sugar and honey rose by about 5 percent in volume and 15 percent in value, while fruit imports were about 10 percent (16 percent in value) above the previous year. Purchases of edible oils and oilseeds fell by 5 percent but their value was down only 1 percent. Imports of textile fibres were 4 percent less than in 1971 but they cost 8 percent more. Cotton imports alone declined by 9 percent.

Purchases of cereals by China were also greater in 1972 than the previous year. The country's imports of wheat and flour are estimated at about 5.5 million tons, compared with 5 million tons in 1971 and 5.6 million in 1970. Rice imports appear to have increased also.

As a result of the good cereal crops in many countries of the Near East, agricultural imports there were 15 percent lower than in 1971 when cereal imports were particularly large. The value of imports showed a comparable reduction. Both feed and raw material imports increased by 4 and 8 percent respectively, but food imports, which account for 90 percent of the total, declined by 17 percent. Imports of cereals alone dropped by almost 40 percent, reflecting mainly the large reduction in wheat and flour purchases, but also lower consignments of coarse grains and rice. The countries where wheat imports dropped most, partly as a result of larger domestic production, included Egypt, to 1.7 million tons from 2.4 million in 1971; Iran, to less than 300 000 tons from almost 1 million; the Syrian Arab Republic, from 750 000 to 360 000 tons, and Turkey, from 470 000 to about 125 000 tons. Smaller reductions were registered in Iraq and Jordan, while Afghanistan, Lebanon, the Libyan Arab Republic, Saudi Arabia and the Sudan slightly increased their purchases. Among the food imports which registered increases were meat (10 percent), dairy products and eggs (6 percent), fruit (4 percent) and vegetables (13 percent). Imports of tropical beverages (mainly tea) rose by 9 percent. Sugar and honey purchases fell by 8 percent, while oils and oilseeds were 7 percent lower.

Africa also paid higher prices for its agricultural imports, which rose less than 1 percent in terms of volume, but more than 4 percent in value. Food imports, which account for about 90 percent of agricultural imports, actually declined in spite of a 3 percent increase in costs. Imports of feed increased sharply, although still remaining small in absolute terms, while purchases of raw materials were about 3 percent lower than in 1971. As a result of good crops cereal imports declined slightly, although they remained at a high level of nearly 5 million tons. Wheat imports fell by 2 percent as larger purchases by Algeria and several countries in west and east Africa were more than offset by substantial reductions elsewhere, particularly in Morocco, where they fell by about 300 000 tons to some 400 000, and in other countries such as Nigeria and Tunisia. Rice imports were marginally greater than in 1971, but their value increased by 9 percent. Shipments to the region's largest purchaser, Senegal, increased by 30 percent to about 240 000 tons. Imports of coarse grains into the region were almost 30 percent lower than in 1971.

Stocks

For the first time in 20 years, the 1973/74 season opened with cereal stocks in exporting and importing countries at a level which gave little assurance of adequate supplies to meet world demand in the event of large-scale crop failures in one or two major producing areas. After several years of ample supplies, important changes took place in world stocks in the 1972/73 season. As a result of crop failures and lower production due to adverse weather in several parts of the world, an unusual scarcity of wheat coincided with a shortage of rice, a crop especially subject to fluctuations. Following a large increase in world imports, aggregate carryover stocks of wheat in the main exporting countries are expected to fall from about 47 million tons in 1971/72 to less than 30 million tons at the end of the 1972/73 season, the lowest level since 1952. Because stocks of other grains and rice have also been depleted in exporting and many importing countries, world foodgrain supplies in 1973/74 will be almost entirely dependent on the 1973 harvests, and are thus vulnerable to the uncertainty of one season's weather.

Producing countries have reacted promptly to this situation and grain output is expected to expand, but it will probably take more than one season with favourable weather to obtain a substantial replenishment of stocks. However, it cannot be expected that the main exporting countries alone assume the full responsibility of holding ever-increasing stocks from which world requirements could be met, even in times of exceptional crop shortfalls in other countries. While the amount of reserves required to guarantee minimum world food security has been growing in line with population and consumption, the necessity to carry reserves had been lessened during the last two decades by the existence of surplus grain stocks, mainly in North America. However, these heavy stocks were not intentional, but rather an unwelcome by-product of farm support programmes. New techniques of supply management have been developed in the exporting countries to adjust production to foreseeable demand and prevent the re-emergence of excess carryover stocks. Whereas the main exporters' wheat stocks rose almost without interruption during most of the 1950s and early 1960s, levels in the last 10 years have in fact averaged about 20 percent lower than in the preceding decade. During the 1960s production averaged about a third higher and world population grew by some 650 million. The peak stocks held by the five main exporters in 1970/71 amounted to 64 million tons, which corresponded to 60 percent of their combined domestic requirements and exports, or 22 percent of world production. These figures imply a much smaller surplus element than the earlier peak in 1961/62 when stocks amounted to 63 million tons and represented a full year's requirements for domestic use and exports, or 30 percent of world production.

In view of the need to ensure that basic food stocks are maintained at levels which safeguard global security in the event of major and widespread crop failures, the Director-General of FAO has proposed international action aimed at coordinating national stock policies. On the basis of a consensus regarding the joint responsibility of both the developed and developing countries for achieving a minimum level of world food security, guidelines for national foodgrain stock policies would be formulated and recommended to governments. An international programme would also be drawn up to assist vulnerable developing countries wishing to maintain minimum national food stocks. A more detailed framework for a minimum world food security policy is to be submitted to Member Governments at the FAO Conference.

Among other storable agricultural commodities, only butter and skim milk powder stocks increased during 1972, reflecting the accumulation of surpluses in the European Economic Community. By the end of the year the enlarged Community's butter stocks had risen to 430 000 tons, compared with 170 000 tons in 1971, and stocks of skim milk powder rose to 290 000 tons (120 000 tons in 1971). Measures taken to reduce these surpluses include a reduction of 5.4 percent in the intervention price for butter and large-scale heavily subsidized sales to the U.S.S.R., but the steep increase in milk prices for the 1973/74 season is likely to maintain the current excess supplies of milk products.

Closing stocks of other commodities were significantly reduced in 1972. Substantial decreases were recorded in world carryover stocks of sugar, which by the end of the 1972/73 season were expected to be nearly 1 million tons lower than at the end of the previous season and, at 15.7 million tons, at the lowest level since 1965. During the past two years there have been increasingly greater efforts to stimulate sugar production, but it is not yet possible to forecast when and how the current shortage will be relieved. Stocks of cocoa and jute were considerably reduced, while moderate decreases were recorded for tea, coffee, tobacco and natural rubber. For all these commodities reserves were lower than average levels during the first half of the 1960s.

Despite differing views on the advisability of moderate inflation for stimulating economic growth, the disruptive social effects of inflation are widely accepted; rapid cost-of-living increases result in hidden, unintended and inequitable transfers of income and wealth between individuals and between groups. Rising food prices have immediate and adverse effects on all households, but they are worse for those with low incomes who already spend relatively more on food. Moreover, from a nutritional point of view, diets tend to deteriorate because of substitution with lower quality foods.

By the end of 1972 consumer prices, including those for food, were increasing in developed countries twice as fast as normal and in a few countries rises of more than 10 percent were recorded. In a number of developing countries there were even sharper increases in the latter part of the year, associated with scarcity of staple foods (particularly in the Far East), and higher prices for imported supplies, reflecting in varying degrees shortages on the world market, inflation in developed countries and revaluation of the currencies of main trading partners.

The inflationary impulses affecting the developed economies have spread from country to country and have been to some extent mutually reinforcing. The importance of simultaneous and complementary action to reduce the rate of increase has been recognized by governments both in the European Economic Community and in the wider framework of the Organisation for Economic Co-operation and Development (OECD). The priority given to fighting inflation was reflected in the recommendations adopted by the nine Finance Ministers of the enlarged EEC in October 1972, designed to reduce consumer price increase rates in the Community from an average of 6 percent in 1972 to 4 percent in 1973. According to these recommendations, which are subject to special provisions for countries with serious unemployment, the growth in money supply should be linked to the growth of real gross national product, with an allowance for acceptable inflation. However, since some member countries have been allowing the money supply to grow by as much as 25 percent a year, this target is not expected to be achieved until the end of 1974. The rate of increase in public spending in 1973 should be held in line with that of GNP, and some agricultural tariffs should be cut for a limited period to relieve price pressures. The problem of rising prices was also considered in the Economic Policy Committee of OECD in November 1972, and from its conclusions the OECD Council adopted a recommendation on inflation and economic expansion.

Developments during 1972 strengthened the case for a multi-policy approach to inflation. Although pressures of clearly domestic origin led many countries to adopt restrictive demand management policies with considerable firmness, the existence of unacceptably high levels of unemployment in some countries remains a basic concern. Price and income controls have revealed their usefulness, particularly in the United States, in dampening inflationary expectations, and similar economic stabilization measures are being implemented in other countries. However, experience has suggested the need for supplementary steps to improve productivity, through the better use of existing resources and the easing of regional or sectoral unemployment, without raising the level of demand in those areas where inflation threatens or already exists. In view of the strong revival in economic activity expected in most countries during 1973 from the recessions which prevailed in varying degrees during 1970 and 1971, governments may be faced with the need to restrain the growth of excess demand. If realized, the growth rate of 6.5 percent forecast by OECD for member countries in 1973 would be one of the highest since 1955, and already revival is particularly well advanced in North America where both business and household demand has been rising rapidly.

The resurgence of inflation during late 1972 in developed countries was not confined only to food prices, although these tended to increase more rapidly than those for nonfood items. In western Europe food price increases accounted for two thirds of the acceleration in total consumer price increases from the first to the second half of 1972, and in the three months ending in February 1973 food prices in all OECD countries increased at an average (annual) rate of 9.7 percent, compared with 4.4 percent for nonfood prices. The adverse effects of rising food prices are significant considering that even among OECD countries the proportion of disposable income spent on food, although decreasing over the long term, nevertheless ranges from about 16 percent in the United States to as much as 40 percent in Ireland, with most countries falling between 20 and 30 percent.

In the developed countries rising food prices are only partly a reflection of increasing farm costs. Processing, distribution and marketing margins represent a large share of the price of the finished consumer product. Although recent spectacular increases in the retail prices of certain items are basically the

result of shortages in the world market, namely for meat, cereals, and also feedstuffs, price rises might have been more moderate but for the rigidity of farm policies, the existence of price relationships not always conducive to long-term market equilibrium, the absence of concerted stockpiling policies and inadequate market forecasting.[8]

The continuing strong demand for meat, particularly for better cuts of beef, in the more affluent countries and the low phase in the production cycle in a number of important exporting and importing areas led to soaring prices and hostile public reaction in many countries. As a result there was a general levelling off in per caput meat intake in 1972, and consumers shifted to pigmeat and poultry which subsequently recorded price advances, also because of higher costs of feedstuffs which further aggravated the situation by discouraging production expansion plans. To curb increases in retail prices of beef, considered an important indicator of the cost of living in developed countries and a significant factor in the psychology of inflation, certain governments responded by imposing stiffer price controls as well as freer import policies. The United States has introduced retail price ceilings and the import quota has been suspended in 1973 for the second consecutive year. EEC has extended total or partial suspension of import levies and customs duties on bovine meat, while Japan has been increasing its import quotas rapidly and total imports in 1973/74 are expected to reach twice the previous year's volume. Among the exporters, Brazil, Colombia and some Central American countries have introduced measures to reduce shipments temporarily to ensure adequate domestic supplies. Argentina's restriction on domestic sales was partially lifted from the end of April 1973 to check rising beef prices, while the Australian Government is setting up a price justification board.

Among the developing regions, widespread increases in food prices took place in many countries of the Far East where a scarcity of staples developed in the latter part of the year as a result of the failure of the monsoon. Average annual price increases do not fully reveal the sharpness of the upward movement which took place in the second half of 1972, nor the severity of its effects on consumers who spend a large proportion of their incomes on food, and have only limited possibilities for substitution with lower priced items in diets which are already often below minimum nutritional requirements.

In India, wholesale food prices in December 1972 were almost 20 percent above those of one year earlier, mainly reflecting increased cereal prices. The wholesale prices of rice and wheat were respectively 15 and 10 percent higher, while the price of pulses, an important source of protein, rose by more than 20 percent. In Indonesia the rate of inflation, which had fallen considerably in 1971 as a result of successful stabilization measures, increased by 25 percent in 1972 because of the rice crisis and food prices averaged 10 percent higher. Although food prices rose by 28 percent during 1972 in the Khmer Republic, by the end of the year they were double the level of earlier months as a result of rice shortages. In Laos food prices were one third higher, while in the Philippines they increased by more than 20 percent to unprecedented levels. The stabilization programme adopted in 1970 had succeeded in dampening the rate of inflation but in 1972 economic growth was badly affected by severe floods which damaged agricultural production. Prices of practically all food items rose sharply, including those of rice, in spite of efforts at stabilization.

In the Republic of Korea a 13 percent increase in food prices represented a slackening in the rate of inflation from previous years following the implementation of stabilization measures, in spite of the reversal since 1969 of the policy of keeping down agricultural prices. In Pakistan consumer prices continued to rise, reflecting supply shortages. By mid-1972 food prices in Karachi (index of clerical wage earners) had increased by almost 20 percent over the level of one year earlier. The 6 percent rise in food prices in Sri Lanka was caused by increased costs of imports and the removal of price controls, and the banning of imports of certain other items such as dried chillies and red onions, which account for about 5 percent of food imports. Because of adverse weather paddy production fell, while prices of imported food, mainly rice and wheat flour, rose more than anticipated resulting in a worsening of the country's already acute foreign exchange difficulties. Early in 1973 the private retail sale of rice was banned and the free rice ration was reduced. Rice imports are to be discontinued by 1974, and further increases in the guaranteed price to farmers are being considered as an incentive to production.

In Latin America the greatest increases in food prices occurred in Argentina, Chile and Uruguay, and also, to a lesser extent, in Brazil — all countries which have suffered marked inflation during the past decade. Of these, only Brazil recorded a reduction in the rate of increase as the Government continued to pursue policies of restraint. As in many other countries of the region, these high rates of inflation are associated with exchange and tariff measures designed to regulate foreign trade, with the growth of money supply accompanying fiscal deficits and the expansion of credit, and with realignments of wages to increases in the cost of living.[9]

[8] Statement by the Secretary-General of OECD at the opening of the meeting of OECD Ministers of Agriculture, 12 April 1973.

[9] United Nations, Economic Commission for Latin America, *Latin America and the international development strategy: first regional appraisal*. Santiago, 1973.

Among the developing countries of the Near East the price increases of 1972 reflected reductions in the supply of agricultural commodities as a result of drought and bad weather; for example, in Iran in 1971 and in Jordan and Turkey in 1972. In Turkey, support prices of most agricultural products were raised during the preceding year, increasing by about 20 percent for the principal cereals. However, cost-of-living advances in the region were also favoured by inflation in the major trading partners.

Also in many countries of Africa price increases reflected external price changes rather than domestic demand pressures. Although widespread controls of essential food items have had a stabilizing effect on consumer prices, returns to farmers have sometimes been insufficient — as productivity has not increased — to encourage the expansion of marketed output and urban food shortages have resulted. In the countries of the Sahelian zone, drought caused food prices to rise rapidly in the latter part of 1972.

Longer term trends in agricultural production in developing countries

The preceding analysis of agricultural production has shown clearly that the first two years of the 1970s — the Second United Nations Development Decade — have not been very encouraging for the developing countries as a whole. It is to be hoped that these two relatively bad farming years were no more than fluctuations below trend, largely caused by weather, which are later to be compensated by better years. However, the recent poor harvests mean that the developing countries, as a group, now need to increase their agricultural production by an average of almost 5 percent a year in the remaining eight years of the decade if the Second Development Decade target of an average annual rate of growth of 4 percent is to be reached. This target already required a substantial acceleration over the rates of growth achieved in the past. In the period 1961-71 the developing countries as a group raised their agricultural production at a rate of 2.8 percent a year. This was slightly faster than their population growth of 2.6 percent a year, and already represented a considerable achievement. Much more rapid increases in agricultural production are needed in most countries if the total expansion in demand (coming from rising incomes as well as population growth) is to be met, if nutritional levels are to be improved and if the agricultural sector is to play its full role in economic and social development.

The target of an average annual growth of 4 percent in agricultural production from 1971 to 1980 in the developing countries is largely based on the detailed analysis in FAO's Provisional Indicative World Plan for Agricultural Development (IWP), and the four supporting regional studies.[10] This target is slightly higher than the 3.7 percent a year proposed in IWP for the period up to 1985, partly because the Second Development Decade target of a 6 percent annual average growth in GDP is above the rate assumed in IWP. Moreover, by the time the IWP world study was completed in 1969 it was already clear that production had increased less than anticipated in the years that had elapsed since the base period, so that higher rates of growth were necessary if the proposed objectives were still to be met.

IWP and related studies contain agricultural production objectives for the periods 1961-63 to 1975 and 1975 to 1985 for 64 individual developing countries. Admittedly these proposed objectives have no operational significance for the countries concerned. Indeed they have in some cases been criticized by governments as being too low and are often lower than the targets in national development plans.[11] But this means that any shortfall from them is all the more serious. And they did provide the basis for the Second Development Decade target of an average annual increase of 4 percent in agricultural production in the developing countries as a whole.

Table 1-6 indicates that in each of the developing regions agricultural production in the period 1961-1963 to 1969-71 failed to reach the annual rate of growth proposed in IWP for the period up to 1975.

As with the more immediate situation, the longer term trends also are least satisfactory in the Far East. The objective for this region is higher than for the others, but (in spite of the run of good seasons from 1967 to 1970) the long-term rate of growth of production is lower than in any other developing region except Africa south of the Sahara. In every region except Latin America (where the objectives proposed in IWP have been criticized as being too low), the shortfall from the objectives is quite large.

[10] FAO, *Provisional Indicative World Plan for Agricultural Development*, Rome, 1970. *Sub-regional study Number 1, Near East*, 1966; *Provisional regional study Number 2, South America*, 1968; *Provisional regional study Number 3, Africa south of the Sahara*, 1968; *Provisional regional study Number 4, Asia and the Far East*, 1968.

[11] In 36 national plans covering the initial years of the decade the median value of the target rate of increase of agricultural production is 5 percent per year, compared with the Second Development Decade target of 4 percent (United Nations, *National development strategies and the second United Nations development decade: a selective review of targets indicated in recent plans of developing countries*, p. 34. New York, 1973, E/AC.54/L.55).

TABLE 1-6. – AVERAGE ANNUAL RATE OF GROWTH OF AGRICULTURAL PRODUCTION IN DEVELOPING REGIONS IN COMPARISON WITH POPULATION GROWTH AND IWP OBJECTIVES

	Actual growth of production			IWP objectives		Population growth 1962 to 1970
	1961-63 to 1965-67	1965-67 to 1969-71	1961-63 to 1969-71	1961-63 to 1975	1975 to 1985	
	..... *Percent per year*					
Africa south of Sahara	2.6	2.6	2.6	3.2	3.3	2.5
Far East	1.3	4.2	2.7	3.6	4.0	2.6
Latin America . . .	3.1	2.6	2.9	3.0	3.1	2.9
Near East and northwest Africa [1] . . .	2.9	3.0	2.9	3.4	3.5	2.7
TOTAL	2.2	3.4	2.8	[2]3.4	[2]3.7	2.6

NOTE: The regional groupings cover the 64 countries studied in IWP: 24 in Africa south of the Sahara (84 percent of regional population), 8 in the Far East (80 percent), 17 in Latin America (90 percent), and 15 in the Near East and northwest Africa (96 percent).

[1] IWP objectives for northwest Africa based on 1965. – [2] These figures are from the four IWP regional studies. The final IWP objectives in the world study, based on faster growth rates for pig and poultry production, raised these rates to 3.6 and 3.9 percent respectively (3.7 percent over the whole period).

It should be noted that the objectives shown in Table 1-6 and, unless otherwise stated, in subsequent tables, are those arrived at in the four IWP regional studies. These objectives are slightly lower than those finally proposed in the world study, which were raised to take account of higher rates of growth for pig and poultry production on the basis of feeding the surplus grain expected to become available in some developing countries. These revised objectives were not worked back to the country level and the discussion here is therefore on the basis of the original objectives. The shortfalls are thus even larger than indicated. Furthermore, subsequent work done on ten South American countries arrived at still higher objectives for that region on the basis of various alternative assumptions. [12]

The most encouraging feature of Table 1-6 is that in the Far East the growth of production accelerated substantially during the second half of the period. Between 1965-67 and 1969-71 the rate of growth in the region actually exceeded the unrevised IWP objective for 1975-85, although in interpreting these results it must be remembered that trends over such short periods are particularly affected by the weather.

These regional averages are, of course, no more than a convenient way of summarizing the data for individual countries shown in Table 1-7 and, in a summary form, in Table 1-8. In these tables, which classify the countries into a number of different groups, the recent performance in the 92 developing countries for which FAO calculates production index numbers is compared with population growth and (for the 64 of them for which separate figures are shown in IWP or related studies[13]) with the proposed objectives. The analysis for individual countries is on the basis of the exponential trend, in order to deal better with annual fluctuations.

In 6 countries production actually declined between 1961 and 1971. In a further 36 countries, although production increased, it failed to keep pace with population growth. Thus there are 42 countries, or about 45 percent of the total of 92, where population rose faster than the increase in production. An even larger number of countries must have failed to meet the total increase in domestic demand coming from rising incomes as well as population growth.

These comparisons between the increases in production and population are included to expand the analysis for a number of countries for which some assessment of production performance is possible, and they should not be interpreted too literally. Much depends on such things as the level of production and nutrition in the base period, the dependence of the economy on agriculture, the degree of self-sufficiency aimed at, and the composition of production (products for domestic consumption and products for export). But in a general way they do have considerable significance, for most developing countries are aiming at approximate self-sufficiency in the basic food products that predominate in their agricultural production, while IWP estimates that population growth will account for about 70 percent of the increase in the demand for food in developing countries up to 1985.

Turning now to the objectives proposed for 1975, these rates of growth were attained between 1961 and 1971 in only 21 of the countries concerned. Of the 41 countries that failed to achieve the objectives, in 27 production also failed to keep pace with population.

These results are most disquieting. Instead of revealing a small number of countries where the agricultural sector is making particularly slow progress, they indicate that the majority of countries are probably in this position. There are very few countries where agriculture is already making the necessary contribution for the achievement of the overall targets for the decade.

Only 16 developing countries have a population of 20 million or more. Together these account for over 70 percent of the total population and agricultural production of the developing countries, and thus

[12] FAO. *Perspective study of agricultural development for South America* (provisional version), Rome, 1972.

[13] Objectives are shown individually for 53 countries in the IWP regional studies, and are also available (although not published) for the remainder. A separate study was afterwards prepared for Indonesia. Objectives for Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua are presented in the *Perspective plan for agricultural development and integration in Central America*, FAO, Rome (in press).

TABLE 1-7. – ANNUAL AVERAGE RATE OF GROWTH OF AGRICULTURAL PRODUCTION IN 92 DEVELOPING COUNTRIES,[1] 1961 TO 1971, IN COMPARISON WITH POPULATION GROWTH AND IWP OBJECTIVES

	Actual growth of production [2]			IWP objectives		Population growth 1962 to 1970	Total population mid-1972
	1961-66	1966-71	1961-71	1961-63 to 1975	1975 to 1985		
	Percent per year						*Millions*
PRODUCTION DECLINED							
Production failed to equal IWP objective							
Jordan	6.0	— 4.0	— 2.0	3.1	4.0	3.2	2.4
Congo	— 6.1	3.4	— 1.7	2.8	3.4	1.4	0.9
No IWP objective available							
Malaysia: Sarawak	0.4	— 0.1	— 0.8	...	...	3.0	1.0
Jamaica	3.6	— 3.2	— 0.5	...	...	2.3	2.0
Lesotho [3]	— 0.6	— 0.6	— 0.2	...	...	2.9	1.0
Yemen Arab Rep. [3]	0.3	0.8	— 0.1	...	...	2.3	0.6
PRODUCTION INCREASED BUT FAILED TO EQUAL POPULATION GROWTH							
Production failed to equal IWP objective for 1975							
Syrian Arab Rep.	1.2	0.7	0.1	3.3	3.7	3.0	6.6
Chad [3]	— 0.6	0.3	0.3	2.7	3.0	1.5	3.7
Dahomey [3]	— 0.3	0.8	0.4	3.4	3.4	2.8	2.9
Nigeria	2.0	0.4	0.4	3.1	3.4	3.0	71.9
Senegal	3.1	— 1.5	0.4	3.2	3.2	2.1	4.0
Uruguay	1.4	3.6	0.9	2.6	3.1	1.2	2.9
Algeria	— 2.7	6.8	1.3	[4]3.2	4.6	2.9	14.5
Central African Rep.	— 0.5	2.2	1.4	2.8	2.5	2.2	1.6
Afghanistan [3]	1.3	0.8	1.5	2.6	3.1	2.3	18.4
Argentina	1.4	0.4	1.5	2.5	2.5	1.6	25.0
Yemen, People's Dem. Rep. of	2.2	3.2	1.6	[5]3.4	[5]4.0	2.2	1.3
Mali [3]	1.6	2.0	1.7	3.0	3.5	1.9	5.1
Chile	1.9	0.9	1.8	2.6	3.2	2.4	10.2
Sri Lanka	2.4	1.7	2.0	4.3	4.1	2.4	13.0
India	— 0.7	4.8	2.1	3.4	3.9	2.5	578.0
Saudi Arabia	2.5	1.7	2.2	3.6	3.9	3.6	5.7
Ghana	2.8	2.9	2.4	3.1	3.4	2.7	9.3
Indonesia	2.0	3.8	2.4	...	[6]4.3	2.5	126.0
Ecuador	4.6	1.5	2.5	2.7	3.3	3.4	6.5
El Salvador	4.3	3.8	2.5	...	[7]3.7	3.2	3.7
Peru	2.8	2.7	2.5	2.9	3.1	3.1	14.4
Niger [3]	3.4	1.2	2.6	3.0	3.2	2.7	4.2
Iraq	1.8	1.0	2.8	3.4	4.3	3.5	10.4
Philippines	3.2	3.0	3.2	4.2	4.6	3.5	41.2
Mexico	5.5	1.9	3.4	4.0	4.3	3.5	54.3
No IWP objective available							
Rhodesia	3.8	— 0.6	0.8	...	...	3.2	5.6
Viet-Nam, Rep. of	— 0.7	5.6	0.9	...	...	2.6	19.3
Guyana	0.7	1.2	1.1	...	...	3.0	0.8
Haiti [3]	2.1	0.6	1.1	...	...	2.0	5.0
Mauritius	1.8	1.1	1.4	...	...	2.2	0.9
Burma	0.7	3.2	1.5	...	...	2.2	28.8
Dominican Rep.	— 1.3	4.5	1.5	...	...	3.6	4.6
Guinea [3]	— 0.5	3.4	1.5	...	...	2.7	4.2
Botswana [3]	— 0.1	4.4	2.5	...	...	3.0	6.9
Khmer Rep.	1.9	3.4	2.6	...	...	2.8	7.6
Malaysia: Sabah	1.4	5.1	3.3	...	...	3.8	0.7

TABLE 1-7. – ANNUAL AVERAGE RATE OF GROWTH OF AGRICULTURAL PRODUCTION IN 92 DEVELOPING COUNTRIES,[1] 1961 TO 1971, IN COMPARISON WITH POPULATION GROWTH AND IWP OBJECTIVES (*concluded*)

PRODUCTION EQUALLED OR EXCEEDED POPULATION GROWTH	Actual growth of production [2]			IWP objectives		Population growth 1962 to 1970	Total population mid-1972
	1961-66	1966-71	1961-71	1961-63 to 1975	1975 to 1985		
	Percent per year						*Millions*
Production failed to equal IWP objective for 1975							
Gambia	5.6	— 0.8	2.3	3.0	2.8	2.0	0.4
Mauritania	3.4	1.6	2.3	2.7	3.4	1.9	1.2
Upper Volta [3]	7.7	— 6.1	2.3	2.4	2.9	2.0	5.5
Madagascar	3.5	2.0	2.8	3.1	3.1	2.3	7.1
Tunisia	3.1	7.3	2.8	[4]3.4	4.0	2.8	5.5
Iran	3.7	0.8	3.1	3.8	3.8	2.9	30.2
Kenya	2.2	3.5	3.2	3.8	3.9	2.9	11.4
Uganda [3]	3.8	3.5	3.2	3.9	2.9	2.5	9.0
Bangladesh / Pakistan	2.4	3.4	3.3	4.1	4.6	3.0	139.3
Thailand	5.5	2.7	3.6	4.4	4.3	3.1	38.0
Zambia	4.9	0.6	3.8	5.0	4.8	3.1	4.6
Guatemala	6.8	2.8	4.1	...	[7]4.4	2.9	5.5
Honduras	6.4	0.8	4.8	...	[7]5.3	3.4	2.8
No IWP objective available							
Nepal [3]	0.4	3.9	2.9	...	...	1.8	11.4
Cuba	— 0.8	4.2	2.3	...	...	2.2	8.9
Somalia [3]	2.0	2.4	2.3	...	...	2.3	2.9
Mozambique	1.7	2.6	2.4	...	...	1.4	7.7
Liberia	2.5	2.8	2.6	...	...	1.7	1.2
Sierra Leone	5.5	1.4	3.2	...	...	1.4	2.6
Angola	3.8	3.0	3.5	...	...	1.4	5.6
Turkey	3.5	3.4	3.5	...	...	2.5	37.0
Rwanda [3]	— 1.4	5.9	4.0	...	...	3.0	3.8
Panama	3.4	5.8	4.9	...	...	3.3	1.6
Libyan Arab Rep.	9.7	— 0.3	5.1	...	...	3.6	2.1
Laos [3]	8.4	2.6	5.3	...	...	2.4	3.1
Burundi [3]	4.6	8.6	5.6	...	...	2.0	3.7
Cyprus	6.0	5.3	7.0	...	...	1.1	0.6
Surinam	11.1	1.8	8.0	...	...	3.5	0.4
Production equalled or exceeded IWP objective for 1975							
Ethiopia [3]	2.6	3.0	2.9	2.5	2.9	2.0	26.4
Brazil	3.0	3.9	3.3	2.5	3.0	3.0	99.3
Gabon	3.3	3.1	3.3	1.4	1.3	1.0	0.5
Paraguay	4.3	3.1	3.4	3.2	3.5	3.2	2.5
Egypt	4.3	4.0	3.5	3.2	2.9	2.5	35.1
Colombia	2.7	4.8	3.6	3.1	3.6	3.2	22.5
Bolivia	4.6	3.8	4.0	3.1	3.2	2.6	5.2
Zaire	2.0	4.3	4.1	2.7	3.4	2.1	18.3
Cameroon	5.9	2.7	4.3	2.9	2.7	2.1	6.0
Lebanon	6.9	0.3	4.3	3.7	3.7	2.9	2.8
Korea, Rep. of	7.6	2.7	4.4	3.4	2.4	2.7	14.4
Malawi [3]	6.8	1.3	4.4	3.3	3.4	2.9	4.8
Togo	6.7	2.9	4.7	2.8	3.8	2.5	1.9
Ivory Coast	6.0	5.1	5.0	4.7	3.3	3.3	5.2
Sudan [3]	3.8	5.6	5.0	3.6	3.7	2.9	16.5
Morocco	4.3	7.6	5.2	[4]3.5	3.6	2.9	16.5
Nicaragua	10.5	2.4	5.5	...	[7]5.3	3.2	2.2
Tanzania [3]	3.9	7.7	5.5	3.6	3.0	2.6	14.0
Venezuela	6.8	4.8	5.8	3.6	4.2	3.5	11.8
Malaysia, West	4.7	7.6	6.0	3.8	4.8	2.9	9.9
Costa Rica	5.3	7.7	6.7	...	[7]5.1	3.8	1.9

[1] Countries in each group listed in ascending order of production increase in 1961 to 1971. – [2] Exponential trend; minus sign denotes decrease. – [3] Belongs to group of least developed countries. – [4] 1965 to 1975. – [5] Former Federation of South Arabia. – [6] 1970 to 1980, from *Perspective study of agricultural development (provisional) for Indonesia 1970-80*, FAO, Rome, 1972. – [7] Projected growth rates 1970 to 1990 of "trend variant with high export growth" from *Perspective plan for agricultural development and integration in Central America*, FAO, Rome (in press).

TABLE 1-8. – DEVELOPING COUNTRIES CLASSIFIED ACCORDING TO RATE OF GROWTH [1] OF AGRICULTURAL PRODUCTION, 1961 TO 1971, IN COMPARISON WITH POPULATION GROWTH AND IWP OBJECTIVES FOR 1975

	Number of countries		
	Production increase accelerated in second half of period	Production increase the same or less in second half of period	Total
PRODUCTION DECLINED			
Production failed to equal IWP objective	1	1	2
No IWP objective available	1	3	4
PRODUCTION INCREASED BUT FAILED TO EQUAL POPULATION GROWTH			
Production failed to equal IWP objective	10	15	25
No IWP objective available	8	3	11
PRODUCTION EQUALLED OR EXCEEDED POPULATION GROWTH			
Production failed to equal IWP objective	[2]4	10	[2]14
No IWP objective available	8	7	15
Production equalled or exceeded IWP objective	9	12	21
TOTAL	41	51	92

SOURCE: Table 1-7.

[1] Exponential trend. – [2] Bangladesh and Pakistan counted separately, but treated as one country in IWP.

have an overriding effect on the general trends in the developing world as a whole. In only 4 of these 16 large countries (Brazil, Colombia, Egypt, Ethiopia) has the rate of growth of production from 1961 to 1971 reached the IWP objective for 1975, although in one other country (Turkey) for which these objectives are not available production increased a good deal faster than population during this period. In India, the largest of these countries, and in Argentina, Bangladesh and Pakistan,[14] Burma, Indonesia, Iran, Mexico, Nigeria, the Philippines and Thailand, production failed to match either population growth or IWP objectives or both.

At the other end of the scale, the 25 least developed countries identified by the United Nations General Assembly as requiring special assistance are of significance, although in a very different way. Of the 21 for which there are data some are found in almost all the groups distinguished here, and a few (Burundi, Ethiopia, Laos, the Sudan, Tanzania) have had good production results in relation to population growth or IWP objectives.

[14] Separate figures are not yet available for these two countries.

Table 1-7 shows separate growth rates for each half of the period 1961 to 1971, and these rates are also compared in Table 1-8. This aspect is most important since the strategy for the Second Development Decade calls for a gradual acceleration of growth rates. It is encouraging to note that in four of the countries where production failed to match IWP objectives over the period as a whole (India, Indonesia, Kenya, Uruguay) there was an acceleration in the latter half that suggests that targets for the decade might yet be achieved.

In order to examine the trends in the production of some of the main commodities in relation to IWP objectives, it is necessary to return to a broad analysis by region. This analysis indicates that, in addition to the overall shortfall from IWP objectives already noted, the pattern of the expansion of production has differed (in some cases quite markedly) from that proposed in IWP on the basis of projected demand, nutritional requirements and optimum land use.

Grains predominate so heavily in the agricultural production of the developing countries that the objectives proposed for this commodity group are close to those for agricultural production as a whole. Total grain production in every region increased less rapidly from 1961-63 to 1969-71 than proposed by IWP. The wheat production objectives were exceeded in both Africa south of the Sahara and the Far East, in the latter by a wide margin, but in Latin America there was a very big shortfall. For rice the position is reversed, the objectives being exceeded in every region except the Far East, the major producing area. Maize is the only major grain for which the objectives were met or exceeded in each region. For millet and sorghum there was a substantial shortfall.

Among the other main food crops, there is a strong contrast between the production trends for starchy roots and for pulses. For the starchy roots, which are crops of low nutritional value, the objectives were exceeded in every region except the Near East and northwest Africa, where they are of little importance. Partly this may reflect a strong demand for cassava flour for export. On the other hand, for pulses, which are an important source of protein in many countries, production lagged behind objectives in every region. In the Far East, which accounts for two thirds of the total area of pulses in the developing countries, production actually declined between 1961-63 and 1969-71, partly as a result of the diversion of land to more profitable competing crops like rice, sorghum and wheat. This is likely to have been particularly serious for the poorer consumers who rely on pulses as a cheap source of protein.

The objectives proposed for livestock production in the IWP regional studies are a good deal lower than those for crop production for 1961-63 to 1975, but slightly higher for 1975 to 1985 (Table 1-9).

TABLE 1-9. – AVERAGE ANNUAL RATE OF GROWTH OF CROP AND LIVESTOCK PRODUCTION IN DEVELOPING COUNTRIES IN COMPARISON WITH IWP OBJECTIVES

	Crop production			Livestock production		
	Production	IWP objectives		Production	IWP objectives	
	1961-63 to 1969-71	1961-63 to 1975	1975 to 1985	1961-63 to 1969-71	1961-63 to 1975	1975 to 1985
	..... *Percent per year*					
Africa south of Sahara	2.6	3.1	3.1	2.7	3.3	4.3
Far East	2.8	3.8	4.0	2.3	2.7	3.9
Latin America	2.9	3.0	3.1	2.8	3.0	3.7
Near East and northwest Africa [1]	2.7	3.5	3.6	3.2	2.5	3.6
TOTAL	2.8	3.5	3.7	2.7	[2]2.9	[2]3.8

NOTE: See Table 1-6 for regional coverage.

[1] IWP objectives for northwest Africa based on 1965. – [2] These figures are derived from those in the four IWP regional studies; the final IWP objectives in the world study, based on faster growth rates for pig and poultry production through the feeding of greater quantities of grains, raised the rate of growth to 4.1 percent for livestock over the entire period.

This is because of the long reproductive cycle of ruminants and the consequent need for a slow initial rate of increase in offtake in order to permit the building up of herds required for a faster increase later. As was noted earlier, the IWP world study proposed higher objectives for pigs and poultry in order to bridge the gap between supply and demand for meat. These higher objectives entail a rate of growth of 4.1 percent a year for livestock products over the whole period to 1985, compared with 3.6 percent for crops.

The overall performance of livestock production has been much closer to the original objectives than has crop production. Nevertheless the Near East and northwest Africa region was the only one to exceed the rates originally proposed for livestock production up to 1975.

Beef and veal production increased more slowly than the objectives in every region except the Far East, and mutton and lamb in all except the Far East and the Near East and northwest Africa. However, where the objectives for these products were exceeded it is likely to have been at the expense of the building up of herds required for a faster increase in the future. The production of pigmeat and, especially, poultry increased faster than the original regional objectives in the developing countries as a whole and in most regions, thus going some way toward meeting the higher objectives proposed in the IWP world study. The increase in milk production was ahead of the objectives in every region except the Far East.

Among the main export crops the production performance in relation to objectives has varied considerably. Objectives were exceeded for bananas, rubber, sugar, soybeans, and total fruit; there were shortfalls for cocoa, coffee, cotton, groundnuts, jute, tea, total oilseeds and tobacco.

Banana production in Latin America has greatly exceeded the objectives, as has the total of all the main fruit in every region except the Far East. Sugar production also exceeded objectives in all regions except the Far East. The production of oilseeds as a whole has been substantially below the objectives. Groundnut production declined in Africa south of the Sahara, and showed only a small increase in the Far East in relation to the high IWP objective. The only major oilseed to show a substantial increase was soybeans, which expanded at a rate of 12.6 percent a year, with rapid increases in Latin America and the Near East and northwest Africa. Palm oil output has begun to rise rapidly in the last few years as newly planted areas have come into bearing, especially in Malaysia.

The production of cocoa has increased faster than the proposed rate in Latin America, but more slowly in the major producing region of Africa. For coffee, IWP proposed only a small increase in Latin America, the main producer, and in the developing countries as a whole. Production has in fact declined in Latin America (mainly because of a combination of disease, bad weather and diversification programmes in Brazil) and in total (in spite of a larger increase than proposed in Africa south of the Sahara). Tea production has increased much faster than the objectives in each region, except the Far East, the major producer. Tobacco, on the other hand, has met the objectives only in Latin America.

Cotton production expanded much more slowly than proposed in IWP, although the objectives were slightly exceeded in the Near East and northwest Africa. The production of jute and kenaf declined, mainly because of the war in Bangladesh. In contrast to most of the other principal export crops of the Far East, rubber production increased much faster than the IWP objective.

Physical factors affecting production

The weather is obviously one of the biggest factors that affect the course of agricultural production. In the nine years that have elapsed since the base period of IWP there have been two two-year periods of widespread bad weather, although only three of these four years are covered in the long-term statistical analysis in this review. Judging by the experience of the period since the second world war, at least two such years must be expected every

decade. Possibly, therefore, the period under consideration may have had slightly more than the normal amount of bad weather. Nevertheless, the shortfall in production in relation to the objectives proposed in IWP is certainly much more than can be explained by weather conditions alone.

Another exogenous factor is the incidence of war and civil disturbances. It is obvious from the figures in Table 1-7 that the conflicts in a number of countries have substantially interrupted agricultural progress.

The measures required to achieve a more rapid expansion of agricultural production in the developing countries are well known. No purpose would be served by yet another analysis of them here. But it is useful to examine any recent evidence of shortcomings that may have contributed to the disappointing progress.

CULTIVATED AREA

IWP proposes that a much larger proportion of the production increase than in the past should come from higher yields per unit of land. The proposed expansion of the arable area is at the rate of only 0.7 percent a year from 1961-63 to 1985, with even lower rates in the Far East and the Near East and northwest Africa. It is not possible at this stage to make a detailed examination of the expansion of the arable area since the IWP base period in relation to these objectives. However, for grains, which cover the bulk of the area in the developing countries, the harvested area has increased faster than proposed in every region except Africa south of the Sahara (Table 1-10). Millet and sorghum are the only major grains for which the area has increased less than proposed.

The intensification of production has correspondingly lagged behind. This involves a massive increase in the use of modern means of production or material inputs such as improved seeds, fertilizers, pesticides, irrigation water and machinery, and for most of these inputs quantitative objectives are included in IWP. They are discussed here one by one, although the high-yielding varieties, with their need to be used as part of a balanced package of inputs, constitute a unifying factor.

IMPROVED SEEDS

In the Far East and in certain countries in other regions, the high-yielding varieties of rice and, especially, wheat were major contributors to the acceleration in the production increase that occurred in the second half of the period under review. The recent increases in the use of these varieties have,

TABLE 1-10. – ANNUAL AVERAGE RATE OF GROWTH IN HARVESTED AREA OF GRAINS IN DEVELOPING REGIONS, 1961-63 TO 1969-71, IN COMPARISON WITH IWP OBJECTIVES

	Africa south of Sahara	Far East	Latin America	Near East and northwest Africa [1]	Total
	Percent per year				
TOTAL GRAINS					
Harvested area 1961-63 to 1969-71	1.2	1.1	2.5	1.1	1.4
IWP objectives 1961-63 to 1975	2.1	0.7	2.1	0.5	1.1
IWP objectives 1975 to 1985	1.7	0.5	0.9	0.7	0.8
WHEAT					
Harvested area 1961-63 to 1969-71	2.6	2.9	1.0	1.2	2.0
IWP objectives 1961-63 to 1975	2.6	1.1	2.7	0.5	1.2
IWP objectives 1975 to 1985	2.3	0.5	0.9	0.8	0.7
RICE					
Harvested area 1961-63 to 1969-71	2.7	0.8	3.8	0.9	1.1
IWP objectives 1961-63 to 1975	2.2	0.7	2.9	1.8	0.9
IWP objectives 1975 to 1985	1.8	0.4	2.4	1.0	0.7
MAIZE					
Harvested area 1961-63 to 1969-71	2.0	3.4	2.6	...	2.6
IWP objectives 1961-63 to 1975	2.4	2.0	1.9	...	2.0
IWP objectives 1975 to 1985	2.0	2.0	0.8	...	1.3
MILLET AND SORGHUM					
Harvested area 1961-63 to 1969-71	0.8	0.2	12.0	2.4	0.4
IWP objectives 1961-63 to 1975	2.0	0.4	...	...	1.0
IWP objectives 1975 to 1985	1.5	0.3	...	...	0.8

NOTE: See Table 1-6 for regional coverage.

[1] IWP objectives for northwest Africa based on 1965.

however, been smaller than in the past, and it is likely that the easier phase of their introduction, involving mainly the larger and more progressive farmers with good access to credit, is coming to an end, so that progress may be more difficult in the future. Another problem is that in many areas the seed is deteriorating as a result of mixing.

The high-yielding varieties of rice have made much slower progress than those of wheat. In India, for example, only about 15 percent of the rice area is under such varieties and production has increased by little more than 2 percent a year in comparison with the IWP objective of more than 3 percent. For wheat, in contrast, about a third of the much smaller area is sown to high-yielding varieties and production increased by 8 percent a year from 1961-63 to 1969-71 (12 percent a year in the last three years) compared with the IWP objective of 5.5 percent. This is probably the main reason why wheat production has exceeded the IWP objectives in the Far East as a whole, but rice production has lagged. Faster progress with rice can be expected as the IR8 variety is increasingly replaced by IR20 and IR22, which are more disease-resistant and more acceptable to consumers. However, lack of controlled irrigation facilities still severely limits the spread of high-yielding rice varieties in southeast Asia.

Research programmes are needed to extend the scope of the high-yielding varieties to other crops and to less favoured areas. Some headway has been made in this direction by the recent establishment of new research stations, such as the International Crop Research Institute for the Semiarid Tropics, and research programmes on pulses in India and Iran and on swamp rice in west Africa. But the results of this research are bound to take some time, and in the meantime the lack of suitable high-yielding varieties of pulses, for instance, has caused farmers in some Far Eastern countries to switch to other more profitable crops for which such varieties are available.

The recent rapid increase of rubber production, ahead of the IWP objectives, is due mainly to the use of much higher yielding planting material of vegetatively propagated clones.

FERTILIZERS

Partly because one of the main features of the high-yielding varieties is their responsiveness to large doses of fertilizers, IWP assigned a key role to increased fertilizer use in the realization of its objectives. Between 1961-63 and 1968-70 the apparent consumption of fertilizers increased at an average annual rate of 13.8 percent in the developing countries as a whole, which is only slightly below the objective of 14.6 percent a year up to 1975 proposed by IWP to support its production objectives (Table 1-11). In both Africa south of the Sahara and Latin America fertilizer use increased more rapidly than proposed, but there was some shortfall in the Far East and in the Near East and northwest Africa. Although the lag behind the objectives was fairly small in the Far East, it is significant, because the region's expansion of production depends so heavily on intensification.

TABLE 1-11. – AVERAGE ANNUAL RATE OF GROWTH IN APPARENT CONSUMPTION OF CHEMICAL FERTILIZERS[1] IN DEVELOPING REGIONS IN COMPARISON WITH IWP OBJECTIVES

	Apparent consumption 1961-63 to 1968-70	IWP objectives	
		1961-63 to 1975	1975 to 1985
	Percent per year		
Africa south of Sahara	16.9	13.7	9.1
Far East	15.7	17.0	8.1
Latin America	13.7	12.2	8.0
Near East and northwest Africa[2]	6.5	9.5	6.4
TOTAL	13.8	14.6	7.9

NOTE: See Table 1-6 for regional coverage.
[1] NPK, nutrient content. – [2] IWP objectives for northwest Africa based on 1965.

There is evidence that actual applications of fertilizers, even on the high-yielding varieties, are often less than the recommended levels. Slowness in expanding soil-testing facilities, limited use of soil conditioners, poor extension services and a lack of purchasing points within easy reach of farmers still inhibit the expansion of fertilizer use in many areas. At the same time, there is in many countries a gap between demand and supply. In countries with a domestic fertilizer industry, many fertilizer plants are operating at only 40 to 60 percent of capacity. Although this is sometimes due to lack of demand, it is more often caused by a whole complex of factors that hinder production, including lack of capital, delays in placing orders for imported raw materials, lack of spare parts, transport difficulties, and interrupted or inadequate power supplies. There is an urgent need to improve the operating of existing plant as well as to avoid excessive construction delays with new plant.

In recent months a new problem has been the shortage and rising price of fertilizers and fertilizer raw materials on world markets, adding to the difficulties of the many developing countries that import most of their fertilizer supplies or the raw materials to produce them (see following section in Chapter 1, Fertilizer market situation).

PESTICIDES

Better control of plant pests and diseases has also acquired added significance because of the spread of the high-yielding varieties. These varieties, which now occupy much of the land in a wide belt running through Asia, include only a small range of genotypes in contrast to the former highly varied stands, so that the outbreak of a disease to which they are not resistant could sweep through huge areas. So far, although there have been serious disease losses with some of the earlier improved rice varieties, this has not occurred in the developing countries; but large-scale losses remain a persistent threat.

IWP estimates an annual increase in pesticide requirements of 11.2 percent in the developing countries up to 1985, ranging from 5.7 percent in Latin America to 19 percent in the Far East. While detailed statistical information is not available, the general impression is that while the use of herbicides for weed control has increased rapidly in many areas because of a shortage of labour at peak periods, the use of insecticides and fungicides has risen more slowly. There has been some increase in the use of biological agents in place of chemical control.

The slow rise in the use of chemical insecticides is partly due to the banning or restriction of DDT and other persistent organochlorine products. The insecticides used to replace them are usually more costly (in part because of the need for more frequent applications) and, although less persistent, are highly toxic, so that more care must be exercised to get proper results and prevent harm to the users. The poor development of plant protection services and training facilities is therefore an even greater obstacle than in the past.

IRRIGATION AND CROPPING INTENSITY

Better water control has also increased in importance since the introduction of the high-yielding varieties, which depend heavily on controlled and adequate water supplies. The need for the expansion of irrigation is also thrown into relief by the widespread crop failures of 1971 and 1972, which demonstrated once again the extreme vulnerability of agricultural production to the weather.

Largely on the basis of government plans, IWP envisages the expansion of the irrigated arable area by 1.7 percent a year from 1961-63 to 1985, with rates ranging from 0.8 percent in the Near East and northwest Africa, where irrigation is already well developed, to 2.4 percent in Africa south of the Sahara. Even more important are the allied proposals for a rapid expansion in multiple-cropping, whereby the harvested irrigated area would increase by as much as 2.9 percent a year in the developing countries as a whole (from 1.5 percent in the Near East and northwest Africa to 3.2 percent in the Far East).

TABLE 1-12. – AVERAGE ANNUAL RATE OF GROWTH OF IRRIGATED AREA IN CERTAIN COUNTRIES IN COMPARISON WITH IWP OBJECTIVES

	Irrigated area 1962 to 1969	IWP objectives 1962 to 1975
	Percent per year	
India	0.9	1.7
Malaysia (West)	—	1.6
Sri Lanka	1.3	4.0
Thailand	0.8	2.2
Algeria	5.1	3.6
Egypt	1.7	[1]1.2
Sudan	[2]6.4	[1]0.9
Syrian Arab Rep.	— 2.5	[1]3.0

[1] 1962 to 1985. – [2] 1962 to 1967.

It is not possible to make an overall quantitative assessment of recent additions to the irrigated area against these proposed objectives, but data for a few countries are shown in Table 1-12. Especially in the Far East, both in respect of irrigated arable area and multiple-cropping, achievements so far appear to have been well below the proposed rates. Indeed, it seems that a much larger proportion of recent production increases than was envisaged by IWP has come from the extension of the nonirrigated crop area.

The developments in India shown in Table 1-13 may be indicative of what has occurred in some other

TABLE 1-13. – INDIA: ANNUAL AVERAGE RATE OF GROWTH OF CULTIVATED AREA, IRRIGATED AREA AND CROPPING INTENSITY IN COMPARISON WITH IWP OBJECTIVES

	Actual rate of growth		IWP objectives
	1961-63 to 1969	1961-63 to 1967-69	1961-63 to 1985 [1]
	Percent per year		
CULTIVATED AREA			
Total	0.4	0.7	—
Irrigated	1.0	0.3	1.7
Nonirrigated	0.2	0.8	— 0.4
HARVESTED AREA			
Total	0.4	0.3	0.9
Irrigated	1.6	1.0	3.1
Nonirrigated	—	0.2	0.1
CROPPING INTENSITY [2]			
Total	—	— 0.5	0.8
Irrigated	0.6	0.7	1.3
Nonirrigated	— 0.2	— 0.7	0.6

SOURCE: Actual rates of growth based on *Agricultural situation in India*, April 1972.

[1] The IWP objectives for 1961-63 to 1975 and for 1975 to 1985 are the same. – [2] Harvested area as percentage of cultivated area.

countries as well. Between 1961-63 and 1967-69 both irrigated area and cropping intensity increased much less rapidly than envisaged in IWP, while the nonirrigated area continued to increase in contrast to the decline proposed. Although both trends appear to have been reversed to some extent between 1967 and 1969, the latest year for which there are data, some tentative conclusions may be drawn. Since IWP objectives for increased fertilizer consumption (which have been approximately met in India) were tied largely to their use on high-yielding varieties in irrigated areas, some of the fertilizer may have been used with less than maximum effectiveness on nonirrigated areas. At the same time, part of the extension of the nonirrigated area has probably involved marginal land, with a consequent accentuation of the instability of production.

While the irrigated area is slowly being expanded and improved, this is partly offset by land that is decreasing in productivity or even going out of production entirely as a result of poor irrigation practices. Underwatering, partly caused by ill-judged attempts to spread limited water supplies over the widest possible area, continues to be a major cause of salinization. Tube wells using electric or diesel pumps are overtaxing groundwater supplies in some areas. The effectiveness of existing irrigation systems is frequently limited because of such factors as poor design, slow development of farm-level facilities, inadequate drainage, seasonal unavailability of water, and shortage of power for electric pumps (sometimes caused, as in India recently, by reduced hydroelectric power output as a result of drought).

TABLE 1-14. – AVERAGE ANNUAL RATE OF GROWTH OF TRACTOR NUMBERS IN DEVELOPING REGIONS IN COMPARISON WITH IWP OBJECTIVES

	Actual rate of growth	IWP objectives	
	1965 to 1970	1965 to 1975	1975 to 1985
	..... *Percent per year*		
Africa south of Sahara . . .	6.2	4.8	4.8
Far East			
Two-wheel tractors	28.0	19.1	20.0
Four-wheel tractors . . .	15.6	12.5	13.2
Near East	18.8	7.3	5.1
Northwest Africa	6.0	3.1	2.9
Latin America	3.8	4.3	3.6
TOTAL	9.5	8.4	9.3

NOTE: For regional coverage see Table 1-6.

FARM MACHINERY

The production objectives of IWP are predicated on a substantial and rapid increase in the availability of farm power. As indicated in Table 1-14, the high objectives proposed for tractor numbers, which can be taken as a rough overall indicator of the level of mechanization, have been considerably exceeded in every region except Latin America, and in northwest Africa tractor numbers are already much higher than the total proposed for 1985. This overfulfilment of the objectives cannot, however, be viewed with equanimity. The objectives took account of the need to create as much employment as possible without sacrificing production objectives, and the rapid increases in mechanization that have occurred may in some cases have led to unnecessary displacement of labour.

The mere increase in the number of machines does not, of course, tell the whole story, for there are wide variations in the effectiveness with which the available machinery is used. In most countries machinery still appears to be introduced without a properly phased programme covering training and servicing facilities and possible labour displacement. Training facilities for machinery operators, field and workshop mechanics and extension workers are extremely limited in relation to the number of machines in use, and inadequate provision for spare parts is almost universal. Machinery for the rapid handling, drying, storage and processing of grain crops is insufficient in many areas of multiple-cropping. The overall effects of the recent upsurge in the use of farm machinery will depend on a number of factors that are difficult to assess, including the actual operations for which the machines have been used, the effectiveness with which they have been used, and the extent to which it has been possible to use in other operations the labour that they have replaced.

INPUTS FOR LIVESTOCK PRODUCTION

The livestock subsector, no less than that of crops, depends on rapid increases in input use if production targets are to be attained. Many of these concern the feed base, so that livestock development must have suffered from the inadequacies in crop production already discussed. In particular there is no sign yet of the emergence, except on a sporadic basis, of the additional grain supplies surplus to human consumption that were the basis of the higher growth rates for pigs and poultry proposed in the IWP world study. Little progress has been made in using agro-industrial by-products, particularly in ruminant rations, so as to release more grains for pig and poultry feed.

The increase in livestock production has come much more from increased slaughterings than from

higher productivity per animal. Progress in animal health has generally been faster than in breeding, feeding and management, although the main progress has been confined to a few of the major epizootic diseases. Little has been done to strengthen animal health services, especially in improving vaccine production, diagnostic facilities, and field programmes for the prevention and control of infectious and parasitic diseases.

Institutional factors

The rural institutions and services that are so crucial to agricultural development can to a great extent be judged on the basis of success or failure in meeting objectives for the use of inputs of the kind discussed above. However, they are much more than just a delivery system for inputs, since they must also provide the incentive for farmers both to use these inputs and to make extra effort, and they very largely determine such basic issues as income distribution and employment in the rural sector as well as the course of production. They can be discussed here only in very broad qualitative terms.

Progress in respect of many of the basic institutions and services inevitably takes a long time, so that the necessary measures must be taken immediately if they are to have any effect on production during the Second Development Decade. It also depends heavily on much needed all-round improvements in the administrative efficiency of governments.

Land tenure

IWP gave prominence to the need for land reform in many countries in order to provide for more efficient use of the factors of production, for a wider distribution of the control over these factors and of income and effective demand, and for the incentives and services needed for the more rapid adoption of improved technology. Public statements by governments on the need for land reform have continued to proliferate, for example in the particularly comprehensive declaration adopted by the FAO Regional Conference for Latin America in 1970. Actual progress, however, remains disappointing except in rare cases.

While there have been some new agrarian reform programmes in recent years, their scope has often been limited, in some countries they have been implemented very slowly, and evasions of legislative provisions have been widespread. Even where implementation has been vigorously pursued, poor administrative systems and lack of trained personnel for supporting services have sometimes limited results.

Credit

The increased use of the purchased inputs required for technological progress depends heavily on improved supplies of credit for agricultural production. IWP proposed some approximate objectives for the expansion of credit. Requirements of operations credit are estimated to rise by 177 percent between 1962 and 1975, and by a further 69 percent between 1975 and 1985. For the much larger category of medium- and long-term development credit, the annual needs between 1975 and 1985 are estimated as 50 percent greater than from 1962 to 1975.

There have been substantial increases in the supply of agricultural credit in recent years, although it is not possible to assess them against the IWP objectives. Even data on institutional credit are far from complete, and very little is known about the amount of credit derived from noninstitutional sources. Even if the total quantity were accurately known, this would not provide a satisfactory indicator of the availability of financing for agriculture.

Part of what is counted as agricultural credit actually finds its way out of the agricultural sector. Much of the increased supply has gone to the large landowners, who have often used it for more profitable nonagricultural investment. Much of the increase in institutional credit has served merely to replace private sources, and the private credit resources thus released have often been used for consumption or for nonagricultural investment. Where commercial banks and other urban-oriented credit institutions have opened branches in rural areas (sometimes under government pressure), rural savings have frequently been channelled to the urban areas.

Credit institutions still tend to concentrate almost exclusively on the supply of credit at low interest rates and to neglect the mobilization of rural savings for rural investment. The large farmers are usually politically powerful enough to prevent increases in the subsidized interest rate, and this in turn denies institutional credit to small farmers because of the high cost of administering loans to them. The operation of many credit institutions remains highly inefficient.

Extension and education

The spread of improved technology required to meet IWP production objectives in turn requires a massive increase in the size and effectiveness of extension services. IWP includes estimates of the trained manpower requirements for adequate extension and other government services to agriculture in each of the study countries, as well as many proposals for making these services more effective.

There is little evidence of progress in this direction. Most extension services continue to suffer from poor organization, a lack of adequate physical facilities and a shortage of personnel. The story is all too familiar. The extension agents lack vehicles, and spare parts and fuel, to get out to see the farmers; they lack travel and subsistence allowances when they do go out to the farmers; they lack office space, and typewriters, and duplicating machines, and paper to carry on their desk work; they lack communication facilities, particularly telephones, with which to keep in touch with each other and with the farmers; and they lack most of all well-formulated extension programmes which would give them the basis for a satisfactory programme of work. Links between research, education and extension generally remain weak, with the result that the necessary information is not getting through to the farm level, particularly to small farmers. Extension work still sticks too closely to the concept of an individual agent reaching a particular "clientele" in person and much more attention needs to be paid to group work and to mass communications, particularly through radio and television. Insufficient efforts have been made to involve the farmers themselves, by means of various types of farmers' organization, in making better use of advisory information through self-help.

Even where good progress has been made in the development of higher and intermediate teaching institutions, there is often an unpractical orientation in the training, and the graduates are seldom used at the farm level where they are most needed. In many countries education and extension are primarily directed to the adult male, and the role of women and youth in the improvement of farm practices is neglected. A preoccupation with traditional, formal systems of education has hampered the innovations required in out-of-school education. In general, few countries have yet been able to develop systems that are really geared to the needs of the farmers and have the capacity to reach them effectively.

Marketing and prices

The attainment of the production objectives requires that marketing systems function as much more effective mechanisms for transmitting demand back to farmers in a way that encourages consistently greater production for the market.

Even where communications are good and producers not physically isolated, it has proved difficult to integrate small farmers into the marketing system and assure them of ready buyers at fair prices. Attempts to organize the collection and primary marketing of produce through farmers' cooperatives have succeeded in some cases, but there have been numerous failures, especially where governments have tried to coerce farmers into a cooperative system without adequate preparation. Some countries have established statutory boards or public buying agencies to deal directly with farmers, but such organizations have often proved too costly, and ill-adapted to the detailed practical work of collecting produce from numerous and widely scattered farmers.

There have been similar difficulties in many countries in the distribution of fertilizers and other inputs. While it may be necessary in the early stages of fertilizer promotion for governments to handle marketing directly, as fertilizer use expands and the number of distribution points increases it becomes more difficult for conventional government departments to provide the necessary services cheaply and efficiently.

Marketing policy still frequently suffers from overpreoccupation with the forms of organization, to the neglect of management efficiency, risk-bearing, innovation and incentives. Where much of the marketing system is in private hands, too little is done to promote effective competition among entrepreneurs and to give them the confidence needed for investment in new methods, equipment and installations. Pricing policies and administrative controls often need to be more realistic and flexible than in the past.

Higher farm prices were a major factor in the many countries, especially in the Far East, where there was an acceleration in the production increase at the end of the 1960s. Most of the high support and procurement prices of that time appear to have been maintained, although in many cases their incentive effect has been eroded by inflation and by increases in the prices of inputs. Fertilizer subsidies have been discontinued in a number of countries.

Other factors

Agricultural planning and investment

Although the current development plans of many countries give more emphasis to the agricultural sector than in the past, this is seldom translated into effective implementation measures or actual investment. Investment has frequently not matched the allocations in the plans, because of failure to raise adequate domestic resources, declines in external resources or, more often, underutilization of funds.

The most common difficulties include frequent changes in the officials in charge of the implementation of projects, insufficient emphasis on project preparation and feasibility studies, and lack of coordination among the multiplicity of agencies involved in planning and execution. In many countries

lack of coordination and even rivalry between ministries of agriculture and of irrigation have had the result that on-farm development has lagged behind the provison of water. There has often been insufficient relationship between the medium-term planning exercise and annual operational programmes directly linked to the public budget.

Measures for implementing national plans generally remain inadequate. In Africa there has been a frequent lack of appreciation of the difficult technical and social problems involved in raising the productivity of traditional farming. In many of the Asian countries where stress is laid on improved technology, the institutional arrangements (especially regarding credit) for providing the necessary inputs at farm level have been inadequate. Few countries carry out the necessary timely planning of their fertilizer requirements and procurements. The coefficients used by the planners for estimating the response to fertilizers and other inputs are often unrealistic.

Domestic demand

For South America, the IWP regional study and the subsequent perspective study stress the importance of the slow growth of domestic demand as a factor limiting the increase of production, especially in the many countries where land resources are abundant in relation to the present population. The South American study demonstrates that a moderate redistribution of income could generate increased demand for agricultural products that would permit an additional 0.8 percent in the annual growth of production.

With the events of 1971 and 1972, however, attention has been concentrated more on the failure of production to develop in line with demand. In the countries covered by IWP taken as a whole, the gross domestic product increased between 1960 and 1970 at approximately the rate assumed for 1961-63 to 1975 under the "high variant." Thus the shortfalls from the agricultural production objectives imply a failure to meet demand at constant prices, resulting in increased imports and higher food prices.

The situation has, of course, varied substantially from region to region and country to country. The failure to meet demand must have been most serious in Latin America and the Near East, where the GDP objectives were substantially exceeded. On the other hand, in Africa south of the Sahara and northwest Africa GDP growth was well behind the objectives, so that it is possible that production roughly matched demand at constant prices. In the Far East a slight shortfall from GDP objectives will have somewhat mitigated the big gap between production performance and objectives.

Export demand

The constraints imposed by the slow growth of export demand are well known. In the Second Development Decade strategy a growth rate of more than 7 percent a year for all exports is considered necessary for the attainment of the GDP growth target. IWP proposes that the agricultural exports of the developing countries should increase by 3.3 percent a year, which would imply an increase of 10-12 percent a year in nonagricultural exports if the target for the decade is to be met. From 1960-62 to 1968-70 the agricultural exports of the developing countries grew at the rate of 3.2 percent a year, or slightly below the IWP objective. This was accompanied, however, by a decline in their share of total world agricultural trade from 40 to 34 percent.

Of the competing products grown in both developing and developed countries that account for about 80 percent of world agricultural trade, developed countries obtain about two thirds of their imports from other developed countries, and this proportion has been increasing. Only noncompeting tropical food products maintained their position in the 1960s, but even here advances in one developing region have often been at the expense of others (for example, African exports of coffee and cocoa have increased much more rapidly than those of Latin America). Raw materials fell from 21 percent of total agricultural trade in 1960-63 to 16 percent in 1970, reflecting substitution by synthetics and other technological changes such as the replacement of jute bagging by bulk handling.

The real value of agricultural export earnings has continued to decline in relation to manufactures, and the terms of trade have moved steadily against the developing countries. Both this longer term decline and the frequent short-term fluctuations in export prices (combined with inflation in the developed countries and their recent currency changes) have greatly added to the difficulties of national planning in the developing countries. The foreign exchange component of technological progress in agriculture is large in the many countries that have to import most of their requirements of fertilizers and other modern inputs.

Development assistance

For the achievement of the Second Development Decade targets the developed countries were called on to increase official development assistance on concessional terms to 0.7 percent of their gross national product by 1975. It now seems unlikely that development assistance will reach even half of this target during the first half of the decade, and it is therefore highly probable that one of the major tar-

gets in the international strategy for the Second Development Decade is already doomed to failure. The terms of official development assistance have hardened and the share of grants has declined. The rate of increase in service payments has accelerated.

It was estimated that in 1965 only 7.4 percent of total external assistance went to agriculture, but it is difficult to determine whether the overall trend has subsequently been upward or downward. Growing emphasis is being given to the agricultural sector by multilateral institutions such as the World Bank and the regional development banks. The World Bank's target of a fourfold increase in loans to agriculture between 1969 and 1973 has been achieved, in spite of delays in the replenishment of IDA funds. It is not possible to assess, however, the extent to which these trends have been offset by decreased bilateral assistance to agriculture. Moreover, even where bilateral support for projects has been continued at the same level, there is reason to believe that the financing of current inputs, such as fertilizers and spare parts for tractors and pump sets, may have been cut back.

Fertilizer market situation

In the latter part of 1971 the fertilizer market situation began to change as supplies of fertilizer materials in the international market became short and prices started to rise. Export prices by late 1972 were approaching the high levels of the mid-1960s. Their rate of increase should now begin to decline and during 1974 they should level off as supplies become more plentiful from both new and traditional exporters, including eastern European producers.

Fertilizer prices have risen much less than those of other purchased farm inputs in the last ten years or so, largely due to improved technology and the competitive nature of the fertilizer industry. Rising costs of raw materials — especially of natural gas and petroleum feedstocks — pollution control and transport may adversely change this situation.

The quick change from relative plenty to scarcity in international fertilizer supplies has several causes. Excess capacity in the late 1960s arose from earlier investment in new plants by the traditional export producers, and from the entry of petroleum companies into the industry in the expectation that demand for fertilizers would increase very rapidly in the developing countries. At the same time, the economic size of nitrogen plants increased sharply as a result of new technological developments, making it necessary for the traditional producers to invest in large-scale modern plants if they were to survive. The siting of new nitrogen plants in a number of oil-producing countries, utilizing low-cost feedstocks and the quantities of ammonium sulfate derived as a by-product from caprolactam production, also led to larger supplies and lower prices.

Although fertilizer consumption was rising very quickly, by about 15 percent a year in the developing countries and by about 8 percent in the developed, it did not keep pace with the large jumps in output made possible by the bigger plants. Stocks mounted rapidly. Some oil companies withdrew from fertilizer production by selling or closing their plants. Traditional producers closed older uneconomic units and production controls were introduced in certain sectors, for example the Japanese nitrogen and the Canadian potash industries. Some new capacity failed to materialize owing to unforeseen difficulties in bringing new large-scale plants into production. In several developing countries plants operated at only half their rated capacity, for various reasons. Meanwhile the demand for all three plant nutrients — nitrogen, phosphate and potash — has continued to grow steadily. Consumption increased by 6 percent in 1971/72 to 72 million tons of nutrients (N, P_2O_5, K_2O). Although significant increases in nitrogen production were reported from the U.S.S.R. and China, largely used domestically, production elsewhere showed little change. The large stocks of nitrogen accumulated during the 1960s were run down and a tight supply situation arose, also for stocks of phosphate and potash. This situation particularly affected developing countries, which in 1971/72 were still importing just over half their fertilizer supplies (in plant nutrients) in spite of increased domestic production in many of them during the past decade.

This close balance between global supply and demand for nitrogen became evident in the middle of the 12-month period from 1 July 1971 to 30 June 1972. Deliveries to major markets in developed countries were lively in the early months of this period, and with producers meeting only known requirements and not building up stocks a difficult supply situation developed for most fertilizers. Consequently, there was a shortage of material for export on spot or short-term bases.

Urea, now the leading nitrogen product, became scarce and also ammonium sulfate, which owing to

its low nitrogen content has become relatively less important. Compounds, particularly diammonium phosphate, have also been in short supply. Again, closure of uneconomic plants and lower stock levels were a major factor. Also, domestic use of diammonium phosphate in the United States, the major producer, was reported to be considerably above 1970/71 levels in the early part of 1971/72.

This situation of relative scarcity resulted in higher prices which were further affected by increased sea freight rates. Prices of most nitrogen products had risen by between 10 and 20 percent (f.o.b. basis) by the end of the first quarter of 1972. They continued to rise and had registered a further increase of 40 to 50 percent by the end of 1972. In the first quarter of 1973 there was some indication that prices were beginning to level off. However, supplies remained tight, especially of nitrogen and some phosphate materials, and subsequently prices continued to rise but at a reduced rate.

Export sales are normally on tender, which results in a certain amount of price flexibility, with smaller lots usually commanding the highest prices. By mid-1971 prices for ammonium sulfate at US$18-$20 per metric ton (f.o.b.) from all three main supply sources — United States, western Europe and Japan — had risen well above the extremely low prices of $4 to $10 per ton (f.o.b.) quoted a year earlier to clear excess stocks. The continuing shortage led to prices as high as $24-$26 per ton (f.o.b.) by the early part of 1972. More recently, prices have steadied around $30-$32 per ton (f.o.b.) in bulk.

Urea prices showed similar upward trends. The heavy demand, especially from Asia, forced prices to as high as $70-$75 per ton (bagged, f.o.b.) by the end of 1972.

Phosphate prices have also risen. Producers have increased prices by reducing the discounts that have been generally available in recent years under competitive pricing policies. United States export prices for triple superphosphate, for example, rose from $40 per ton (f.o.b.) in mid-1971 to $77 per ton by the end of the third quarter of 1972.

After having fallen to low levels following the opening of a number of new mines in Saskatchewan, Canada, prices of potash fertilizers have been rising since 1970 owing to the imposition of a quota and the proration of production by the provincial government. European producers raised prices of potash salts by about 10 percent in 1972, the third increase in three successive years, to bring them into line with those of the North American industry. The adjustment of international currency values has coincided with these increases. For most exporting countries, which traditionally quote their prices in dollars, the devaluations of 1972 and early 1973 will reduce income from the higher prices already in force, and may possibly lead to even further rises.

Changes in the procurement plans of China and India are likely to influence the fertilizer export market in the next year or so. Imports by these two countries account for over 35 percent of the total volume of nitrogen in international trade. They consume about 15 percent of the world nitrogen supply while producing less than 8 percent. Both countries are making sustained efforts to increase domestic production. India, which now has a rated production capacity of about 1.8 million tons of nitrogen per year, is making a determined attempt to reach an output of at least 1.3 million tons of nitrogen in 1972/73 by improving the utilization rates of existing plants, which only averaged about 60 percent in 1971/72, and by bringing in new production. Low utilization of capacity is due to a variety of reasons, including power shortages (caused by drought), operational difficulties in some older plants, lack of spare parts and raw materials, excessive time taken for maintenance and repairs, and transport difficulties.

Large quantities of nitrogen, phosphate and all potash fertilizers must be imported to meet India's requirements of some 3.8 million tons of nutrients forecast for 1973/74. India will have to continue to import at least 40 percent of its requirements in the next five years or so to meet demand, in spite of the efforts described above to increase production, and its purchases are likely to gradually shift from traditional export producers to suppliers in eastern Europe and the Near East.

Some observers expect Chinese procurements to decline, as a result of the success of small local plants which helped to raise fertilizer production by an estimated 550 000 tons in 1971/72 to a total of 2.8 million tons of nutrients, of which nitrogen accounted for 1.8 million tons. Imports (1.6 million tons) were about 10 percent less than in 1970/71. Western European producers have been major suppliers to the Chinese market but Near East and eastern European producers are also now exporting to China. Until a few years ago about a third of Japan's nitrogen exports went to China; now China takes over 80 percent.

Western European and Japanese producers are exporting considerable quantities to a large number of smaller markets in Africa, Asia and Latin America. The western European producers are shipping increasing amounts to the eastern seaboard of the United States as well, owing to a shortage of natural gas which is a major feedstock in United States fertilizer manufacture. A related development is the huge ($6 000-$8 000 million) fertilizer trade agreement recently signed between the U.S.S.R. and a major United States petroleum company, which calls for long-term U.S.S.R. exports of ammonia in return

for phosphate fertilizers from the United States. Eastern European producers, already committed to India and other countries in Asia, are increasing sales to EEC countries, notably the Federal Republic of Germany, France and Italy, and to the U.S.S.R. The potential export surpluses of many eastern European producers indicate possible further increases in overseas shipments, which will probably be contracted mainly under bilateral trade and barter agreements.

Prospects up to 1975 depend on the additional capacity scheduled to begin production in the near future, especially the large export-oriented manufacturing capacity in eastern Europe. Beyond that it is difficult to predict. It is already known that Venezuela has plans for increasing capacity, principally for export. Some countries in Africa (particularly Nigeria) and Latin America are exploring the possibilities of erecting plants. India is engaged in the expansion of some existing plants and the construction of new ones. As well, India is to receive all the output of an ammonia plant in Iraq, which is a joint venture of the two countries, has made long-term contracts for ammonia supply with some other countries, and is negotiating with Kuwait to build an ammonium phosphate plant in that country. China is increasing the number of small plants and has entered into contracts for the construction of six large-scale urea plants. Japan is engaged in investments in fertilizer plants in different parts of the world, including India, because of feedstock and pollution problems at home.

It is likely that traditional exporters will be more hesitant about committing capital to new production capacity, especially with the increasing costs and uncertain supply of petroleum feedstocks. It takes a number of years to move from the planning stage of a new plant to its completion and start of operations, and exporters may well fear a decline in demand just when their new plants come into use. This would only accentuate the downward swing of the cyclical movement from which the fertilizer industry is now recovering.

Fisheries

Production and trade [15]

Markets for most fishery products in 1972 were characterized by strong demand for declining supplies (Table 1-15) and consequent record price levels. A sharp drop in raw material catches in Peru and Chile was responsible for reduced fish meal supplies. Trade volume did not decline as much, because it was possible to make up shortages in part by withdrawals from large fish meal inventories at the beginning of the year. Trade in products for human consumption continued to expand (Tables 1-16 and 1-17); the increased value of shipments was influenced by currency realignments since late 1971, especially because of the large volume of trade between the two countries (Japan and the United States) whose currencies have been most drastically affected.

The outlook for 1973 is for continued scarcity, strong demand and high prices. Opportunities for expanding production from currently exploited resources are limited, and in some fisheries catches are likely to be below 1972 levels, including the South American raw material fisheries. Substitution by competing protein products is unlikely, because supplies in the most important markets may be as equally scarce as those of fishery products or even scarcer, and because price trends are curving even more steeply upward.

World fish production failed to expand for the second year running, bearing out forecasts made a few years ago that the steeply upward trend of the 1960s would not be resumed until large unutilized resources were brought into use. Most of the major fishing countries caught less or only slightly more fish than the year before, and global production was estimated to be 9 percent below 1971. Many developing countries continued to make progress in expanding their fisheries but a severe decline in the production of Peru, the country which had become the world's largest producer in the 1960s, more than offset the net catch increase in the rest of the world. Quite frequently lower catches were the consequence of a reduction of stocks on traditional fishing grounds. Measures are being taken to rebuild many of the depleted stocks. They were instituted in compliance with either internationally agreed or nationally imposed measures, and took the form of area and species quotas, permanent or temporary closures of fisheries, protection of spawning grounds, and gear size and catch control regulations to prevent the taking of fish below a certain size and weight or which have not yet spawned. The most far-reaching protection measures were introduced for marine mammals; a special law in the United States, for example, imposed a moratorium on catching and importing

[15] For a detailed account of the fisheries situation see FAO. *Yearbook of fishery statistics. 1972.* Vol. 34. Rome. 1973.

TABLE 1-15. – ESTIMATED WORLD [1] CATCH OF FISH, CRUSTACEA AND MOLLUSCS

	1967	1968	1969	1970	1971	1972 [2]	Change 1971 to 1972
	Thousand metric tons						*Percent*
DEVELOPED COUNTRIES	24 610	25 890	24 930	26 190	26 330	26 300	—
Western Europe	11 280	11 010	10 410	10 960	11 040	11 200	+ 1
North America	3 700	3 950	3 870	4 140	4 060	3 750	— 8
Oceania	150	160	140	160	180	180	—
Other developed countries [3]	9 480	10 770	10 510	10 930	11 050	11 170	+ 1
DEVELOPING COUNTRIES	22 490	24 030	23 093	27 190	26 290	20 550	— 22
Latin America	12 820	13 660	11 940	15 510	13 940	7 400	— 47
Far East [1,4]	6 950	7 700	8 160	8 590	9 110	9 500	+ 4
Near East [5]	550	510	570	570	580	600	+ 3
Africa [6]	2 080	2 080	2 330	2 410	2 430	2 800	+ 15
Other developing countries [7]	90	80	90	110	230	250	+ 9
CENTRALLY PLANNED COUNTRIES							
Eastern Europe and the U.S.S.R.	6 540	6 940	7 400	8 240	8 400	8 950	+ 7
World [1]	53 640	56 860	55 420	61 620	61 020	55 800	— 9

NOTE: Figures refer to the weight of the catch in metric tons. The annual changes in percentage terms may therefore differ considerably from those in Table 1-1, where the quantities of production are weighted by the unit values, as indicated in the explanatory note on page *xi*.

[1] Excluding China and other Asian centrally planned countries. – [2] Preliminary. – [3] Israel, Japan, South Africa. – [4] Excluding Japan. – [5] Excluding Israel. – [6] Excluding South Africa. – [7] Includes developing countries in North America and Oceania.

products derived from them. In Peru, fishing for the species which provide raw material for fish meal had to be suspended for extended periods because of a drastic decline in stocks. Control measures in some instances were related to catch utilization, to prevent the processing of food fish, which was in scarce supply, into fish meal. The enforcement of internationally agreed measures was facilitated by schemes for the mutual inspection of fishing vessels. Voluntary reduction of fishing fleets also assisted in the curtailment of national fishing efforts in a few instances.

New claims for exclusive fishing rights, including those made by some countries of west and northwest Africa, were responsible for sharply reduced catches of species fished by foreign countries in the waters affected. Bilateral negotiations for the concession of fishing privileges in the newly claimed zones were successful in some instances; however, the agreements granted access to only a part of the former fleet and sometimes extended over a limited time. New fishing limit claims by developing countries affected operations by their neighbours and by the few developing countries which had made remarkable progress in

TABLE 1-16. – INDICES OF THE VALUE OF FISHERY EXPORTS BY REGION

	1967	1968	1969	1970	1971	1972 [1]	Change 1971 to 1972
	1961-65 average = 100						*Percent*
Western Europe	131	127	143	171	198	230	+ 16
North America	137	140	164	178	205	241	+ 18
Oceania	189	257	311	314	409	500	+ 22
Latin America	142	161	169	228	240	228	— 5
Far East [2]	166	184	231	290	348	369	+ 6
Near East [3]	139	112	101	44	53	58	+ 9
Africa [4]	111	120	144	157	170	187	+ 10

[1] Preliminary. – [2] Excluding Japan, and China and other Asian centrally planned countries. – [3] Excluding Israel. – [4] Excluding South Africa.

TABLE 1-17. – INDICES OF VOLUME, UNIT VALUE AND TOTAL VALUE OF WORLD [1] TRADE IN FISHERY PRODUCTS

	1967	1968	1969	1970	1971	1972 [2]	Change 1971 to 1972
	1961-65 average = 100						*Percent*
Volume	117	125	121	127	130	133	+ 2
Average unit value	115	114	124	137	154	171	+ 11
Value	131	137	151	179	202	228	+ 13

[1] Excluding centrally planned countries. – [2] Preliminary.

establishing large-scale long-distance fisheries. Argentina's ban, for instance, announced early in 1973, on all fishing activities of foreign vessels within the 200-mile limits claimed was reported as threatening the existence of a part of the fishery industry in the south of Brazil which depended on the area for its raw material supply. At the centre of international attention was the fishery limit problem created by Iceland's extension of exclusive rights from 12 to 50 miles.

The third United Nations Law of the Sea Conference, scheduled to start late in 1973, will be concerned inter alia with the fishing limits question and it is hoped that it will be able to propose a rational and equitable solution.

Adverse weather conditions, hampering operations, led to catch declines in some fisheries. Environmental factors may have contributed to the drastic decline in South American raw material fish stocks. Nature also caused havoc in Iceland, where the country's main fishing port was severely damaged by the eruption of a volcano in January 1973.

Strong demand for fish and fishery products continued. Per caput consumption of food fish increased in a number of countries. The sharply reduced supplies of raw material since the second half of 1972 have been reflected in record prices of fish meal in world markets. Failure to substitute competing feed ingredients provided some indication of the solid demand base for fish meal, although the steep increase in soybean meal prices was undoubtedly also of importance. Sometimes price rises merely reflected supply shortages and the continuing inflationary trends. In many instances, however, changes in consumer preferences and increased incomes produced clearly identifiable demand shifts. Shortages of competing meat products were a factor influencing fish consumption in some countries; in Greece, for example.

Because of seasonal fluctuations in the availability of many species, some varieties were in temporary oversupply in a few markets. In Finland, for example, where seasonal surpluses are a common occurrence in the herring fishery, the Government had to provide price support for the fishermen in areas of excess production, as well as help in financing transport of catches to effect a more even geographic distribution of supplies. Markets were influenced also by changes in demand patterns, some of them reinforcing trends already apparent for some years. In high-income countries demand was expanding most rapidly for the more expensively prepared and packaged products and for shellfish varieties in the luxury class, while for some staple cured products it continued to decline. This has seriously affected the operations of the traditional salt-fish vessels of some western European countries. Scandinavian exporters of cured fishery products, however, experienced an improvement in markets in other parts of the world. Demand for frozen fishery products continued to grow in almost all developed countries, although in one major fish-consuming country, the United Kingdom, the pendulum seemed to have swung the other way, with little expansion in freezing but a strong increase in demand for fresh fish.

A relatively large number of countries reported a substantial increase in the volume and an even higher increase in the value of their fishery trade. Imports reached record levels in the United States and Japan, the two major world markets for fishery products. In Japan, which until recently played a leading role in the export trade only, total import value was over 25 percent higher than total export value. About three fifths (in value terms) of Japan's import needs were met through purchases from countries in the Indo-Pacific region, the bulk coming from developing countries of southeast Asia whose sales to Japan rose very substantially. To meet supply gaps in the domestic market, particularly for products in special demand such as shrimp, Japan promoted the formation of new joint ventures with developing countries, offered technical aid and equipment to centrally planned countries such as China and the Democratic People's Republic of Korea in connexion with agreements covering the purchase of fish, and removed import duties on some fishery products.

Tariffs on fishery imports were abolished or lowered also by other countries, either by unilateral decision or under multilateral agreements which included provisions for the gradual elimination of trade barriers. Sweden lifted all duties on fishery imports from developing countries except those on canned shrimp. The six EEC countries, and the United Kingdom in anticipation of joining the Community, removed restrictions on certain fishery imports from the countries of eastern Europe. Trade in fishery products was to be liberalized under general trade agreements concluded by some European Free Trade Association (EFTA) member countries, among them Sweden and Iceland, with EEC. Import duties were either completely or partly removed by EEC for those commodities for which production by member countries was insufficient to satisfy demand in the Community.

Some countries promoted trade expansion through technological and organizational improvements at the processing and distribution levels. Collaboration on sanitation and quality control, under a comprehensive fishery agreement between the United States and the Republic of Korea, was expected to facilitate a substantial expansion of fishery exports, including oysters, from the latter country to the United States. Iceland set up a special sales organization for canned fish to support a branch of its export-oriented fishery industry which had been lagging. This country also devalued its currency once more in December to stimulate exports, made up for the most part of fishery products.

The various currency readjustments from late 1971 had more direct impact on the trade of those countries whose exchange rates had changed most, either upward or downward. To avoid another yen revaluation, in the autumn of 1972 Japan moved to establish export ceilings (in value) for commodities for which shipments had been in excess of $100 million in the preceding fiscal year. The fresh and frozen fish export industry, which would have been affected by this measure, pleaded for an exemption from control on the grounds that Japan had only just initiated exports of some products, such as frozen pollack and turbot to the United States, and that the new markets might be lost by the suspension of shipments. Under a compromise agreement, export controls (which were to be enforced on a voluntary basis by an industry association) were to be confined to frozen tuna, the most important individual item in the commodity class. The new revaluation of the yen in early 1973 led to a complete suspension of frozen tuna sales to the principal export market, the United States, as the risks assumed by the Japanese shippers under existing sales contracts were felt to be excessive. The Federal Republic of Germany tried to cope with trade problems, which had arisen as the result of the upward revaluation of the Deutschmark, by introducing import duties and export compensations in the herring trade on a temporary basis in order to protect domestic production.

Trade flows in fishery products remained essentially unchanged, although price factors and currency realignments were thought to have diverted supplies, in a few instances, from one market to another. As was already evident in 1971, some of the Latin American countries which until recently had exported almost their entire shrimp catches to the United States increased their shipments to other markets, notably Japan. The United States, on the other hand, became an increasingly attractive market for Scandinavian groundfish exports, as shipments to the Federal Republic of Germany and the United Kingdom declined. These shifts were mainly a reflection of price differences and profit-making opportunities. An eventual weakening of the United States market for groundfish products could possibly lead to substantial increases of imports of frozen blocks of lower priced species, such as pollack and turbot from the Pacific area, at the expense of higher priced blocks and fillets produced from other species by Canada and the Scandinavian countries.

Policies and other issues

FISHERIES AND THE EXPANDED EEC

Reluctance to agree to provisions on common access to fishing grounds was an important factor in the majority vote of Norwegians against entry of their country into the European Economic Community in the national referendum held in the autumn of 1972. The three new members of the Community, Denmark, Ireland and the United Kingdom, have added about 2.5 million tons to the fish production of the Community and thus more than doubled its supplies. Norway would have contributed another 3 million tons, raising total supplies for the Community's population of 250 million to 7.5 million tons.

In Norway — as well as in the United Kingdom (especially Scotland) and Ireland — much of the opposition to entry came from inshore fishermen fearful of a depletion of resources in coastal waters if access (notwithstanding certain limitations in this respect negotiated during the hard bargaining which preceded the conclusion of the fisheries agreement in late 1971) to their fishing grounds were granted to foreign long-distance fleets. Recent developments seem to indicate that the fate of near-shore operations depends, at least in some instances, as much on what may happen to national long-distance fleets as on operations of foreign vessels. Should fishery limit disputes, for instance, compel long-distance

fleets to reorient their operations, the near-shore fishermen may either encounter new competition on their customary fishing grounds or — if the larger vessels of the long-distance fleet were to be sent to more remote areas or the fleet be reduced in size — may gain a competitive advantage.

One new member, Denmark, is now the Community's biggest fish producer, and by virtue of its geographic position has a key role in Europe's fishery industry. The country now enjoys duty-free access to some of its biggest markets where, moreover, it has an important advantage over its strongest competitor, Norway, which is faced with third-country barriers. Expanded market opportunities and the strong demand for food fish in the Community may induce Denmark to divert part of its large raw material catches for fish meal to supplies for human consumption, although current record prices of meal in world markets will make a major shift in the short run rather unlikely. The country's nearness to rich fishing grounds, and the opening up of ports to fishermen from other member countries, may lead to the establishment of new fish-processing facilities in Denmark. These developments, as well as the generally higher prices Danish fish will fetch, indicate that the country's fishing industry is likely to prosper in the Community.

Some of the EFTA countries which had not applied to join EEC signed agreements with it in mid-1972 to protect their trade interests. The agreements, to go into effect starting in 1973, provided concessions also for fishery products, which were to be exempt from import licences; most import duties were to be gradually abolished over a period of five years.

Norway finds itself in a special position as a result of its decision not to join the Community. Opinion in the country is divided on the extent to which safeguards assured to fishing interests in the north are offset by problems created for other sectors of the fishery industry. Norway traditionally sells substantial quantities of fresh, frozen and canned fish not only to the original six Community members but also and especially to the United Kingdom, a new member. Furthermore, Denmark, its strongest competitor in this trade, will no longer have to face the same barriers. However, Norway has been quite successful in recent years in increasing its exports to countries outside the expanded Community, notably to the United States, and may thus be less dependent on markets in the EEC area.

Measures for the protection of fishery resources and human health

Fishery policies were influenced by supply shortages in 1972 in even greater measure than in recent years. More emphasis was given to improving the management of resources. Conflicts over national claims to exclusive jurisdiction regarding the exploitation of fishing grounds continued to intensify. Tighter controls in some fisheries administered by specialized bodies with managerial powers, and bilateral agreements with fishing rights provisions, helped to improve conditions in some instances. However, the conviction gained ground that for substantial progress in resources conservation, and to reconcile conflicting national interests, a comprehensive global review of fisheries problems was essential.

In one severely overfished area, the northwest Atlantic, the agreement reached in early 1972 by the member countries of the regional fisheries commission, setting an overall quota and allocating national shares in the herring fishery, was extended to other species; it now covers most of the important species. Although quotas for some species may be higher — because of the lack of accurate stock assessments — than might be desirable for conservation reasons, and although enforcement measures are still far from perfect, there is now hope that the downward trend in the fisheries of this important ocean area, of direct interest to 13 countries, may be arrested. Vessel licensing regulations and a tighter inspection system, already instituted or under contemplation by the countries concerned, seem to point in this direction. Resource conservation may, before long, necessitate the introduction of similar quota systems in other international fisheries, for instance in the northeast Atlantic.

In addition to these developments in multinational, multispecies fisheries, new conservation measures were introduced, or proposed, in individual fisheries for valuable products, such as yellowfin tuna, which is fished by the fleets of a growing number of nations throughout the world. Among the countries which tried to strengthen the protection of national resources were Canada, which restricted fishing for Pacific Coast herring, and Norway, which sought to limit the size and operations of its purse seine fleet, and a growing number of developing countries concerned for the heavy pressure on valuable shrimp resources and the overexploitation of their coastal waters. A new sea fisheries law enacted in Nigeria, for example, provided stiff penalties for violation of protective measures.

Concern for resource conservation was reflected in many bilateral fishing agreements, where the granting or continuation of fishing rights was usually made subject to observance of certain conservation measures. In 1972 new bilateral agreements were entered into and existing agreements were extended by major fishing countries (including Japan, the U.S.S.R. and the United States), with each other as well as individually with developing countries. The objectives of

these agreements often cover a wide variety of aspects, from cooperation in research and training to trade and joint commercial operations. Increasingly, however, fishing rights have become the major concern. The tendency of coastal countries to extend their fishery limits — to establish preemptive rights on the exploitation of the waters involved — has made it necessary for countries wanting to continue to fish in these waters to seek agreements with them. Into this class fall various fishing agreements which the United States concluded with South American countries — with Brazil for shrimp fishing, and with Colombia for fishing in the Caribbean — with the United States expressly reserving its position, however, on the questions of territorial seas and fisheries jurisdiction which are to be taken up by the United Nations Law of the Sea Conference. Negotiations with other South American countries were less successful, and seizures of United States vessels by some countries claiming 200-mile limits continued in 1972.

Iceland's declaration in 1971 of its intention to establish new fishery limits as of September 1972 provoked, from the very start, strong protests from the countries most directly concerned, the United Kingdom and the Federal Republic of Germany. When efforts at compromise failed, these countries first requested the International Court of Justice in early 1972 to rule on the legality of the unilateral extension, and subsequently, pending the outcome of the legal proceedings, to indicate appropriate interim measures for the protection of their fishing fleets from Icelandic interference within the disputed area.

The interim ruling of the Court was that the two originators of the cause should observe, until the case was decided, proposed catch limitations in the "Sea Area of Iceland," and that Iceland should refrain from taking measures to enforce its new limit regulations against vessels of the two countries fishing in the waters affected by the extension. Iceland refused to acknowledge the International Court's jurisdiction in the matter but agreed to enter bilateral negotiations to reach a compromise. Discussions in late autumn proved unsuccessful and were broken off; they were resumed in early spring 1973.

Iceland seeks restrictions on the size and type of vessels to be employed in the disputed area, closed and seasonal areas, conservation areas, and areas reserved for Icelandic vessels only. The counter-proposals accept certain area and seasonal controls which would lead, however, to a less drastic curtailment of the fishing of the overseas fleets than that implied by the Icelandic measure. Since evidence on biological overfishing of the more important stocks in Icelandic waters is not being challenged, the fishery limits dispute is essentially an economic one: Iceland fears a substantial drop in income if there is not a rather drastic curtailment of foreign fishing, while the United Kingdom and the Federal Republic of Germany are unwilling to write off a relatively large share of their long-distance fishing fleets. This might become necessary if the vessels were barred from the disputed waters, because of lack of opportunities of employing them profitably in other operations.

The dispute over Iceland's new fishery limits, and the spectre of a multiplication of similar disputes between countries with a mutual interest in offshore waters, underline the need for international agreement on the limits question. Discussions in various sessions of the United Nations Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor beyond the Limits of National Jurisdiction, which is responsible for the preparation of the Law of the Sea Conference, make it possible to venture some forecasts on the positions the various countries will take in the negotiations on this question. The trend seems to be toward some form of recognition of preferential — or possibly exclusive — rights of coastal countries to the conservation and exploitation of resources beyond the limits of their territorial seas. The argument at the conference table may very well centre on such crucial matters as the width of the "economic zone" in which these rights are to be valid, and the way interests of other countries in such a zone are to be considered.

The fishery industry continued to follow with great interest all developments related to the protection of the aquatic environment, including the discussions of the effect of pollution on the living resources of marine and inland waters held at the Stockholm Conference on the Human Environment in June 1972. A convention, drawn up in 1972, which prohibits the dumping of certain pollution agents at sea, and controls the dumping of others, and which is to enter into force after ratification by 15 countries, is viewed as an important potential contribution toward safeguarding fishery resources, protecting consumer health and preventing interference with fishing operations.

While contamination of fishery products made fewer press headlines than in the recent past, there were occasional reports of sales bans, such as the ban on the sale of a portion of the shark catch instituted by the State Government of Victoria, in Australia, because of a higher than permissible mercury content. Elsewhere, for instance in California where a certification system for swordfish was introduced, it became possible to relax bans previously instituted. Scientific and fisheries bodies, such as the International Council for the Exploration of the Sea (North Sea), and the General Fisheries Council of the Mediterranean (GFCM), are continuing or have initiated research on pollution to monitor conditions in certain areas and to determine the effects on fish life. The

latest effort of GFCM in this field aims at persuading its member governments to prepare a convention that would control the discharge into the Mediterranean of pollutants that affect its living resources.

MANPOWER PROBLEMS

Labour shortages continued to pose serious difficulties for fisheries in many of the more advanced fishing countries. In Denmark, recruitment to fisheries remained a problem even in the face of relatively high average earnings and excellent future prospects in the industry. A petition by industry for government approval of employment of foreign labour to avoid vessel lay-ups due to crewing difficulties was turned down, since only shortly before a general moratorium on the importation of foreign workers had been declared. Elsewhere, in the Atlantic trawler fleet of Greece and in the fish-processing industry of the Federal Republic of Germany, for example, the employment of foreign workers made it possible to continue operations which were in serious jeopardy because of staffing problems. Financial aid was provided by some European governments to the industry to help in recruiting young fishermen and grants were made available in some areas to make it easier for older fishermen to retire.

For operations involving special hardship for the crews, such as long-distance tuna fishing, special services have been provided to maintain morale and reduce exit from the industry. A giant medical and supply ship, for example, was launched in late 1972 on the order of the Tuna Fisheries Cooperative Assotions of Japan, for the servicing of its 200 long-distance tuna-fishing vessels in the eastern Pacific. The U.S.S.R. and other countries with long-distance fishing fleets were also taking measures to make long absences from port more bearable, and in some instances arrangements for flying crews home for vacations or for rotation have been made.

Working conditions and the social aspects of fishing, in general, are being given increased attention in the European Economic Community, in line with efforts to introduce uniformity in all phases of sectoral operations in the member countries. In this connexion, one of the most ambitious proposals submitted to the EEC Commission in Brussels was for the creation of a fleet of protection vessels to assist and service the fishing operations of member countries.

Where the livelihood of fishermen was affected by natural disasters or economic or political developments, special aid was made available to alleviate hardships. Danish fishermen, who as a result of the settlement of a dispute with other countries interested in salmon fishing were obliged to withdraw from operations for salmon in some areas, were awarded special compensation by the Government. Subsidies were provided by Japan to salmon fishermen whose vessels had to be withdrawn from the fishery because of a reduction of the Japanese catch quota under an agreement with the U.S.S.R. In Peru, the large labour force dependent for a living on the fish meal industry received monthly payments in the form of loans, and was also given an opportunity to postpone mortgage payments on housing, when the industry came to a virtual standstill as the result of the raw material crisis. In view of the uncertainty with respect to the duration of the crisis, some fishermen and plant workers sought occupation in the Peruvian mining industry, which was experiencing a boom. Efforts were also being made to adapt some of the industry's vessels to catch food fish. The system of worker participation in industry ownership, introduced in Peru in 1971, had its first year of practical application. One feature of the system was the redistribution of a percentage of plant profits to meet employment and productivity objectives.

INSTITUTIONAL SUPPORT

A major objective in several countries was the strengthening of institutional support for fishery development. In Japan, it was urged in some quarters that the status of the fishery administration be elevated to ministerial level, to cope with the growing complexities of supervising a worldwide fishing fleet, the steep increase in trade, and the rapid multiplication of arrangements for collaboration with other countries. A special body, financed in large part by the Japanese Government, has been proposed to assist in promoting overseas fisheries cooperation, through participation in agreements with foreign countries and through the provision of financial and technical support to industrial firms which desire to form ventures abroad. The trend for Japanese firms to enter joint ventures with foreign partners, in evidence for some years, can thus be expected to gain further momentum.

The United Kingdom's efforts to streamline its fishery administration made some progress with the achievement of closer collaboration between the two parastatal bodies, the White Fish Authority and the Herring Industry Board, and gradual transfer of the two organizations to the same city. However, they are to continue their separate identities for another five years. Improvement of the administrative machinery has also been a feature of the consolidation of fisheries in EEC; further changes will of course be necessary following the entry in 1973 of the three new members.

New ministries of fisheries in some developing countries (in Chile, for example) are formulating sectoral plans which follow policies of increased public control of industry. In Peru, the Government decided to nationalize the fish meal and oil industry in May 1973 to solve the economic and other problems arising from the crisis created by the raw material scarcity. Elsewhere, specialized bodies are being established to promote fisheries development in cooperation with private enterprise. Nigeria plans to set up two state-supported fishing corporations, one for deep-sea and the other for shrimp fisheries. The corporations will participate with private domestic and foreign interests in joint ventures aimed at increasing production for domestic and export markets. In the Republic of Korea, the assets of one of the parastatal bodies set up a few years ago when long-distance fishing was initiated in the country, the Korean Marine Industrial Development Corporation, were to be sold to private interests at public auction.

Rising incomes in the fishery industries of some countries, including Norway and the United Kingdom, sometimes led to fairly substantial reductions in government subsidies. Price subsidy arrangements continued to provide important operational support in other fishery sectors, for instance in the raw material fishery of Iceland during the early part of 1972, and during seasonal surpluses in the herring fishery in Finland. In Canada, a new programme was introduced for the stabilization of freshwater fish prices, which follows the lines of similar arrangements for other fishery commodities.

Although considerable progress was made by EEC in implementing other phases of the Community fishery policy, no definite rules on aid measures have been announced as yet.

Outlook

The scarcity of fish and rising costs of production have spurred research on the assessment, exploration and management of fishery resources, as well as efforts to improve their utilization in processing and marketing. Estimates prepared for the Technical Conference on Fishery Management and Development, organized by FAO in Vancouver, Canada, in February 1973, have placed the yield increase that could be achieved by the extension of fishing to areas at present unexploited or underexploited, the recovery of discarded by-catches, and the initiation of fishing of previously neglected species, at between 35 and 45 million tons.

In the long run, supplies might be further increased by catches of " nonconventional " marine species: for example, species of a low trophic level such as krill and small free-swimming varieties which are not marketed commercially at present, and the stocks of which are estimated to exceed 100 million tons. The expansion of aquaculture could also add greatly to world fish protein supplies.

Wild fisheries resources are not fished to their potential and aquaculture is not expanded more rapidly because of supply and market factors. Many fish-producing water bodies have not yet been adequately explored nor have reliable assessments been made of all important fishable stocks.

Drastic changes in fishing equipment and methods may be required to make fishing for species which occur sporadically or are found in deeper waters worthwhile. New cheap products may have to be developed and introduced locally to suit the pocketbooks and tastes of consumers, especially the large sectors of the population of developing countries who today eat little or no fish.

In the technically advanced fishing nations more emphasis is being given to exploratory fishing and stock assessment work. Fishing is becoming more efficient through the introduction of improved craft and other equipment, trawling gear capable of taking fish in deeper waters and on rough bottoms, new fishing techniques and better data retrieval systems which lead to improved and faster fleet management decisions. Attempts to introduce unpopular conventional species in markets which previously spurned them are increasingly successful because of emphasis on quality and sales promotion. Fish such as pollack, which, in the United States for example, until recently was considered to be little more than trash fish, have made rapid gains in consumer favour, and similar successes are predicted for other neglected species. There are even prospects for the utilization of non-conventional resources, as recent U.S.S.R. experiments with the production of a protein-rich paste from krill indicate. Ambitious plans of the leading fishing nations envisage increased human control over the fish-producing environment, including developments — today still considered in the realm of science fiction — such as the fertilization of ocean areas suitable for marine farming, intervention in oceanographic processes, large-scale application of technological and biological control measures to eliminate unwanted predators, and so on.

The contribution which aquaculture could make toward narrowing a steadily more serious supply gap in the future will depend on the amount of money and effort government and industry would be willing to invest in this kind of production. At present, most of the world aquaculture harvest (about 5 million tons) is produced from inland and brackish water bodies and consists of species which are staple food items in the areas where operations are concen-

trated, including many parts of Asia and Africa. Luxury crops such as shrimp, which are increasingly cultivated also in marine waters and are destined for export as well as domestic markets, constitute only a minor portion, in volume, of total production but are often a source of substantial foreign exchange earnings.

The swiftest and most practical way of expanding aquaculture would be through bringing additional inland areas under cultivation and improving culture techniques. Large-scale expansion of marine aquaculture is not likely to take place before complicated economic, technical and engineering problems have been solved and appropriate culture methods selected (the choice is between the release of hatchery-raised fish in the sea, the capture and confinement of young animals and the production of young from eggs of wild stock parents). In theory the development potential is large, since the total area suitable for aquaculture is in the order of several million hectares.

Should fishing for nonconventional resources eventually become economic, the net addition to strategic food supplies will be smaller than the additional catch weight might indicate. Exploitation of resources of lower trophic levels may adversely affect yields from species of higher levels in the food chain which feed on them. Also, catches of species of lower trophic levels are usually used for industrial purposes, for fish meal and oil, which are primarily animal feed supplements, whereas species of higher trophic level are used for human consumption — and the protein yield of fishery resources when consumed via meal-fed livestock and poultry is lower than when consumed direct. New conflicts might arise between countries from one requiring fish for food and another for industrial processing. Problems with regard to catch utilization have arisen in recent years, as the result of increasing scarcity of food fish in European markets, in connexion with the exploitation of some conventional resources, such as herring and mackerel, which are as readily accepted in food fish markets as for fish meal production. In some instances, processing into fish meal of the catches of such species has been expressly forbidden. Developing countries with animal protein deficits want to be given an opportunity to harvest and utilize for food the resources with both food and industrial possibilities. Since the production of food fish is more labour intensive than the processing of fish meal, employment objectives can also be satisfied this way, provided, of course, that market conditions permit freedom of choice in utilization.

High-seas fishing has been undertaken to date primarily by the long-distance fleets of a few large industrial countries. Expansion of the operations of these fleets in recent years has allowed the exploitation of stocks that previously were fished only lightly or not at all. In many instances this has led to substantial increases in fish protein supplies. Sometimes, however, the fleets have attacked stocks which coastal countries in their vicinity have regarded as already — or nearly — fully utilized. This has limited the expansion of local fisheries and sometimes led to a decline in their catches. Developing coastal countries generally feel they should share in the exploitation of resources adjacent to their territorial waters which are now fished by the fleets of other countries.

Some of the technically more advanced fishing countries are increasingly prepared to accept claims of coastal countries, not only to a right to participate in the study and management of high-seas resources adjacent to their shores, but also to their being given some opportunity to join in exploitation. To make progress in high-seas fisheries, developing countries would have to mobilize substantial economic resources as well as seek to employ them efficiently and would have to assume co-responsibility for rational fishery management. In many instances, additional assistance from abroad would be essential, at least in the early phases of development. Provision of such assistance may be facilitated through the formation of joint ventures with foreign fishery enterprises. In this connexion, the Technical Conference on Fishery Management and Development mentioned previously concluded that joint fishery ventures could be of great value in providing technical capacity and capital that would not otherwise be available to developing countries.

The main problem that has to be solved in providing assistance to small-scale fisheries is how to improve the technical and economic efficiency of operations without changing their labour-intensive character. At present, assembly of catches and the provision of services to fishermen are often uneconomic because of the wide geographic dispersion of fishing communities. Proposals to remedy this situation, related to centralization of landings, use of larger vessels to collect catches (which thus serve as mobile landing centres), establishment of fish terminals and wholesale markets, and so on, must therefore be implemented gradually in many instances, with due regard to the effect on employment in catching and distribution operations. This is even more true of schemes concentrating on the introduction of modern equipment and methods which may help only a minority, usually those who are already better off. In some situations, technical improvement has had no appreciable effect on employment but has made the life of the individual fisherman easier or given him an opportunity to increase his catch and income by reducing the time and effort required to reach the fishing grounds.

In other situations, as has happened also in other industries, technical improvement with an accompanying reduction of labour requirements in one operation (for example, fishing) has been compensated for by additional employment in other, related operations (for example, processing and marketing). For this reason it is important to consider the overall impact of assistance programmes and to construct fully integrated projects to fit local needs. Experience has shown that one-dimensional intervention, through narrowly focused technical improvement or credit schemes, is likely to fail.

The concept of maximizing total sustainable protein yield on a global basis has no chance of gaining widespread acceptance in today's world if the development aims of coastal countries are not taken into account. In the short term, too, existing market conditions and preferences might make it difficult to shift from one species to another or even to another stock of the same species. Thus, some fishing fleets and shore facilities, however versatile and well equipped, may remain tied for the rest of their service life to particular stocks.

If, in the future, the broader objectives of fishery management will be as described above, traditional management goals of optimizing exploitation of resources must not be neglected. Economic considerations as well as resource protection will have to be taken into account. Moreover, management planning must not be restricted to the primary sector, since over- or undercapacity at any stage in the chain from fish production to consumption causes not only current losses but also has an adverse impact on future operations, at other stages. Excess plant capacity, for example, is quite frequently one of the major difficulties in enforcing what would otherwise seem to be quite rational and effective fisheries management regimes, because of strong pressures to continue fishing in order not to have to shut down processing facilities.

Forestry

Production and trade

The year 1972 was one of important changes in the forest products sector. At the beginning of the year prospects were not more than reasonably promising; toward the end of the year a remarkable combination of factors had led to boom conditions in nearly all regions and the prices for most products had begun to harden. When it became clear that demand was beginning to outstrip supply, price increases were considerable, particularly in the United States. In western Europe supplies of pulpwood, wood pulp and sawn softwood were considered to be ample in the early months of 1972, and prices not under pressure showed little inclination to rise, not even in step with increasing production costs. But they began to rise in the latter half of 1972 and for sawn softwood the increases were very considerable. Prices also rose for other products, except pulpwood of which there were large stocks.

Roundwood

World roundwood production under these boom conditions reached a new record level in 1972 (Table 1-18). Preliminary estimates indicate a total of 1 327 million cubic metres, a 2 percent increase over 1971 and in line with the trend. About 87 percent of industrial roundwood production took place in the industrialized countries, including the centrally planned economies, a proportion slightly lower than a decade or so earlier (90 percent in 1961-65 average). Production in the tropical developing countries is provisionally estimated at 171 million cubic metres in 1972, compared with 165 million cubic metres in 1971 and 108 million in 1961-65 (average). A substantial part of total production in Asia and Africa — at least one third — is still exported as logs, however.

In North America, production of industrial roundwood (Table 1-19) rose to record levels in 1972, the main increase being in coniferous sawlogs, veneer logs and pulpwood. Availability of fresh logs was

TABLE 1-18. – INDICES OF WORLD[1] ROUNDWOOD PRODUCTION, BY MAIN COMMODITY GROUPS

	1968	1969	1970	1971	1972[2]	Change 1971 to 1972
	.. *1961-65 average = 100* ..					*Percent*
Logs	108	110	113	115	118	+ 2.7
Pulpwood and pitprops	114	123	132	135	137	+ 1.9
Other industrial wood	129	125	122	124	124	+ 0.1
ALL INDUSTRIAL WOOD	111	114	117	120	123	+ 2.3
Fuelwood	104	105	105	106	108	+ 1.2
TOTAL ROUNDWOOD	109	112	114	116	119	+ 2.0

[1] Excluding China and other centrally planned Asian countries. – [2] Preliminary.

TABLE 1-19. – INDICES OF TOTAL WORLD[1] ROUNDWOOD PRODUCTION, BY REGION

	1968	1969	1970	1971	1972[2]	Change 1971 to 1972
	.. *1961-65 average = 100* ..					*Percent*
Western Europe	100	106	113	114	110	— 3.5
North America	113	115	115	118	125	+ 5.7
Oceania, developed	112	115	116	115	117	+ 2.0
Other developed market economies[3]	98	95	92	90	91	+ 1.7
DEVELOPED MARKET ECONOMIES	108	110	112	115	117	+ 2.5
Latin America	114	117	122	125	127	+ 2.2
Far East[1,4]	122	129	131	135	138	+ 2.6
Near East[5]	121	127	130	131	133	+ 1.2
Africa[6]	114	119	122	126	129	+ 2.7
DEVELOPING MARKET ECONOMIES[7]	117	122	126	129	133	+ 2.4
Eastern Europe and the U.S.S.R.	104	103	106	106	107	+ 0.5
World[1,7]	109	112	114	116	119	+ 2.0

[1] Excluding China and other centrally planned Asian countries. – [2] Preliminary. – [3] Israel, Japan and South Africa. – [4] Excluding Japan. – [5] Excluding Israel. – [6] Excluding South Africa. – [7] Including Oceania developing, not shown separately.

insufficient to keep pace with demand in several areas. Disruptions to logging operations caused by harsh weather conditions, labour shortages, strikes and rail-car shortages curtailed production at some mills and contributed directly to increases in prices of sawnwood and plywood. In many western European countries production of industrial roundwood was below the 1971 levels, partly because most assortments of roundwood were in ample supply at the beginning of the year, and this was associated with an unwillingness on the part of forest owners to sell at unremunerative prices. Information on products in other regions is still scanty, but on the basis of export data it is clear that a further substantial increase occurred in broadleaved log removals in southeast Asia. Indonesia, where, in Kalimantan, considerable expansion has taken place in recent years, became the leading producer and exporter of tropical logs. In Kalimantan the long-term development of the forest sector appears to be in danger of the kind of damage that has already occurred in other tropical countries through inadequately controlled exploitation.

The rising demand for tropical hardwoods in western Europe, which developed sharply toward the end of 1972, intensified logging activities in west Africa. The resulting pressure on the main commercial species has brought about, as yet on a small scale, the inclusion of lesser known wood species in the harvesting operations. In some west African countries increasing local demand has added to the strain caused by the high and steadily rising demand from external markets.

World production of fuelwood (Table 1-18) during 1972 continued its slow upward trend, the total reaching about 1 158 million cubic metres or 1 percent above 1971. The bulk (85 percent) of fuelwood production, in contrast to industrial roundwood, is in the developing regions where it is still essential for cooking and heating. Production in these regions is increasing, although perhaps not at as fast a rate as population growth. In the industrialized countries fuelwood production is declining steadily as it is replaced by alternative and more convenient fuels.

After an unusually high level of pulpwood trade in western Europe in 1970, caused by a temporary supply/demand imbalance, there was a sharp decline in both 1971 and in 1972. Western Europe's pulpwood imports in 1972 were 24 percent less than in 1971 and 37 percent less than in 1970, and there was a corresponding reduction in exports from western European countries and the U.S.S.R. This decline in pulpwood trade was a direct consequence of a combination of overproduction in 1970 and 1971 at a time of high prices and of the recession in 1971/72 in the wood-pulp sector. Stocks of pulpwood in forests and at mills remained high until late 1972.

While world trade in pulpwood fell about 17 percent in 1972, trade in coniferous logs rose by 20 percent and in broadleaved logs by some 8 percent, both to record levels. The main feature of trade in coniferous logs, which amounted to about 26 million cubic metres, was the sharp recovery of Japanese buying. Most of the increase in supplies came from the west coast of the United States, where the shipment of an additional 3.7 million cubic metres over the 1971 volume contributed to higher prices and supply problems within the United States. The recovery in Japan's import demand also led to further increases in coniferous log exports from the eastern regions of the U.S.S.R. and from New Zealand.

World trade in broadleaved logs is estimated to have reached some 42 million cubic metres in 1972. Most of this trade is concentrated in the Pacific area, with exports from Asia, mainly southeast Asia, amounting in 1972 to 32 million cubic metres and imports by Japan and other countries in the region, notably the Republic of Korea, Singapore, Hong Kong and Australia, totalling a similar quantity. Indonesia accounted for the largest share of the world increase in exports of broadleaved logs (3 million cubic metres) further increasing its lead over all other countries (taking Sabah, Sarawak and West Malaysia as separate entities for trade analysis purposes) as the

main supplier of this product. In 1972 Indonesia probably accounted for almost one quarter of world exports, with the bulk going to Japan, but with the the Republic of Korea and Italy also important buyers. Indonesian exports to western Europe, mainly to Italy, have largely replaced those from the Philippines. The policy of the Philippines of reducing log exports continued in 1972, to correct the past tendency toward overfelling and to redirect more wood raw material to domestic industries. Exports from Sabah also fell. On the other hand, shipments from Sarawak and West Malaysia continued to rise, although some difficulties in supply both for domestic industries and for shipment to Singapore were reported from West Malaysia.

Supply was also an acute problem in west Africa, and not only because of the unusually heavy rains in mid-1972 in some areas. Past predictions that west Africa would experience increasing difficulties in supplying western Europe's import requirements from the more accessible areas appeared to be materializing. One immediate effect was a considerable increase in prices, particularly for the more popular commercial species such as sipo, which began in 1971 and continued during 1972. This stimulated exploitation and exports rose in 1972 to a level which appears to have slightly exceeded the previous peak in 1969. Other factors affecting supply were the steps taken in Ghana and Ivory Coast to secure an adequate supply of roundwood for domestic industries and to bring under closer control the export of logs.

Despite these problems, there are substantial volumes of lesser known tropical species of proven or potential commercial worth in west Africa which, with the increasing scarcity and cost of the more popular species, could be brought into use.

Sawnwood

World production of sawn softwood continued to grow in 1972 at a rate well above trend. The expansion was again led by North America where production reached a record level. Dwelling construction in the United States and Canada reached peak levels in 1972, and with timber-framed construction accounting for the bulk of single-family dwellings, sawn softwood and other constructional forest products were in strong demand. Stocks at all stages of distribution tended to decline and were at unusually low levels by the end of 1972.

Further strength was added to the sawn softwood market by a recovery in demand in Japan, which led not only to a sharp rise in its imports of North American coniferous logs but also to a 17 percent increase in its imports of North American sawn softwood. Prices in Japan increased considerably, as in North America. During the whole of the selling campaign for 1972 delivery, North American prices were so much higher than those in western Europe that Canadian shippers lost further ground in the western European market. Their exports to this market fell by 17 percent in 1972 to 1.2 million cubic metres, the lowest volume for many years, while their shipments to the United States rose by 21 percent to a record 19.9 million cubic metres.

Continuing the trend of recent years, western European sawn softwood exporters, taking advantage of Canada's difficulties, increased their shipments by 10 percent (to 18.1 million cubic metres). The region's imports also rose, by 5 percent to a new record (25.5 million cubic metres). The more rapid growth of exports led to a further decline in net imports, continuing the trend begun in the mid-1960s. Western Europe has been increasingly realizing its potential to meet demand for sawn softwood from its own resources.

Consumption of sawn softwood rose steadily in 1972 in most western European countries as economic activity recovered. With production stagnant in 1971 and most of 1972, as prices failed to keep pace with rising production costs, demand was almost entirely met by a reduction in stocks at all stages of distribution. This situation was particularly relevant to Sweden, Finland and Austria, the three leading exporting countries where total softwood production (25 million cubic metres) remained unchanged, while exports (16.5 million cubic metres) were well over 1 million cubic metres higher than in 1971. Buyers who let their stocks decline discovered that they were in a vulnerable position. Hectic buying brought price increases not experienced since the Korean war and the ending of timber controls in Europe in 1951. Sawnwood producers have been unwilling to commit themselves too far ahead because of uncertainties about log supplies. Nevertheless, the bulk of likely supplies for 1973 delivery to the western European market had been sold by spring 1973, at prices which may have been on average 40 to 50 percent higher than those of 1972.

World broadleaved sawnwood production in 1972 expanded at a similar pace to sawn softwood and maintained its one-fifth share of total sawnwood production. In contrast to sawn softwood, however, this expansion was mainly a recovery from the setback in 1971, and 1972 production at about 94 million cubic metres was only slightly above the previous record of 1970. Production recovered in both North America (at 16.7 million cubic metres still some 22 percent below the peak 1969 level) and Japan.

The long-term growth in sawn hardwood production in western Europe was maintained in 1972, and rose in some exporting countries in the Far East (notably Malaysia and Singapore), Africa and Latin America. Producers in African exporting countries

were not able to take full advantage of the strong import demand in western Europe and North America, partly because of competition from other suppliers, particularly Malaysia and Singapore, and partly because demand for hardwood logs caused supply difficulties at some African mills.

Prices for sawn hardwood rose throughout the world during 1972. Increases were generally higher for tropical than for temperate zone hardwoods, particularly for such species as sipo from west Africa and meranti and ranai from Malaysia. The recovery in ocean freight rates during 1972 also affected c.i.f. costs.

Wood-based panel products

The world market for wood-based panels in 1972 enjoyed one of its best years, at least in terms of volume. Production of all three groups of products — plywood, particle board and fibreboard — expanded appreciably, with the largest growth occurring in particle board (higher than that of any other forest product).

Strong market conditions in North America were the main cause of this expansion, not only in production but also in imports of plywood (including veneers) and fibreboard. North American output of plywood (mainly softwood) is estimated to have risen by about 1 million cubic metres, that of particle board by well over 1 million cubic metres, and of fibreboard by 300 000 tons, compared with 1971. Much of the increased production came from mills recently constructed in the southern pine-growing areas of the United States.

The wider use of plywood for wall panelling and other decorative uses in construction and furniture in North America is being increasingly met by imports of hardwood plywood, mainly from Asia. These imports in 1972 (including veneers) amounted to nearly 3.9 million cubic metres, a 30 percent increase over 1971. The Republic of Korea is the leader in this trade, but other Asian countries have also taken part, including the Philippines, Malaysia and Singapore.

On several occasions in the past, strong import demand for plywood in North America has coincided with a downward trend in the other major import market, western Europe, in which the United Kingdom is the largest buyer. In 1972, however, both markets were strong, imports into western Europe rising by 15 percent to over 2 million cubic metres. A significant feature of the trade in 1972 was the continued rise in exports from Malaysia and Singapore to the United Kingdom; these countries combined became the third largest supplier to this market after Finland and Canada. In the Federal Republic of Germany, where plywood production (mainly dependent on imported tropical logs) has been steadily declining since 1969, further decreases are forecast in plywood capacity in coming years, principally in the older, smaller mills. This is due partly to increasing competition from particle board. The drop in domestic output has been more than offset by increases in plywood imports (27 percent in 1972) mainly from other EEC countries. There appear to be good prospects for larger direct exports of plywood and veneers from tropical countries to the Federal Republic of Germany and to other countries in western Europe. Two other trade developments in 1972, which although relatively small in world terms have possible future significance, were the strong growth of United States plywood exports to western Europe and the more than doubling of Japanese imports, the main supplier at present being the Republic of Korea.

With an 18 percent increase in world production in 1972, particle board continued to increase its share of the total market for wood-based panels (excluding veneers). Production of particle board in 1972 was three times larger, on a volume basis, than in 1961-65 and accounted for 32 percent of total wood-based panel output, compared with only 21 percent in the earlier period. All regions are sharing in this increase but, partly for marketing reasons, most expansion has occurred in the developed regions. Western Europe is still the largest user on a total and per caput basis, but growth has been faster in recent years in North America and among individual countries the United States has overtaken the Federal Republic of Germany to become the leading producer.

Trade in particle board is still largely confined to western Europe, but in 1972 an important new trade flow developed with shipments from Canada to the United Kingdom. An important factor in the increased use of particle board is its price, which has been stable or even tended to decline. To some extent this has been due to intense competition within the sector as new mills have also prevented production costs from escalating. Even in the present inflationary period, when prices for other mechanical forest products have risen — in some cases very appreciably — those of particle board have remained relatively stable.

Growth in world production of fibreboard in 1972 was well above the long-term average, stimulated by strong demand, especially in North America. Expansion in the production and use of fibreboard is included in the long-term plans of eastern European countries and the U.S.S.R.

Pulp and paper

Both 1971 and 1972 were difficult years for the western European wood pulp industry. Excessive

imports and rises in stocks during 1970 were followed by a levelling off in production and demand in western Europe for paper and paperboard. Despite cutbacks in production, stocks of wood pulp rose considerably in 1972 as demand fell. Prices came under pressure even while production costs continued to rise, and profitability was sharply reduced. However, in the latter part of 1972, as general economic conditions recovered, there was improvement in production (24.5 million tons), imports and prices.

In North America the recovery in the pulp and paper sector occurred one year earlier, in 1971, and there were substantial increases in wood pulp production to a record level (60 million tons). Most of the increase was absorbed by local paper and paperboard industries, but some recovery in shipments to western Europe and Japan also occurred.

The pulp and paper industry is still cautious in its intentions for future investment in new capacity, as shown by the latest FAO survey.[16] It is estimated that annual increases in world paper and paperboard capacity will continue to slow down from 4.4 percent between 1972 and 1973 to 2.7 percent between 1976 and 1977. Even if projections as far as five years ahead are subject to error, particularly of underestimation, the above growth rates are noteworthy when compared with the historical long-term average of 5.5 to 6 percent, which roughly corresponds not only with past growth in production and consumption of pulp, paper and paperboard but also with estimates of growth in production in the next few years. These forecasts have to be seen in relation to the present market situation for pulp and paper, which is extremely firm. Demand has fully caught up with availabilities, and by the spring of 1973 it appeared that capacity of most grades of pulp and paper in all parts of the world was being fully utilized. The contrast with the situation of even less than a year ago is striking, particularly for pulp.

Forest policies

The seventh World Forestry Congress met at Buenos Aires in October 1972, and recognized and accepted the contemporary challenge: how to accelerate economic and social progress while maintaining or enhancing the quality of the environment. Noting with concern that the gap between developing and developed nations continues to widen in forestry as in other sectors, and that some of the largest forest resources of the world lie in developing countries, the Congress recognized the need for expansion of the share of developing countries in international forest products trade.

[16] *World pulp and paper capacities 1972-1977*, Rome, FAO, 1973.

Developed countries

Three key issues continued to dominate the forestry situation in the northern hemisphere: the quality of forest environments; the supply of timber; and land-use allocation.

In the United States this concern is reflected in modification of many customary forest management practices, and in a reorientation of some research efforts. The Water Quality Act of 1972 and the National Environmental Protection Act confront forest managers with new requirements such as studies on the environmental impact of various projects, and rigorous rules regarding chemical contaminants and sediment run-off.

Environmental quality aspects of forest land management are of primary concern in new forest laws being considered in Austria and Switzerland, even though these countries have already shown leadership in this field.

The evolution of stricter standards for the emissions of forest industries continued in all developed countries. The economic future of some older pulp and paper mills in North America and western Europe has been jeopardized by new water quality standards. International meetings have been held to discuss standards, and pollution abatement technology.

In all developed countries, available timber supplies are being "stretched" by improved utilization of each tree and stand, and through more intensive management practices. In the United States, federal research activities and cooperative efforts with state forest agencies are directed to increasing the utilization of all harvested material. To increase productivity on nonfederal and nonindustrial lands, further assistance is being given to small private forest owners.

New forest legislation in the province of Quebec, Canada, provides for the regulation of wood supply to processing mills. Steps are also being taken toward increasing yield on private forest lands in the province. To increase marketing efficiency, a new marketing board will be set up, replacing a fragmented system of small syndicates. The province of Ontario has changed its forest taxation systems, repealing the Logging Tax Act and imposing two sets of dues on licensed lands.

In western Europe, study and debate of the medium- and long-term wood supply/demand relationships continued through 1972, with several important events. In the United Kingdom a major government statement on forest policy, and an accompanying cost/benefit analysis of wood supply policy, stimulated a wide-ranging discussion of the social and economic impact of long-term forestry investments. In Sweden a parliamentary commission reported on its deliberations on wood supply and forest policy. In Finland, ministerial advisory committees on forestry, forest

industries training and forest improvement legislation have completed their work, and follow-up action by the Government is expected.

In the United States, strong pressures continued to cause sizable tracts of public forest land to be set aside for recreation and wilderness areas. The Rural Development Act of 1972 promises to have long-range effects on forestry. It provides for federal assistance to state and local authorities in industry and resource development, forest protection, conservation, and rural area planning.

Significant changes in forest legislation in Canada included, in the province of Quebec, a new separation of exploitation responsibilities from those of forest management. All forest lands will be classified according to maximum potential yields for various uses: forestry, recreation, water production, and so on, and a greater emphasis placed on multiple-purpose management.

Increasing concern with multiple-purpose forest management was also evident in western Europe. In France, a new policy statement was published which set out guidelines for providing improved protection to wooded areas, and increased public access to forest lands. In the Federal Republic of Germany the question of opening up more private forest land for public recreational use received much attention in 1972.

Developing countries

In developing countries the basic forestry policies were similar to those of developed countries: development and land-use planning; supply of timber; and the quality of forest environments.

Almost all countries initiated or reviewed forestry development plans in 1972. Uganda is preparing a 25-year master plan for forest resources development, with Canadian assistance. Tanzania is studying the economic potential of 8 million hectares of forest. Nigeria has initiated a forestry planning and resource survey project in its southern forests, through the United Nations Development Programme (UNDP). In Malaysia a major UNDP/FAO forestry planning project made its preliminary report to the Government, in the form of a series of defined alternatives for the next step in forest industry development. In Latin America, several land-use planning studies were under way in the Amazon basin in 1972. Brazil's highway construction programme in this area will have great influence on forest production.

A primary concern of tropical forest planning in 1972 was the continuing delay in the development of mixed hardwood pulp and paper production. Apparently technically sound, several projects had not been implemented. Relatively uncertain economic prospects, augmented by weak paper markets in 1970 and 1971 and political uncertainties, were mainly responsible.

Several major developing timber producers have experienced or have forecast problems of raw material supply. In Thailand, a study of timber trends and prospects indicates that intensive forest management measures are now required to avert serious wood scarcity and environmental degradation in the medium-term future. The Philippines have clearly identified a problem of overcutting in some areas. Logging licences have been suspended, and a number of ordinary and special licences were cancelled. A forestry reform code was drawn up, consolidating and updating forestry laws and regulations. The Republic of Korea has drafted legislation requiring landowners to plant trees on hilltops and allowing investment in such afforestation by others. Domestic timber shortages in the 1980s have been forecast in this country. Malaysia has put a ban on the export of logs, to guarantee supplies to local processing plants. Indonesia has been exporting logs at a rapidly increasing rate, but is currently investigating the expansion of domestic manufacture of forest products.

This tightening situation in wood supply and demand in populous Asia and the Far East will be reviewed in an FAO study of timber trends and prospects for the region, scheduled for preliminary discussion at the Asia Pacific Forestry Commission at its ninth session in 1973.

Most countries in Africa and Latin America are not yet in a position of short supply of raw material, although there are problems looming for some of the select species which have been exploited in the past. In the African region, Ghana banned the export of logs of four primary species, and Ivory Coast will require timber producers to supply at least 25 percent of their output to local wood-processing plants.

The primary role of most forests in the Near East region is that of renewable resource conservation. Countries in the region are increasing their commitment to national forestry institutions to conserve and expand forest areas. A marginal lands survey was initiated by several countries with FAO cooperation. New forest laws, with heavy commitment to forest conservation, have been drafted in Afghanistan and Jordan.

Some developing countries have soil and water problems stemming mainly from long-term changes in the forest cover. A UNDP/FAO demonstration and training project in watershed management in Jamaica was completed in 1972. In the Philippines disastrous floods focused urgent attention on the influence of forests in controlling water run-off.

The flow of aid

The most important financial help extended by developed to developing countries consists of official grants and loans at concessional terms. Private investment and loans are largely guided by profit; loans involve hard terms of repayment, and are often extended for short periods only, such as in the case of suppliers' credits. However, private financial flows sometimes contribute in a very important way to the development of recipient countries.

Development strategy for the Second United Nations Development Decade attaches special importance to official development assistance and urges all economically advanced countries to achieve minimum net transfers amounting to 0.7 percent of GNP by 1975, but this objective has not yet been agreed by all members of the Development Assistance Committee (DAC) [17] of the Organisation for Economic Co-operation and Development. In 1972 the flow of official assistance as a proportion of GNP declined marginally to 0.34 percent. However, the amount of assistance expanded in all DAC countries except Italy, and increased as a percentage of GNP in 11 countries accounting for 35 percent of official assistance from DAC members. In the United States, which accounts for 40 percent, the proportion dropped from 0.32 to 0.29 percent of GNP. Among the other large donors the percentage declined in the Federal Republic of Germany, Japan and the United Kingdom. Projections of official development assistance in relation to GNP indicate a considerable shortfall compared to the 1975 target of 0.7 percent.[18] The failure to achieve this financial goal in international development strategy is of particular concern in view of the rapid acceleration in debt servicing during the past few years, the increased rate of inflation which has raised the cost of development, and the slow longer term expansion in export receipts of many developing countries.

In 1972 the total net flow of financial resources (including private) from DAC members, which as a group contribute about 90 percent of the world flow, increased by only 7 percent to US$19 451 million at current prices and exchange rates, following an increase of about 14 percent in 1971 (Table 1-20). In terms of constant prices and exchange rates there was a 3 percent decline in the overall flow, compared with an 8 percent real increase the previous year. However, the flow of official assistance, which indicates the concessional transfer of resources for development purposes, grew by about US$900 million, an increase of 12 percent in current values, compared with a 13 percent expansion in 1971. In real terms, this growth was only about 1 percent, compared with 6 percent the previous year.

As a proportion of GNP the overall flow of resources from DAC members fell from about 0.82 percent in 1971 to 0.77 percent, compared with the target of 1 percent (for all flows, official and private) accepted by all DAC members. As part of the strategy for the Second Development Decade it was further specified that the economically advanced countries should endeavour to achieve this target by 1972, or in any event not later than 1975. Not all DAC members have committed themselves to attaining this objective by 1975, and in 1972 only five countries (Belgium, France, the Netherlands, Portugal and the

TABLE 1-20. – NET FLOW OF FINANCIAL RESOURCES [1] FROM DAC COUNTRIES, 1968-72

	1968	1969	1970	1971	1972 [2]
	..... *Million U.S. dollars*				
OFFICIAL DEVELOPMENT ASSISTANCE [3]					
Bilateral grants	3 344	3 251	3 323	3 635	4 380
Bilateral development loans at concessional terms	2 283	2 320	2 384	2 786	2 360
Contributions to multilateral institutions	683	1 050	1 124	1 287	1 850
TOTAL ABOVE	6 310	6 621	6 832	7 708	8 590
OTHER OFFICIAL FLOWS					
Bilateral	748	586	879	1 004	1 150
Multilateral	— 10	— 15	273	267	400
TOTAL ABOVE	738	571	1 152	1 271	1 150
TOTAL OFFICIAL FLOWS	7 048	7 192	7 984	8 979	9 740
PRIVATE FLOWS					
Direct investment	3 053	2 919	3 563	3 875	3 850
Bilateral portfolio	971	1 211	777	775	2 330
Multilateral portfolio	767	419	474	770	620
Export credits	1 596	2 047	2 211	2 810	1 480
TOTAL ABOVE	6 388	6 596	7 025	8 230	8 280
TOTAL OFFICIAL AND PRIVATE	13 435	13 788	[4]15 867	[4]18 122	[4]19 451

SOURCE: Organisation for Economic Co-operation and Development.

[1] Data refer to gross disbursements minus amortization receipts on earlier lending. – [2] Preliminary. – [3] Flows which are intended primarily to promote the economic development and welfare of developing countries, and which are intended to be concessional in character. – [4] Including grants by private voluntary agencies.

[17] Australia, Austria, Belgium, Canada, Denmark, France, Federal Republic of Germany, Italy, Japan, Netherlands, Norway, Portugal, Sweden, Switzerland, United Kingdom and United States.

[18] See, for example, Address to the Board of Governors by Robert S. McNamara, President, World Bank Group, Washington, D.C., 25 September 1972. The flow of total official development assistance is projected to account for only 0.37 percent in 1975 of collective GNP of DAC members.

TABLE 1-21. – CHANGES IN STRUCTURE OF NET TOTAL FLOW OF FINANCIAL RESOURCES FROM DAC COUNTRIES, 1960-62 AND 1969-71

	1960-62	1969-71
	Percent	
OFFICIAL DEVELOPMENT ASSISTANCE	59	46
Bilateral grants and grant-like flows	45	22
Bilateral loans at concessional terms	8	16
Contributions to multilateral institutions	6	8
OTHER OFFICIAL FLOWS	7	6
Bilateral	6	5
Multilateral	1	1
PRIVATE FLOWS	34	48
Direct investment	20	23
Bilateral portfolio	5	6
Multilateral portfolio	2	4
Export credits	7	15

SOURCE: Organisation for Economic Co-operation and Development, *Development co-operation, 1972 review*, Paris, 1972.

United Kingdom) achieved this figure compared with six in 1971 (the same countries plus Australia). The overall flow of resources includes 45 percent in private flows, which tend to fluctuate widely. Governments are unable to compensate for these variations in private flows.

The structure of the net total flow of financial resources to developing countries has changed considerably over the past decade (Table 1-21). Net official flows fell as a proportion of the total from about 60 percent in the early 1960s to 42 percent in 1971, and were 44 percent in 1972. The shares of bilateral official aid and receipts from multilateral agencies are distributed among developing regions roughly as follows: 25 percent to Africa, 20 percent to Latin America, 9 percent to the Near East, 42 percent to Asia and the Far East and 4 percent to Oceania. Although official assistance has increased in dollar terms, the flow of resources from the private sector, particularly export credits, has grown much more rapidly. Under these circumstances the problem of indebtedness of recipient countries is likely to become even more of an issue during this decade than in the 1960s.

Development assistance from non-DAC developed countries is mainly from Finland, New Zealand, South Africa and Spain. Among the developing countries which have extended aid to other less developed countries are Brazil, India, Iraq, Kuwait and the Libyan Arab Republic. Aid disbursements from centrally planned countries increased considerably in 1970 as a result of China's loan for the Tanzania railway project. The largest donor among the centrally planned countries is the U.S.S.R., whose assistance is estimated in excess of $1 000 million, corresponding to 0.25 percent of estimated GNP. However, the real value of this aid depends on the prices for U.S.S.R. exports to and imports from the centrally planned countries, to which about 75 percent of this country's aid is extended.

Terms of assistance

Regarding the terms of official development assistance, in October 1972 DAC adopted a new Recommendation on Terms and Conditions of Aid which supersedes the earlier Terms Recommendations of 1965 and 1969 and entered into effect at the beginning of 1973.

The new Recommendation provides for a single overall objective for financial terms based on a minimum average grant element of 84 percent for official assistance programmes as a whole. Consequently, the donor's performance is no longer measured on an individual transaction basis. Countries whose volume of official assistance as a percentage of GNP is significantly below the DAC average will not now be regarded as complying with the Terms Recommendations. For the first time, only transactions which are both development-oriented and containing a grant element of at least 25 percent are considered as development assistance and as counting toward the target of 0.7 percent of GNP. For the least developed countries official development assistance should be in the form of grants and the average grant element of all commitments from a given donor should be either at least 86 percent to each least developed country over a period of 3 years, or at least 90 percent annually for the least developed countries as a group. In 1971[19] the terms of official assistance from DAC countries hardened slightly compared with 1970. The average interest rate remained unchanged at 2.8 percent, while the average maturity date declined from about 30 to 29 years and the average grace period decreased from nearly 8 years to 7 years.

No information is published by the centrally planned economies on the terms of their official aid. It is estimated that these have changed little from earlier years, interest rates ranging from 2.5 to 3 percent and maturities from 8 to 12 years, with grants playing only a minor role. The terms extended by China are softer. Grants account for more than one third of total aid, and the rest is provided as interest-free loans with a repayment period of 10 to 15 years and a grace period of about 10 years. The $400 million loan for the Tanzania railway project is interest-free with maturity over 30 years.

Repayment burden

The publicly guaranteed debt of the developing countries has increased rapidly in recent years,

[19] Data for 1972 are not yet available.

amounting to about $75 000 million in 1972. Analysis by the World Bank [20] indicates that between the end of 1967 and the end of 1970 total debts of 80 developing countries increased by 38 percent. Bilateral official debt, which amounts to more than half the total, increased by only 29 percent while private debt, accounting for almost 30 percent of the total, rose by 43 percent. The balance, debts to multilateral institutions, increased by 59 percent. Because of this gradual hardening of the composition of flows to the developing countries and the expiration of grace periods on concessionary loans of the early 1960s, the rate of increase in debt service payments has accelerated. Debt service payments rose by 18 percent in 1970 and 20 percent in 1971, twice the average rate of recent years, foreshadowing serious difficulties in the future unless they are offset by a rapid increase in export earnings and a larger flow of official long-term lending on much easier terms. The ratio of debt service to foreign exchange earnings, although by itself only a rough indicator of the seriousness of a country's debt problem, has been rising persistently and is now around 11 percent on average. It exceeds 20 percent for such large countries as India and Pakistan.

The World Bank Group and the financing of agriculture

A further increase was recorded in the 1972/73 lending operations of the World Bank and its soft loan affiliate, the International Development Association (IDA). Loans and credits for US$3 408 million were approved, marking an increase of 15 percent over the previous year's total. Replenishment of IDA resources in September 1972 enabled a sharp acceleration in the approval of soft-term credit for development projects in the poorer countries, from $1 000 million in the preceding year to $1 357 in 1972/73, representing about 40 percent of total lending. Agriculture also gets proportionately more support from IDA credits than from World Bank loans.

The record of this final year of the first five-year plan launched by the Bank's President, Robert S. McNamara, indicates that the targets of total, sectoral and area lending were more than achieved. Loans and credits approved for agricultural projects increased by a phenomenal 115 percent from $436.3 million in 1971/72 to $937.1 million in 1972/73. The largest increases concerned agro-industries and livestock development projects, and were substantial also for general agriculture. However, lending for agricultural credit projects has shown a decline, although this is more apparent than real, for a number of projects in the other categories contain substantial amounts of the credit element. By and large, the figures in Table 1-22 indicate a growing diversification of project elements in agriculture.

An indication of the priority set by the World Bank Group on lending to agriculture can be seen by the steady increase in the amount, and also the proportion of agricultural loans and credits to total lending. Over the period 1948-63, Bank lending to agriculture represented only 8.5 percent of its total loan operations. During the period 1964-68 this figure rose to 12 percent. To accelerate its agricultural lending further, the Bank adopted a target for the five years 1969-73 of $2 400 million, or four times the volume achieved in the preceding five years. This target has now been exceeded by over $170 million, with agriculture taking a 20 percent share of total lending. In 1972/73, loans and credits to agriculture reached a record 27.5 percent of the Group's total lending operations for the year. The

[20] See International Bank for Reconstruction and Development. *Annual report. World Bank and IDA. 1972.* p. 7-9. Washington, D.C.

TABLE 1-22. – IBRD LOANS AND IDA CREDITS FOR AGRICULTURE, BY PROJECT TYPE, 1970/71-1972/73

	1970/71			1971/72			1972/73		
	Number of projects	Loans and credits	Percent of total loans and credits	Number of projects	Loans and credits	Percent of total loans and credits	Number of projects	Loans and credits	Percent of total loans and credits
		Million U.S. dollars	*Percent*		*Million U.S. dollars*	*Percent*		*Million U.S. dollars*	*Percent*
Irrigation	4	49.5	11.8	8	148.4	34.0	12	253.4	27.0
General agriculture	14	98.3	23.2	10	72.5	16.5	12	130.6	14.0
Agro-industries	2	16.2	4.0	1	6.3	1.5	6	213.0	22.7
Livestock	8	43.5	10.5	8	58.2	13.3	10	215.3	23.0
Fisheries	1	3.5	0.8	2	5.4	1.3	2	15.1	1.6
Forestry	—	—	—	—	—	—	1	20.0	2.1
Agricultural credit	7	208.1	49.6	7	145.5	33.4	4	89.7	9.6
TOTAL	36	419.1	100.0	36	436.3	100.0	47	937.1	100.0

large number of projects approved by the Bank in such sectors as education, transport and industry, where the agricultural component is often considerable, is not included in these statistics of agricultural projects approved during the last three years, nor are they shown in Table 1-22.

Regional development banks

The operations of the regional development banks continued to grow during 1972, and measures to increase the authorized capital of the Asian Development Bank (ASDB) and the Inter-American Development Bank (IDB), which were initiated in 1971, came into effect. The former raised its capital from $1 194 million to $2 985 million, and IDB raised its ordinary capital resources by $2 000 million to $5 150 million, at the same time increasing the resources of its Fund for Special Operations by $1 500 million. For the African Development Bank (AFDB), the need to mobilize additional resources, which fell far short of authorized capital, became increasingly urgent.

In 1972 IDB lending operations achieved a 24 percent increase over the previous year's level, with 52 loans granted for a new record total of $807 million. Nearly 55 percent of the Bank's lending was authorized from its ordinary capital resources, 42 percent through the Fund for Special Operations, and 3 percent from the resources the Bank administers for Canada and the United Kingdom. On a cumulative basis (1961-72), 40 percent of IDB lending ($2 162 million) has come from the Bank's ordinary capital resources, 49 percent ($2 687 million) from the Fund for Special Operations, and 11 percent ($592 million) from various other funds and resources. Total loan authorizations now amount to $5 441 million. In 1972, loans for infrastructure projects (transportation, communications and electric power) accounted for 44 percent ($357 million) of the Bank's lending, and agriculture for 16 percent. On a cumulative basis, however, agriculture, with total loan authorizations of $1 283 million (23 percent), remains the Bank's largest lending sector.

Further progress was made in the Bank's efforts to attract new financial resources for Latin American development from capital-contributing nations outside the region, and a significant event during the year was the entry of Canada, which is not a member of the Organization of American States, into the Bank as a full member. Also of importance was the entry into effect of a $1 500 million increase in the Bank's Fund for Special Operations which, under IDB policy initiated in 1971, is being used increasingly to provide preferential support for the Bank's less developed member countries.

ASDB loan approvals during 1972 increased by about 24 percent to $317 million (32 loans), including the Bank's largest commitment of soft-term resources which totalled $94 million (16 loans). By the end of 1972 ASDB had approved 117 loans — 73 from ordinary resources and 44 from the Special Funds — totalling $954.5 million. Distribution of loans in 1972 by sector was as follows: transport, communications and power 60 percent, industry 10 percent, water supply 19 percent, education 1 percent and agriculture 10 percent. On a cumulative basis, since 1968, transport, communications and power account for about 50 percent of loans approved, industry 25 percent, water supply 11 percent and agriculture 13 percent. To meet the immediate problem of the depletion of its Special Fund resources, it was decided at the last meeting of the Board of Governors to establish an untied, multilateral Asian Development Fund. A target for contributions of $525 million has been set for the next three years. It is expected that the Fund would also finance local currency costs. The continued expansion of the Bank's concessional lending underlines the urgency and importance of the measures now under way, which include the establishment of the Asian Development Fund to replenish ASDB's soft-term resources. A further three countries joined the Bank in 1972: Bangladesh, Burma and the British Solomon Islands.

Loans approved by the African Development Bank (AFDB) by the end of June 1973 totalled 52, involving commitments of 82 million units of account (1 UA = 1 predevaluation U.S. dollar), compared with 62.6 million a year earlier. Together with the acceleration in lending operations, actual disbursement of Bank loans rose sharply, and represented about 34 percent of total commitments. So far the Bank has approved 13 agricultural projects in its member countries for a total of 23 million UA; 11 of these projects were prepared with the assistance of FAO.

The Bank is making every effort to mobilize further financial resources to enable it to continue its lending operations after 1973. By the end of June 1973, AFDB paid-in capital amounted to 106 million UA, out of 254 million UA of authorized capital. Membership rose to 38 countries with the accession of Lesotho and the Gambia. However, on 1 August 1973 the African Development Fund, to which 16 developed countries had pledged support, became operational. Six of these countries have so far ratified the agreement with the Bank and have subscribed 59 million UA. It is hoped that total resources of the Fund will exceed 100 million UA; it is intended that priority in soft-term lending will be given to agriculture and infrastructure projects.

Food aid

Food aid represents approximately 15 percent of official development assistance. In 1971, the latest year for which data are available, the gross value of food aid contributed by DAC members through bilateral and multilateral channels amounted to $1 340 million. Since 1963 the value of food aid has shown little increase.

Although subject to considerable criticism because it could possibly distort trade in food and adversely affect production in recipient countries, food aid undoubtedly contributes to the development effort of poorer countries. For many developing countries foodstuffs constitute one of the largest import items. The foreign exchange released by food aid may therefore be a valuable contribution to development. Moreover, the local currency generated by sales of food aid supplies supplements government resources.

Although emergency aid, sometimes on a substantial scale (particularly frequent in 1972 and 1973), remains necessary to meet national disasters over the longer term, the urgent need for large-scale and regular food aid, primarily in the form of cereals, has declined with the advances in production which have taken place in many deficit countries during the 1960s. Some major importing developing countries achieved self-sufficiency in foodgrains and even produced surpluses. However, this does not mean that the scope for food aid will diminish in the course of the present decade. In 1970 the excess of effective demand for food which could not be met from domestic production or imports in developing countries was estimated at $1 000 million and, according to FAO projections, is expected to increase to between $2 200 million and $2 700 million in 1980.[21] The excess of unsatisfied needs is much greater because many people in the developing countries need more food than they can purchase. By 1980, even if projected demand were fully met, some 42 countries with 1 440 million inhabitants would have average calorie intakes below requirements. Not only must ways be found to provide more food for those who cannot afford to buy all they need, but supplies of protein-rich foods, including those from vegetal sources, must also be increased for the improvement of nutrition.

The subregion receiving most food aid has been south Asia, where large-scale assistance was required to avert famine after two successive disastrous crop seasons in 1965 and 1966 (Table 1-23). However, with expanding output of foodgrains during the latter part of the decade the area's dependence on food aid was reduced. Thus, India's concessional imports

TABLE 1-23. – GEOGRAPHICAL DISTRIBUTION OF WHEAT IMPORTS ON CONCESSIONAL TERMS, 1966 AND 1971

	1966 [1]		1971 [2]	
	Million metric tons	*Percent*	*Million metric tons*	*Percent*
ASIA AND FAR EAST [3]	9.7	68.3	5.3	50.0
India	7.7	54.2	2.3	21.7
Indonesia	—	—	0.7	6.6
Pakistan [4]	0.8	5.6	0.9	8.5
Korea, Rep. of	0.5	3.5	0.9	8.5
NEAR EAST	2.3	16.2	2.6	24.5
Egypt	1.4	9.9	0.7	6.6
Turkey	0.4	2.8	0.8	7.5
AFRICA	0.8	5.6	1.3	12.3
Algeria	0.3	2.1	0.3	2.8
Morocco	0.2	1.4	0.4	3.8
Tunisia	—	—	0.3	2.8
LATIN AMERICA	1.3	9.2	1.4	13.2
Brazil	0.3	2.1	0.8	7.5
TOTAL	14.2	100.0	10.6	100.0

SOURCE: International Wheat Council. *World wheat statistics*, London.

[1] Year ending 31 July. – [2] Year ending 31 June. – [3] Excluding China. – [4] Former East and West Pakistan.

of wheat, the most important single commodity in international food aid, dropped from 7.7 million tons in 1966 to 2.3 million tons in 1971 (from 54 to 22 percent of total concessional wheat shipments) and in 1972, with the establishment of a stock of foodgrains of 9.5 million tons, concessional imports were discontinued. On the whole, the geographic distribution of food aid has been greatly extended in recent years. Minor recipients which accounted for some 20 percent of the total in 1966 accounted for about 30 percent in 1971.

Among the donor countries, the United States provides 75 percent of total food aid, followed by Canada which accounts for another 15 percent. For both countries food aid represents more than one fourth of official development assistance. Other large donors include Australia, the Federal Republic of Germany, and Japan, which in 1970 started major food aid deliveries from surplus stocks of rice.

At the outset, in the mid-1950s, the United States supplied food aid primarily on a grant-like basis, that is, sales payable in local currencies. Other donor countries made their surpluses available on a grant basis. The grant-like element of United States food aid has been gradually reduced, as sales for local currency were phased out at the end of 1971 and replaced by dollar loans at highly concessional terms. Concern over the effects of large-scale transfers on commercial transactions led to the elaboration, under the auspices of FAO, of principles governing the disposal of surplus agricultural products to ensure that

[21] World Food Programme, *Annual statement of the Executive Director on the development of the Programme*, Rome, 1973, WFP/IGC:23/5.

there would be no harmful interference with normal patterns of production and trade.

The food aid extended through the World Food Programme (WFP) has increased rapidly since the Programme was established in 1963. However, by 1972 it still accounted for only 10 percent of total food aid. While allocating assistance on a project basis, WFP has explored other approaches to disbursement of resources. A multiproject approach has been developed, within the concept of country programming now being undertaken by the United Nations Development Programme (UNDP), which enables joint consideration of several projects in the context of a country's development plan. Aid is extended for economic and social development as well as for meeting emergency food needs. Over the past decade about 80 percent of total disbursements have been to support development projects, the remainder being emergency operations. The Near East and Africa have consistently received the largest proportion of WFP project aid since the beginning of operations. At the end of 1972, cumulative commitments to the Near East represented 30 percent of the total, those to Africa 28 percent (of which Algeria, Morocco and Tunisia accounted for 12 percent), those to Asia 27 percent, and those to Latin America 14 percent. While the share going to the development of human resources has consistently grown, from 8 percent in 1963 to 35 percent in 1972, that going to directly productive projects (such as land development and improvement, land settlement, crop and livestock production) and to infrastructure has declined. However, directly productive projects, which received 50 percent of assistance by the end of 1972, remained the major category for WFP support. Commitments for emergency operations, primarily for natural disasters and drought relief, have been directed mainly to Asia (40 percent) and Africa (30 percent). WFP aid has been absorbed more easily by countries which have reached a certain degree of economic development. The establishment of projects in the least developed countries has been more difficult, although assistance has been extended to Afghanistan, Burundi, Chad, Dahomey, Mali, Mauritania, Nepal and the Sudan.

Multilateral food aid is likely to expand further, depending on the availability of resources. The level of WFP resources amounted to $249 million in the biennium 1971-72 (72 percent in commodities and 28 percent in cash and services) and a target for pledges of $340 million has been set for 1973-74. However, since 1969 there have been delays in commitments and in meeting requests for aid because of insufficient resources. Moreover, there have been problems concerning the appropriateness and effectiveness of the composition of WFP resources. The cash and services element has been sufficient to pay for administration, shipping, insurance and supervision of WFP aid, but not enough to give assistance to recipient countries with internal costs or to purchase commodities as a means of saving transport expenses and filling gaps in the WFP commodity basket. Uncertainties regarding resource availability, and especially about the composition of food commitments, complicate planning and resource management.

The least developed countries

The international development strategy for the Second Development Decade includes recommendations concerning measures in favour of the 25 countries identified by the United Nations Committee for Development Planning as the "least developed."[22] These countries (see map) combined have 150 million inhabitants and were selected on the basis of the following criteria: per caput gross domestic product of $100 or less, share of manufacturing in total gross domestic product of 10 percent or less, and a literacy rate (proportion of literate persons in the age group of 15 years and over) of 20 percent or less.

Because of their retarded development, it would be difficult for these countries to make any substantial progress if they have to rely solely on their own resources. The economically more advanced countries and multilateral organizations are therefore called upon to give them special consideration in assistance programmes so that they receive aid which is suited to their problems and which may be used effectively. In fact, analysis indicates that as a group the least developed countries are relatively less well treated in terms of the volume received than other developing countries, possibly because of practical limitations in absorptive capacity.[23]

Since opportunities outside agriculture are relatively few, it is in this sector that the major efforts must be made. The bulk of the population in the least developed countries is rural; in none of them is the ratio of rural to total population less than 80 percent and it is as high as 99 percent in Rwanda, 98 percent in Lesotho and 97 percent in Niger and Burundi. Agriculture contributes as much as 50 to 70 percent of GDP and provides a livelihood for 80 percent of the economically active population. Agricultural exports constitute almost the sole source of foreign exchange earnings, with one commodity often accounting for half or more of the total value of exports.

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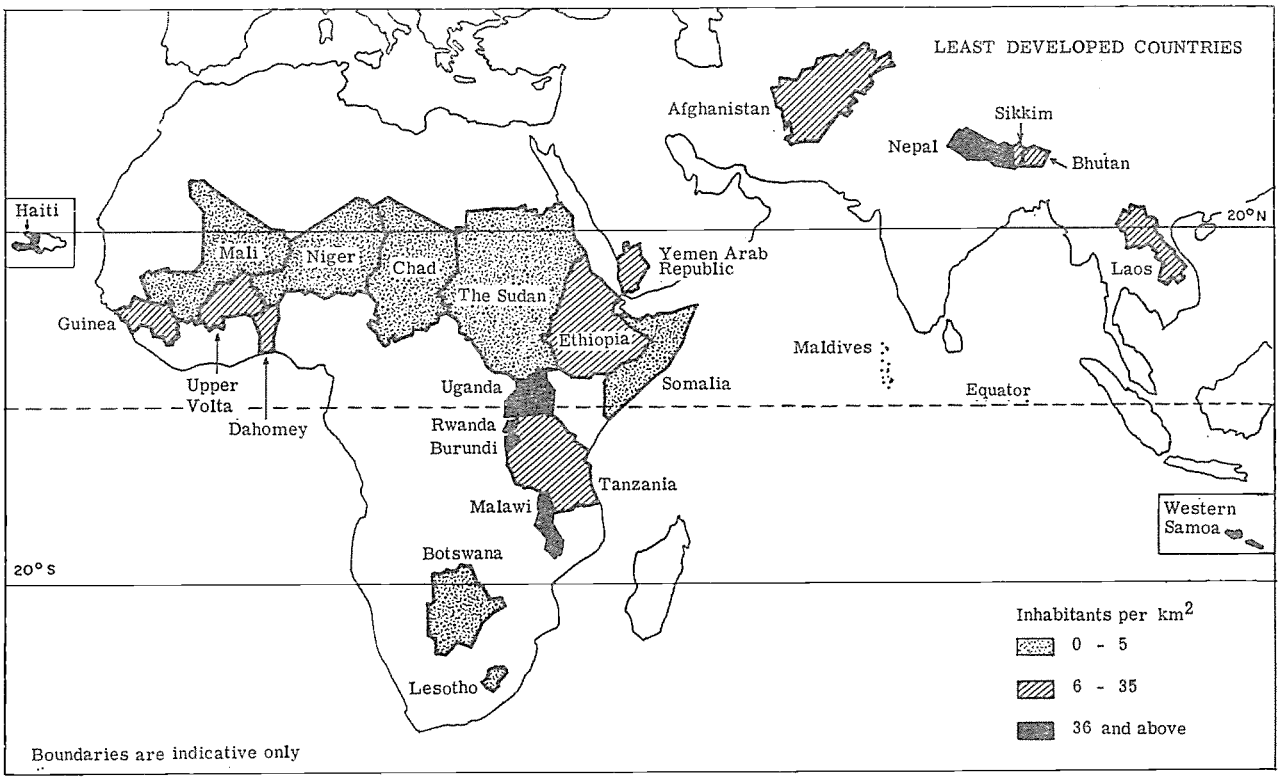
[22] Africa: Botswana, Burundi, Chad, Dahomey, Ethiopia, Guinea, Lesotho, Mali, Malawi, Niger, Rwanda, Somalia, the Sudan, Uganda, Tanzania and Upper Volta. Asia and Oceania: Afghanistan, Bhutan, Laos, Maldives, Nepal, Sikkim and Western Samoa. Near East: Yemen Arab Republic. Latin America: Haiti.

[23] Organisation for Economic Co-operation and Development. *Development co-operation. 1972 review*. p. 118-121. Paris. 1972.



Despite the predominance of agriculture, productivity is low. In most of the least developed countries the growth rate of agricultural production has fallen short of that of population, and lagging food production has resulted in rising imports which have been a strain on the balance of payments.

There are wide differences among the least developed countries in respect of natural resource endowment. On the one hand are countries such as Ethiopia, the Sudan and Uganda, which have substantial agricultural resources but lack adequate physical and institutional infrastructure. Then there is the wide spectrum of countries in Africa south of the Sahara where soils in general are poor and rainfall scanty; the semiarid conditions prevailing in these countries constitute an important limiting factor to the expansion of agricultural production. In a third group, including Nepal and Sikkim, the rugged terrain has limited the arable area.

The poor development of physical infrastructure (transport and communications) accounts for remoteness and isolation and is a major obstacle to economic development. Of the 25 least developed countries 15 are landlocked.[24] This has important implications for transport costs, the price structure within the country, and competitiveness in export markets.

Some other major constraints to the rapid development of agriculture are common to most developing countries. Much of the sector is traditionally organized, with a prevalence of subsistence production and primitive techniques. There has been a tendency in some economies toward commercialization, but this transition from subsistence to market economies has to be accelerated, not only to induce the adoption of improved techniques but also to promote linkages with the other sectors of the economy through specialization at the farm level.

Yields are low. There is considerable scope for the introduction of fertilizers and insecticides and the adoption of improved seeds and cultivation practices which would help to raise productivity. Fertilizer input per hectare of arable land, for instance, is extremely low, not exceeding even 1 kilogram of nutrient per hectare in many countries.

Social and institutional problems have also limited rapid development. Particularly important are the low level of literacy and the inadequate development of skilled manpower. The adult literacy rate ranges from 5 to 10 percent in most of the countries. The school enrolment ratio (as a percentage of the age group from 5 to 19 years) is equally low; only in Haiti, Laos, Lesotho, Malawi, Rwanda, Tanzania and Uganda does it exceed 20 percent. Organized administrative systems are missing in many of the countries and, combined with the lack of managerial

[24] Afghanistan, Bhutan, Botswana, Burundi, Chad, Laos, Lesotho, Malawi, Mali, Nepal, Niger, Rwanda, Sikkim, Uganda and Upper Volta.

and technical personnel (including trained agricultural officers), this has hindered not only the absorptive capacity of these countries but also the identification of viable projects and their implementation.

Development requires that these constraints be removed. The main problem is to identify the development potentials — unexploited water supplies, unutilized land, possible commercial crops, livestock resources and technological improvements.

Since a minimum of economic infrastructure is essential for agricultural development, emphasis must be placed on social overhead capital such as power, transport and communications. The creation of excess capacity is unavoidable in the initial period, but expansion of demand can be expected to progressively reduce this. Transport — especially roads and railways — and communication networks have to be expanded to open up the countries and connect their agricultural areas with domestic and external markets. This is essential for the development of an exchange economy.

The transition from subsistence to market economies needs to be speeded by introducing new farming techniques, increasing the marketable surplus for urban consumption, encouraging specialization (an important means of growth in productivity), and improving farm income.

Since the basic problem of agricultural development is low productivity, priority has to be given to the improvement of water supplies through irrigation, the construction of wells and better exploitation of surface and groundwater potential, especially in arid countries, and the provision of "a package of simple technology" requiring little capital which would help to raise productivity. Small irrigation projects combined with extension services and the provision of inputs can have higher and quicker returns in terms of productivity than investments in large schemes which have long gestation periods and involve considerable foreign exchange. The establishment or strengthening of extension services and storage facilities and the setting of incentive prices are also essential. The yields of subsistence crops have to be raised, not only to meet growing internal demand but also to spare more land for cash crops.

However, the small size of their domestic markets prevents the least developed countries from enjoying economies of scale and specialization in production. The establishment of integrated markets with other countries is therefore of great importance for diversifying their economic structure. One method of partial integration is the initiation of joint ventures and market-sharing arrangements. The West African Rice Development Association (WARDA), which includes among its members five of the least developed countries (Dahomey, Guinea, Mali, Niger and Upper Volta), is assisting member governments to expand output, establish an integrated programme of production, and promote the storage, processing and marketing of rice. FAO has been promoting cooperative agricultural research programmes among countries in two zones of Africa with similar ecological conditions, both of which include several of the least developed countries; programmes in the Sudanian zone were considered at a conference in 1968; another conference was held for the Guinean zone in 1971. These conferences have been helpful in identifying common problems and fostering regional agricultural research efforts.

Some of the least developed countries (Afghanistan, Chad, Dahomey, Niger, Somalia and the Sudan) are pastoral, and livestock production contributes an appreciable proportion of their GDP. Livestock are still raised along traditional lines, mainly by nomadic herdsmen. Besides nomadism, the basic problems facing this subsector are inadequate water supply, pasture deficiency and the prevalence of disease. The development of animal resources has already begun in some countries with UNDP/FAO assistance, which has been channelled to the diagnosis and control of animal diseases, training and demonstration in animal husbandry, integration of crop and livestock farming and forage improvement (Dahomey), livestock marketing (Somalia), and improvement of hide and skin curing and leather production (the Sudan).

All the least developed countries depend on agricultural exports for the bulk of their foreign earnings. Many are highly vulnerable to fluctuations in world market prices, which have imparted much uncertainty to development efforts. Since exports can generate economic growth in most of these countries, stabilization of their export receipts is of particular importance.

The diversification of the economy is also of crucial importance. The European Economic Community, under the Convention of Assistance to African States, has been assisting Dahomey in the expansion of production of oil palm, groundnuts, cotton, coconuts and coffee; similar assistance is being extended to Niger to increase livestock production.

Rather ambitious agricultural production targets have been set in the national development plans of some of the least developed countries. They are ambitious not in relation to requirements but in relation to the capacity of the countries for achieving them. Therefore, both bilateral and multilateral financial assistance to the least developed countries will have to be increased, and a substantial part of this assistance will have to go to the agricultural sector as the development prospects of these countries depend so heavily on the performance of this sector.

Chapter 2. - REVIEW BY REGIONS

Western Europe

The growth of output recorded in most countries in the region in 1972, together with numerous other recent indicators, confirm that a strong revival of economic activity in the area as a whole is now well under way, helped by expansionary policies. But despite rapid economic growth through 1972, unemployment has remained a problem in a number of countries. Apart from the typical lags between upswings in activity and increases in employment, unemployment figures seem to have been increasingly affected by structural factors. The difficulties of dealing with unemployment have been compounded by the inflationary trends in most western European economies. Present forecasts in this field are extremely uncertain in view of the momentum inflation has acquired and of the recent decisions in the region which aim at a significant slowing down of price increases. Present trends, if left unchecked, could become extremely disquieting.

One peculiarity of the situation in 1972 was the apparent uniformity of the rate of price increase, despite considerable differences in the degree of demand pressure between countries. The importance of achieving simultaneous and mutually supporting action by governments to reduce the rate of inflation is fully recognized. This is evident from the discussions in the Economic Policy Committee of the Organisation for Economic Co-operation and Development (OECD) on 15-16 November which led to the OECD Council adopting a recommendation on the problem of inflation and economic expansion on 12 December 1972.

The cyclical upswing in the major countries has contributed to a rapid increase in the volume of world trade, but its uneven timing has been one factor holding back the hoped-for improvement in the pattern of current balances of payments.

Agricultural production

After the bumper harvests of 1971 agricultural production in western Europe declined slightly in 1972.[1] This was a mixed year for cereals with harvests varying considerably from one country to another. Climatic conditions (principally cold weather and inadequate sunshine) hindered growth, harvesting and grain quality in varying degrees. France had the highest gain in production, 11 percent; in the United Kingdom output of cereals rose 3 percent to a record level. In Denmark the high level of 1971 was maintained, while in Belgium there was a small gain. Cereal harvests were down from 2 to 7 percent in Austria, the Federal Republic of Germany, Finland, Italy, Norway, Sweden and Yugoslavia. In the Netherlands and Spain production was down by 13 and 12 percent respectively.

Wheat harvested in the region declined about 1 percent. France had an excellent crop of 18.1 million tons (a 17 percent gain) and also Sweden (16 percent increase). In most other countries, however, production dropped, notably in Spain (16 percent, mainly from a reduction in planted area), in Yugoslavia (13 percent), the Federal Republic of Germany (7 percent, despite a significant rise in plantings), Greece (7 percent less), Italy (6 percent, with a reduction in area) and in the United Kingdom (1 percent).

In contrast, barley production attained a new record for western Europe, with a 5 percent increase over 1971. Results were especially good in France (up 17 percent) and the United Kingdom (8 percent). Gains were between 2 and 5 percent in Denmark, the Federal Republic of Germany and Yugoslavia. Bad weather reduced Spain's crop by 9 percent.

The area planted to oats continued its downward trend. It declined by 9 percent in the region as a whole (Finland 13 percent, United Kingdom 8 percent, the Federal Republic of Germany 5 percent, France 3 percent). The situation was similar for rye, with a general decline in area planted and a 4 percent drop in regional production. The harvest in the Federal Republic of Germany, the main producer, was smaller by 4 percent. Maize production,

[1] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

on the other hand, continued its upward trend with a slight increase over 1971 for the region. There were gains in Yugoslavia (7 percent), Italy (6 percent) and Greece (5 percent), but decreases in Portugal (4 percent) and Spain (7 percent). In France the crop suffered from bad weather, and in spite of increased plantings declined by about 4 percent.

Although the area under sugar beet was generally larger than in 1971 (by 10 to 15 percent in Belgium, Denmark, Finland, Ireland, the Netherlands and Sweden) when beet yields and sugar content benefited from exceptionally favourable weather in most countries, production in 1972 fell by about 8 percent for the region. Harvests were especially poor in Belgium, Greece, Spain and the United Kingdom. Excellent crops were grown in Austria and Finland.

In a number of countries potato plantings continued to decline. The potato harvest in the Federal Republic of Germany was marginally lower, and production was down by 10 percent or more in Austria, Norway and the United Kingdom.

Wine production varied considerably. In France and Italy, the two largest producers, decreases of 5 and 8 percent respectively were recorded. In Portugal the drop was as much as 18 percent. Elsewhere results were very much better; for example, in Austria (up 43 percent), the Federal Republic of Germany (24 percent) and Spain, Switzerland and Yugoslavia (all about 13 percent).

The numbers of dairy cattle in northwest Europe rose slightly (about 1.5 percent) with the biggest increases taking place in Ireland and the United Kingdom (6 percent). Numbers remained practically stable in the southern countries. Milk deliveries rose about 3 percent on average, and were slightly higher in the Netherlands, Ireland (despite unfavourable weather toward the end of 1972) and the United Kingdom. Factors other than the rise in cow numbers led to the expansion in deliveries: prices of both milk and beef went up (in 1972/73 the indicative price for milk in the European Economic Community was raised by 11 percent), milk yields continued to improve and better levels of farm income slowed down the rural exodus.

The rise in milk deliveries led in turn to a high level of butter production, which in the northwest of the region increased by about 11 percent. Expansion was highest in the United Kingdom (45 percent), followed by the Netherlands (32 percent), Belgium (27 percent), Sweden (22 percent) and France (16 percent). France, with an annual output of 515 000 tons, has become western Europe's leading butter producer.

Cheese production also continued its long-term upward trend. There was an 8 percent increase in the northwest countries. However, in the original European Economic Community, growth slowed to 7 percent, against 10 percent in 1971. In some countries where the market has occasionally approached saturation for certain varieties, producers have voluntarily restrained production (in the Netherlands, for example). But in 1972 large increases occurred in Ireland (40 percent), the United Kingdom (14 percent) and Austria (10 percent).

The production levels of dried skim milk, reflecting those of butter, rose sharply — some 18 percent for the northwest and 14 percent for the six original EEC countries. The most notable gains were those of the United Kingdom (55 percent), Ireland (40 percent), Switzerland (30 percent), the Netherlands (30 percent) and the Federal Republic of Germany (28 percent). Output of powdered milk increased by 4 percent in the original Community, with a gain of 27 percent registered in France — largely compensating for the 17 percent drop in the Netherlands.

Beef production dropped by 6 percent. In the original Community the reduction was 7 percent. leading to a deficit in beef supplies in 1972 of about 600 000 tons. Several factors were responsible: the heavy slaughter of dairy cattle in 1970/71 which led to an increase in meat production at that time; the consequent reduction in numbers of calves and young cattle; and the efforts begun in 1972 to rebuild herds. One consequence of supply difficulties has been strong price increases; thus in April 1973 market prices of mature beef animals in the Community were almost 30 percent above orientation prices.

Regional production of pigmeat increased slightly in 1972, between 1 and 2 percent. This modest rise occurred in most countries except Austria, the Netherlands, and Yugoslavia.

Mutton and lamb output generally declined by about 1 percent, notably in Norway and the United Kingdom. Poultry meat production grew by 4 to 5 percent in the northwest countries. Regional egg production increased by about 2 percent, after the slight check to the upward trend in 1971. In France and the Federal Republic of Germany there were 4-5 percent gains, compared with another decline in the United Kingdom (down 1 percent in 1972, 2 percent in 1971).

Agricultural policies and problems

The basic considerations underlying the agricultural policies of western European countries in 1972 were similar, in spite of differences in the nature and number of the measures adopted. Common objectives are to increase productive efficiency (stressing concentration and specialization), to increase qual-

ity at reasonable prices, and to improve the living standards and conditions of agricultural workers. However, policies are shifting to newer aspects, such as the closer integration in the economy of the agricultural sector and its effect on the environment. Thus some countries are closely examining the merits of accelerating the rural exodus still further, taking account of the socioeconomic costs which this would involve.

The major problem, which has specially affected EEC, has arisen from the relationship between the production of milk and beef. Since 1968, measures taken in this regard have often been of a short-term nature and have not permitted either the lessening of fluctuations or the control of the interrelated milk/beef production. Thus the campaigns of 1970/71 for slaughtering milk cattle have not stopped the reappearance of large surpluses of milk products, although they have helped to make beef scarce. A carefully integrated policy for the raising of beef cattle remains to be put into action in most of the countries of the region.

A series of measures have been taken at the Community level — some short-term, others more permanent — in order to cope with the scarcity of beef. Import taxes have been suspended almost entirely since June 1972; even customs duties have been considerably reduced. However, as the beef shortage is worldwide these measures have had a limited effect. It will take a few years for the situation to change, as beef herds are built up.

In order to encourage this shift to beef the EEC Council adopted two measures at the beginning of May 1973. One established a system of premiums to discourage milk production. Each producer with at least 11 dairy cows can benefit from a premium if he keeps his livestock for a certain period and gives up selling milk products. The premium rises to 7.5 units of account (UA) per hectolitre of milk not marketed.[2] The system is optional in the regions where the price of milk is well above the suggested price, but member countries can grant premiums for the development of beef production.

The second measure established a premium per hectare in order to stimulate beef and sheep production, on condition that the plan (or budget) of each farm provides that beef and mutton exceed 50 percent of the farm's total sales. The premium, limited to 100 hectares, is 45 UA per hectare for the first year, 30 for the second and 15 for the third.

At the national level several countries have tried to increase beef production without adding to the milk surplus. In France, a 1966 law to encourage livestock farming, providing mainly for subsidies on buildings, has not given the hoped-for results. A new office was therefore established at the end of 1972 to deal with livestock and meat. It will cover the management of the market through intervention, the orientation of production, and the classification and standardization of meat. The office will grant some improvement loans for cattle-breeding buildings, the buying of cattle and the improvement of forage. The campaign against brucellosis will be intensified.

Ireland has adopted measures to help small and medium farmers to develop their breeding herds. A development programme for high-quality lamb has been adopted in Spain and subsidies agreed upon for the cultivation of land for fodder crops and improved pastures. The suggested intervention prices for livestock have been raised and a premium is now allowed for carcasses of more than 170 kilograms. A fund has been established in Yugoslavia to improve the production and marketing of livestock and meat. In Greece, at the end of 1972, the Government announced plans for the development of livestock breeding through improvement in quality of livestock and feed.

The EEC milk market has run into serious difficulties. After the relative scarcity which affected some products in 1971 surpluses of butter and skim milk powder occurred in 1972/73, comparable to those of 1968/69. Butter consumption has remained the same or even diminished and, paradoxically, in spite of surpluses, prices are sometimes higher; this has lowered demand and led to higher consumption of margarine. Demand for cheese has been maintained, however, because of the large increases in meat prices.

This inequality between supply and demand for butter and skim milk powder has caused a considerable accumulation of Community stocks. At the end of March 1973 stocks of butter were more than 400 000 tons, 100 000 tons of which had been bought from Australia and New Zealand by the United Kingdom because of agreements made before joining the Community (the normal stock level for the original Community was 180 000 tons). Stocks of skim milk powder have risen to about 380 000 tons. Different measures have been taken in order to lighten the subsidies. The original Community sold 75 000 tons of butter at a reduced price in 1972 (to public agencies, to industry, and to food-aid organizations). In deciding farm prices for 1973/74 the EEC Council has authorized member governments to grant a subsidy of 10 UA per quintal to encourage consumption. Exports have proved difficult because of competition from the Scandinavian countries and Oceania, where production has also increased. At the end of 1972 world prices for butter and skim

[2] 1 unit of account = US$1.0857 on 31 January 1973; since 12 February 1973 1 unit of account = US$1.2063 (i.e., the previous value multiplied by the factor 1.1111). For the United Kingdom and Ireland a special rate of exchange has been agreed (£1 sterling = £1 Irish = 2.1644 units of account).

milk powder were one third and three fifths respectively of those of the Community. With the delivery in 1973 of 200 000 tons of butter at heavily subsidized prices to the U.S.S.R., the Community's butter problem will be temporarily solved, although current prospects indicate that new surpluses will mount again this year.

Price policies

At the Community level the establishment of prices for 1973/74 was particularly difficult. It was the first time that a compromise had to be realized among nine countries: the general increase had to be moderated in order not to excessively reactivate general inflation where prices of food products play a primary role; it was also necessary to improve the structure of prices to encourage livestock production, without at the same time enlarging the surplus of milk products; finally, it was desirable to move toward the reestablishment of unified prices, which had been compromised by the monetary changes that had taken place in the Community since 1971, and to adopt, for the countries which had modified their exchange rates, differential price increases permitting a preliminary lowering of payments for "monetary" compensation applied to trade among certain member countries.

The new prices applicable for 1973/74 represent a very small increase for cereals, rice and sugar (Table 2-1). Regarding certain imports of feedgrains by Italy, the Commission decided that the amount by which the common levy on imports may be reduced, due to Italy's high harbour charges, would be progressively lowered from 6 UA per ton in 1973/74 to 1.5 UA in 1976/77. For oilseeds, flax, hemp, silkworms, wine and tobacco there are 1 percent increases in prices; for R2 type wines, however (red wines of 13-14 degrees), the increase is 3 percent. For fruit and vegetables basic and purchase prices will be fixed at such levels that returns to producers, in case of a reduction in the market, would be increased by 5 percent for pears and by 7.5 percent for other items.

The price structure has become more favourable to livestock producers. The orientation prices of beef were greatly increased, but it is probable that during the current season they will remain considerably below market prices. In spite of the surplus of milk products accumulated in 1972/73, the price of milk has benefited from a large increase that will probably contribute to maintaining the current excess supplies. Nevertheless, there was a reduction in the intervention price for butter, the first since unified agricultural prices were implemented in 1967/68.

TABLE 2-1. – EUROPEAN ECONOMIC COMMUNITY: PRINCIPAL PRICES EFFECTIVE IN 1973/74

	Indicative or orientation price 1973/74	Increase over 1972/73
	Units of account per ton	*Percent*
Durum wheat	133.93	1.0
Soft wheat	114.94	1.0
Barley	105.29	1.0
Rye	112.30	6.5
Maize	102.77	1.0
Rice (husked)	213.12	0.8
Sugar (white)	248.00	1.0
Olive oil	1 371.70	10.0
Beef	862.00	10.5
Veal	1 037.50	7.5
Pigmeat	860.00	4.2
Milk	124.20	5.5
Butter (intervention price)	1 760.00	— 5.4
Skim milk powder (intervention price)	660.00	22.2

It is with respect to milk powder that a first step was taken toward reducing the amount of compensatory payments: agricultural prices had risen above common prices in the countries which had revalued their currencies (the Federal Republic of Germany and the Benelux countries) and this difference in their trade with their partners had been cancelled by import taxes and subsidies for exports. In order to approach a unified system it was decided that in these countries the increase in the price of milk powder would be cut by 2 UA.

From 1 February 1973 the prices applicable in Denmark, Ireland and the United Kingdom are those of the common agricultural policy, allowing for progressive alignment which is to take place during the five-year transitional period. Moreover, for the establishment of the prices applicable in the United Kingdom, account was taken of the 9.82 percent de facto devaluation of the sterling; this reduction was not applied to cereals, however, because the prices of cereals in the United Kingdom had increased considerably during the second half of 1972 following the large increase in world market quotations. In Denmark, internal prices for 1972/73 remained unchanged for butter, beef, pigmeat, poultry and eggs; those for cereals were considerably increased.

In Austria the producer price of milk was raised, the amount varying according to quality. In Switzerland also the price of milk was increased, on 1 May

1972 and on 1 January 1973, but the volume of deliveries benefiting from the full fixed price has not changed.

In Sweden, the prices of principal products, particularly milk, were to be increased in two stages between July 1972 and June 1973 in accordance with the agreement on prices for 1971-73. In fact, at the beginning of 1973, to fight inflation the Government blocked the prices of milk products and meat for the entire year and granted a budgetary compensation to producers. A new price agreement was completed in Norway for the period July 1972-June 1974. In line with this agreement the prices of milk, meat and rapeseed were increased on 1 July 1972.

In Finland, within the framework of the law on agricultural prices valid from 1970/71 to 1972/73, prices of beef, eggs and milk were raised in 1972, and taxes on overproduction of pigmeat and eggs were reduced for 1973. In December 1972 the Government proposed a law for establishing prices for the next three years, under which the income of the agricultural sector should increase at the same pace as that of other sectors; agricultural prices will be fixed in agreement with producers, but the latter should participate in the disposal of surpluses; and finally, the Government will continue in its efforts to reduce cultivated area.

In Spain, a decree in June 1972 modified a certain number of prices. Aside from those for cattle, prices of milk, wine, sugar beet and olive oil were increased. For poultry meat, premiums were established for certain qualities. Guaranteed prices were fixed for the first time for leguminous plants destined for animal feeding. Guaranteed prices for cereals and oilseeds were not changed but the production quota for wheat was increased by 9 percent. In Greece, agricultural prices were subject to minimum and maximum scales from August 1972 to April 1973.

Structural reform

The EEC Council adopted a resolution on assistance to agriculture in mountainous regions in early May 1973. According to common rules to be defined member countries will be able to initiate specific assistance programmes, which may include compensatory payments to farmers in mountain zones who agree to continue their activities and special assistance to encourage viable units within the context of national programmes.

A wide diversity of measures have been applied and intensified in the different countries. In France, the annual conference on the situation of agriculture, concluded in September 1972, defined new elements for development and settlement policies. In particular, young farmers in mountainous regions or in zones with decreasing population will be able to receive a premium of 25 000 francs for settlement on the condition that they meet certain criteria, notably that they present a three-year farm plan and that they maintain accounts; livestock production is also encouraged by subsidy payment. In addition, a fund was created to provide professional training for farmers and a new regulation envisages long-term rural leases.

In the Federal Republic of Germany the programme of assistance to certain categories of farms was revised in 1972. To receive subsidies for equipment, the criterion established is no longer net revenue but anticipated profit; certain nonagricultural activities will be taken into account when profit is estimated. In Italy, the general pattern of land policies is to encourage farmers to become owners of their enterprises.

In Spain the emphasis has been on irrigation and the consolidation of holdings. In 1972 another 41 300 hectares were brought under irrigation, bringing the total to more than 2.6 million hectares, and another 300 000 hectares were regrouped, the total area of consolidated farms now exceeding 3.5 million hectares. In Greece, the development plan for 1973-77, which envisages an annual average growth rate of 3.5 to 4.5 percent for agriculture, gives priority to land improvement, irrigation and structural reform. During this period it is expected that 100 000 modern family farms will be created. The Greek Government announced a new programme of subsidies in favour of group agriculture in the autumn of 1972: on condition that a minimum of five farms exploit at least 20 hectares, as a group, for at least five years, they may obtain subsidies amounting to as much as 50 percent of the cost of machinery and seeds and of certain land improvements. Group marketing may be subsidized by as much as 70 percent.

Enlargement of EEC

Denmark, Ireland and the United Kingdom have been applying the common agricultural policy since 1 February 1973, following the Treaty of Accession. From now on trade between the original Community and the new members, or between the latter only, will be integrated into one market for all products subject to common market organization, taking account of transitory mechanisms such as compensatory payments. The new trade rules are a complete change for the United Kingdom after its former liberal policy; however, the measures taken in 1970 and 1971 had already brought United King-

dom policies nearer those of the Community (establishing minimum prices for certain products — a system applied to cereals since 1964).

For Denmark and Ireland, which export between one half and two thirds of their agricultural products, membership means access to an enlarged market which is free of quotas, offers more diversification, is more stable than world markets and, above all, more profitable. During the last decade, Ireland has considerably improved agricultural productivity. Denmark is accelerating specialization in farming, which had had to be diversified during the 1960s in order to compete in world markets. Considering also the high level of efficiency of United Kingdom producers, it appears that the new members are well prepared for the expected accentuation of competition in the Community, in spite of some weak sectors.

Protocol No. 16 relating to the marketing and exchange of agricultural products, annexed to the Treaty of Accession, stated that: "Some changes in the structure of international trade constitute a normal effect of the enlargement of the Community." These changes are difficult to foresee because of the complexity of the factors at work in each member country : future changes in the price structure at production and consumption levels, productivity gains, marginal profits of farmers, nutritional habits of consumers, influence of the cost of transport, business habits, the growth and influence of processing industries, relations with third countries. It is possible to envisage the future development of exchanges by examining certain factors such as actual trade flows, self-sufficiency, and community procedures.

Trade flows in the enlarged Community

In 1969-71, agricultural imports and exports of the nine countries of the enlarged Community totalled $24 500 million and $13 600 million respectively, that is, about 43 and 25 percent of the world total. Until now the original Community has supplied only a minor share of the United Kingdom's imports; the two principal exporters are the Netherlands and France, who, however, are far behind Denmark and Ireland (Table 2-2). This market is actually less important for the six (12 percent) than the trade outlet of the Community is for the United Kingdom (24 percent).

The United Kingdom already buys the bulk of several products from its European partners: milk products, bacon, beef, meat preparations, wine (Table 2-3). A fair proportion of wheat and maize comes from the six, too, but they are not the originators (transit through Rotterdam); mutton (350 000 tons in 1968-70) comes mainly from New Zealand and Australia.

Table 2-2. – European Economic Community: Agricultural trade between the present member countries in 1969-71

Origin \ Destination	Original EEC		United Kingdom	
	Million U.S. dollars	*Percent*	*Million U.S. dollars*	*Percent*
Imports				
Total	17 650	100.0	6 079	100.0
Original European Economic Community	6 565	37.2	754	12.4
Denmark	339	1.9	465	7.6
Ireland	28	0.2	430	7.1
United Kingdom	250	1.4		

Destination \ Origin	Original EEC		Denmark		Ireland		United Kingdom	
	Million U.S. dollars	*Percent*	*Million U.S. dollars*	*Percent*	*Million U.S. dollars*	*Percent*	*Million U.S. dollars*	*Percent*
Exports								
Total	10 207	100	1 367	100	538	100	1 535	100
Original European Economic Community	6 573	64.4	352	25.8	30	5.6	364	23.7
United Kingdom	575	5.6	436	31.9	409	76.0		

Source: United Nations, *Commodity trade statistics*, New York.

TABLE 2-3. – UNITED KINGDOM: IMPORTS OF SELECTED COMMODITIES ORIGINATING FROM ORIGINAL AND PRESENT EUROPEAN ECONOMIC COMMUNITY IN 1968-70

Products \ Origin	Total: EEC and other countries	Original EEC countries			Present EEC countries		
		Total	France	Netherlands	Total	Denmark	Ireland
	Thousand metric tons						
Beef	290.3	15.2	11.9	1.5	112.4	3.1	94.1
Dry pork, salted	396.5	8.4	0.1	8.0	330.0	293.5	28.1
Meat preparations	183.5	40.0	0.5	35.3	94.6	46.2	8.4
Milk and cream	80.2	16.8	3.6	11.1	45.5	8.6	20.1
Butter	429.5	25.9	5.1	16.1	148.9	94.0	29.0
Cheese	164.5	26.9	8.1	16.1	56.1	9.9	19.3
Wheat	4 590.0	1 217.4	524.2	583.8	1 217.4	—	—
Barley	644.7	48.2	45.0	1.9	60.0	11.8	—
Maize	3 349.3	690.2	228.4	417.4	690.2	—	—
Fresh fruit	1 484.7	195.3	85.9	8.5	201.6	0.2	6.1
Fruit preparations	576.6	54.1	10.9	11.0	57.4	0.2	3.1
Fresh vegetables	1 066.7	221.7	45.6	148.3	247.4	0.9	24.8
Sugar and honey	2 677.3	117.6	33.4	57.7	137.2	8.0	11.6
	Million litres						
Wine	175.0	69.2	45.1	—	69.2	—	—

SOURCE: United Nations, *Commodity trade statistics*, New York.

SELF-SUFFICIENCY

The levels of self-sufficiency of each member country give an idea of the complementarity of their production and of the eventual orientation of trade (Table 2-4). However, for certain products the self-sufficiency ratios tend to underestimate the productive capacity and competitiveness of the United Kingdom. For example, the United Kingdom has limited internal production of bacon and sugar because of political decisions to continue buying from traditional suppliers; but these preferential ties will probably be altered in favour of an increased freedom in production and in intra-Community trade. Besides, in order to estimate future import needs of the United Kingdom it is necessary to consider not only the present rates of self-sufficiency but also their long-term trend. The ratios for cereals, sugar, meat, milk products and eggs have increased considerably during the last decade. It is probable that the application of the common agricultural policy will not change the situation very much, at least during the period of transition.

OPERATION OF EEC REGULATIONS

In the enlarged Community most products are subject to the regulations already existing, which allow trade to develop in conditions comparable to those of an internal market. Since 1 February 1973

TABLE 2-4. — EUROPEAN ECONOMIC COMMUNITY: DEGREE OF SELF-SUFFICIENCY IN SELECTED AGRICULTURAL PRODUCTS OF PRESENT MEMBER COUNTRIES IN 1970/71

	Original EEC	Denmark	Ireland	United Kingdom	Present EEC
	Percent				
CEREALS AND VEGETABLE PRODUCTS					
Wheat	98	110	77	45	86
Rye	94	86	—	35	93
Barley	91	94	86	89	91
Oats	88	93	98	108	91
Maize grain	66	—	—	—	56
Rice	102	—	—	—	86
Potatoes	101	103	105	96	100
Sugar	106	110	107	34	86
Vegetables	99	91	103	...	...
Fresh fruit	88	64	36	...	...
Citrus fruit	52	0	0	0	45
ANIMAL PRODUCTS					
Milk	100	100	100	100	100
Skim milk	100	100	100	100	100
Cheese	102	245	483	48	99
Butter	105	281	197	14	83
Eggs	101	132	100	99	101
Beef	89	217	602	84	94
Pigmeat	101	519	160	72	105
Poultry	101	324	103	99	102
Total meat	94	359	255	71	96

SOURCE: Communautés européennes, Office statistique, *Statistiques agricoles 1972*, Bruxelles.

the Community preference, which in the United Kingdom will begin to replace that agreed with the countries of the Commonwealth, is assured by:

1. The gradual cancelling of customs duties between members and alignment on the communal customs tariff.
2. The elimination of quantitative restrictions, although for bacon, butter, cheese and sugar the actual quota system must be progressively adjusted during the transitional period.
3. The imposition of variable levies on imports coming from third countries.

During the transitional period compensatory payments will make up the difference between the prices applied by the new members and Community prices. In this way, sales of wheat from the six to the United Kingdom will be subsidized, while sales in the reverse direction will be taxed. For imports coming from third countries the new members will deduct the compensatory payment from the normal community levy. If, following an increase in world prices, the levy is less than the compensatory payment, then a ceiling will be placed on these payments at the level of the levy (as happened with wheat in March 1973).

Another essential factor in the future development of trade in the Community lies in produce prices. During the last few years United Kingdom prices have tended to approach those of the original Community. Nevertheless, for the new members, progressive alignment to Community level generally means a considerable increase, with the exception of some products which vary from country to country; for example, sugar and milk in the United Kingdom, eggs and poultry in Ireland and Denmark. This increase will be a stimulating factor for production, particularly of wheat and barley, milk products, and beef and pigmeat.

But it is not only prices which will influence farmers in the new member countries to adjust their production; rather it is marginal profits, among other determining factors. For cereals, for example, it is assumed that the high average yields of the United Kingdom will allow a considerable increase in profit margins, leading to a growth in production.

In addition, the opening of the United Kingdom market will probably stimulate production in the six original members. Thus, taking into account probable development in the enlarged Community and the operation of commercial preference, an intensification of intra-EEC trade similar to that already realized in the original Community seems likely. The intensification will principally influence products for which the countries are complementary: wheat, maize, fruit and vegetables, wine, sugar, butter and cheese. For these last three items the gradual reduction of deliveries from some traditional suppliers of the United Kingdom will free outlets, which will encourage competition among Community producers.

Whatever the changes in intra-EEC trade may be, it seems that the new economic union will be more self-sufficient than the former and that the nine will produce surpluses of cereals, milk products and meat. Commodity projections [3] made by FAO suggest that one of the main difficulties facing the Community is that of adjusting the equilibrium of agricultural production and trade, taking into account the necessities of internal dynamics and of relations with third countries, particularly the United States.

[3] See *Implications of the possible enlargement of the EEC for agricultural commodity projections, 1970-1980.* Rome, FAO, CCP 72/WP 6.

Eastern Europe and the U.S.S.R.

The most important event in this region, agriculturally and otherwise, was the very poor grain harvest in the U.S.S.R. In contrast, results in eastern European countries, particularly for grains, were generally good. In 1972 the U.S.S.R. suffered weather conditions said to be the worst for a hundred years. The winter was hard, and without snow for the protection of winter seeding, so a third of the winter wheat crop was lost. Spring and summer in the west of the country were subject to an exceptionally hard drought. By the end of the summer the situation was alarming but was partially saved by two factors. First, a relatively good crop of wheat was harvested in the east, where the harvest is late, particularly in the virgin lands put under the plough during 1954-56 in Kazakhstan, Siberia and the Urals. (One figure is significant: Kazakhstan's share in state procurements of cereals amounted to 28 percent in 1972, compared with less than 18 percent in the previous five years.) The second factor was the mobilization of a great number of extra workers to complete the late phase of the harvest in the shortest possible time, thus avoiding even further loss; these people included industrial workers, soldiers and students.

The final result was a grain harvest of 168 million tons, against 187 million tons in 1970 and 181 million in 1971. State procurements for urban consumption,

export and other uses reached 60 million tons, against 64 million tons in 1971. However, some measures of rationing have been adopted in various parts of the country to avoid waste of bread. The U.S.S.R. arranged to purchase food and feed cereals to a massive total of about 30 million tons from Australia, Canada, France, Sweden and the United States.

The five-year plan for 1971-75 required an annual grain harvest averaging 195 million tons. To reach this target now an average annual crop of nearly 210 million tons would be needed in 1973-75. Great hopes are being placed on technical progress. If the technology of 1955 had still been in practice in 1972, the crop would probably not have been higher than 90 million tons, which gives some indication of what has been achieved. The production plan for 1973 has set a target of 197 million tons and part of the expected increase is to come from additional land. During 1965-72 the area under cereals was substantially reduced from 128 to 120 million hectares, especially area under rye which declined by as much as 50 percent. Unofficial estimates put the extra land to be planted to grains at some 5 million hectares.

Agricultural production

The salient feature of agricultural developments in the region in 1972 was the divergence in results between eastern Europe and the U.S.S.R. (Table 2-5).

Agricultural results in eastern Europe were generally good. Expansion in total output was fastest for the second consecutive year in Romania. Poland's growth rate greatly exceeded expectations; moreover, the livestock sector expanded more rapidly than total output and recorded the highest rate of increase in the region. Crop production rose rapidly in Hungary and Bulgaria, but livestock in both countries contributed little to the overall expansion. Results in Czechoslovakia and the German Democratic Republic were good and based on a fairly balanced performance of the two main sectors.

In contrast with developments in eastern Europe, output in the U.S.S.R. was disappointing. The slight advance in total output of 1971 was followed by a 4.6 percent decline, which reflected an 8 percent reduction in crop output and only small gains in livestock production.

Agriculture in the region generally has achieved significant progress in recent years (Table 2-6). Between 1960 and 1971 both total and per caput output expanded rapidly; the number of tractors and consumption of fertilizers went up sharply and average yields increased significantly. Nevertheless, the year-to-year fluctuations, especially in the U.S.S.R., point to the need to stabilize yields, possibly at higher levels than those prevailing. Even in a record

TABLE 2-5. – EASTERN EUROPE AND U.S.S.R.: CHANGES IN TOTAL CROP AND LIVESTOCK PRODUCTION, 1970-72, AND 1973 PLANS

	Annual change			
	1970	1971	1972	1973 plan
	..... *Percent*			
BULGARIA				
Total	4.1	3.0	5.0	7.4
Crops	2.5	2.0	8.0	...
Livestock	6.9	4.9	1.0	...
CZECHOSLOVAKIA				
Total	1.1	3.2	3.6	3.7
Crops	— 4.8	2.8	4.0	6.7
Livestock	6.5	3.5	3.2	1.1
GERMAN DEMOCRATIC REPUBLIC				
Total	3.7	— 0.9	...	...
Crops	10.1	— 6.1	...	...
Livestock	— 0.8	3.2	4.5	...
HUNGARY				
Total	— 5.4	9.0	4–5	1–2
Crops	— 16.5	11.7	8.0	—
Livestock	10.5	6.6	1.0	3.0
POLAND				
Total	2.2	3.7	8.1	2.1
Crops	4.3	1.3	7.0	—
Livestock	— 1.1	6.6	9.5	5.0
ROMANIA				
Total	— 4.8	18.4	9.0	6.8
Crops	— 11.7	26.4	...	...
Livestock	5.2	8.9	...	...
U.S.S.R.				
Total	10.3	1.4	— 4.6	12.6
Crops	11.7	— 1.5	— 7.8	...
Livestock	8.9	3.6	—	...

SOURCE: Statistical yearbooks, plan fulfilment reports and direct communications by governments. These data are not strictly comparable with FAO production index numbers, which are calculated on a different basis.

year like 1970, the average grain yields in the U.S.S.R. of some 15.6 quintals per hectare were barely half those recorded in the more advanced countries of eastern Europe. Within the U.S.S.R. itself there are wide regional differences. Table 2-7 gives the current levels in eastern European countries for production, yields and inputs, and compares these with the great natural regions of the U.S.S.R. Average data for the whole of the U.S.S.R. are hardly representative of any one region. Even the figures for one of the regions, the Russian Soviet Federated Socialist Republic, with 40 percent of the agricultural area of the U.S.S.R., are — by themselves — averages covering very different situations. However, several different types of agriculture can be distinguished. Some of the regions in the U.S.S.R.

TABLE 2-6. – EASTERN EUROPE AND U.S.S.R.: INDICES OF AGRICULTURAL PRODUCTION, YIELDS AND INPUTS

	Total agricultural production.[1] 1971	Livestock production, 1971	Cereal production 1966-70 average		Yields 1966-70 average			Milk yield per cow, 1971 on state and collective farms	Inputs	
			All cereals	Wheat	Wheat	Potatoes	Sugar beet		Tractors[2] per 100 ha arable land. 1971	Fertilizers per ha arable land.[3] 1971
	1960 = 100		*1961-65 = 100*					*1965 = 100*		
U.S.S.R.	140	143	129	140	138	122	138	115	143	181
Bulgaria	141	159	133	132	151	133	158	120	159	185
Czechoslovakia	127	141	126	161	120	132	133	129	129	152
German Democratic Republic	111	131	117	148	116	111	128	114	[4]123	124
Hungary	133	145	122	149	131	133	132	122	135	270
Poland	131	129	113	143	118	114	121	107	210	235
Romania	148	152	117	108	116	109	129	83	143	238

SOURCE: Statistical yearbook of the Council for Mutual Economic Assistance, 1972, Moscow.

[1] Including livestock production. – [2] 15-horsepower units. – [3] Mineral fertilizers in nutrient content per hectare of arable land and perennial plantations. – [4] 1968.

compare well with eastern European countries; thus, while for grains the average U.S.S.R. yield is below the yields of all eastern European countries, those of Ukraine and Moldavia are above those of Poland and Romania; potato yields in Byelorussia and the Baltic region are considerably above the U.S.S.R. average; and the sugar-beet yields of Kazakhstan and central Asia are inferior only to those of Czechoslovakia (however, only about 5 percent of the total U.S.S.R. crop is harvested in these two regions). Byelorussia and the Baltic region are among the most productive areas for livestock production. When considering inputs in the U.S.S.R. it must be remembered that a large quantity of fertilizers and a more rapid mechanization are applied, respectively, to poor soils (Byelorussia, Baltic) or to technical crops (cotton in central Asia, flax in the northwest). Mechanization of agriculture in central Asia is even higher than in the German Democratic Republic, for example, but fertilizer use in all the U.S.S.R. regions,

TABLE 2-7. – EASTERN EUROPE AND PRINCIPAL REGIONS OF U.S.S.R.: SELECTED DATA ON AGRICULTURAL PRODUCTION, YIELDS AND INPUTS

	Cereals 1966-70	Potatoes 1966-70	Sugar beet 1966-70	Livestock production as share of total agricultural production, 1970	Number of livestock per 1 000 ha agricultural land, 1970		Milk yields on state and collective farms, 1970	Tractors per 100 ha arable land,[1] 1970	Fertilizer per ha arable land,[2] 1970
					Cattle	Pigs			
	Quintals per hectare			*Percent*			*Kilograms per cow*		*Kilograms*
U.S.S.R.	13.7	115	228	49.3	182	124	2 298	1.9	47.0
R.S.F.S.R.[3]	13.5	115	172	52.4	232	150	2 328	1.8	33.0
Ukraine	21.4	100	267	48.3	504	490	2 362	1.9	65.6
Byelorussia	13.1	140	214	50.8	549	408	2 304	2.5	160.2
Baltic region	19.4	151	215	63.3	479	500	2 988	3.1	165.3
Moldavia	25.7	77	257	31.7	336	584	2 435	3.9	55.4
Kazakhstan	8.8	94	333	51.4	39	12	1 991	1.5	7.7
Central Asia	9.6	89	342	29.1	77	10	1 452	5.4	179.4
Transcaucasia	12.3	97	296	35.1	445	110	1 150	4.2	99.6
Bulgaria	27.4	114	323	35.3	225	394	2 808	2.6	159.0
Czechoslovakia	26.6	151	358	54.7	605	780	2 610	4.3	230.0
German Democratic Republic	29.4	185	[4]312	55.4	826	1 541	3 248	[5]4.3	319.0
Hungary	25.4	105	325	49.8	278	1 063	2 489	2.2	150.0
Poland	19.8	176	324	38.3	523	709	2 944	1.8	162.0
Romania	19.3	93	209	41.0	349	426	1 693	1.9	66.7

SOURCES: *Selskoe Khoziaistvo S.S.S.R.*, Moskva, 1971 and Statistical yearbook of the Council for Mutual Economic Assistance, 1971, Moscow.

[1] 15-horsepower units. – [2] Mineral fertilizers in nutrient content per hectare of arable land and perennial plantations. – [3] Russian Soviet Federated Socialist Republic. – [4] Including beets for feed. – [5] 1968.

as well as in the remaining eastern European countries, is far below the levels of the German Democratic Republic and Czechoslovakia.

The agro-technical base in the U.S.S.R. will have to be further improved, particularly soil fertility the lack of which in many parts of the huge territory prevents a wider use of high-yielding varieties. Undoubtedly, more changes will have to be made in the regional patterns of land use in order to adapt them better to local conditions. In addition, it would seem that the tendency toward more flexible methods of planning and management must proceed in order to encourage initiative and raise efficiency at the farm level.

With the exception of Poland, expansion of agricultural output in eastern Europe came more from the crop than the livestock sector. Grains did particularly well. The 1971 output was exceeded by more than 14 percent in Romania and Bulgaria, and by about 13 percent in Hungary. The German Democratic Republic reported a record harvest. In Poland output rose only marginally. A slight decline in total output of grains was reported in Czechoslovakia, but the wheat harvest set a new record. According to preliminary estimates, total production of grains in eastern Europe increased by 6 percent compared with 1971, and was based entirely on increases in yields.

In the U.S.S.R., on the other hand, the effects of an adverse climate were primarily felt in the sphere of grain production. A harsh and dry winter damaged at least one third of the winter sowing. A part of the damaged area was resown in the spring, but then a prolonged drought hit some of the most fertile areas in the west of the country. The situation was partly saved by generally good crops in Kazakhstan, the Urals and Siberia. Thousands of tractors, combine harvesters, trucks and other materials were rushed to these remote regions to make the most of the harvest and minimize possible losses.

According to official reports, total output of grains in the U.S.S.R. declined by 7.3 percent from the 1971 level (Table 2-8), dropping back to the 1966-70 average. State procurements declined less than total output (from 64 million to 60 million tons) thanks to the increased supplies from the eastern sectors, which accounted for more than half the total. Wheat production fell from 99 million to 86 million tons which, together with a 3 million-ton decrease in rye, made a total reduction in foodgrains of 16 million tons compared with 1971.

As in 1964 and the two subsequent years, the U.S.S.R. reverted to a position of net importer. However, while the annual purchases in that period averaged 7.1 million tons, the recently contracted quantities of grains are estimated at about 30 million tons. A larger part of these imports will be used for feed; it is estimated that some 5 million tons will be re-

TABLE 2-8. – EASTERN EUROPE AND U.S.S.R.: GRAIN PRODUCTION, 1966-70 AVERAGE AND 1970-72

	1966-70 average	1970	1971	1972	Change 1972 over 1971
	Million tons				*Percent*
Eastern Europe	59.3	56.0	68.8	73.2	6.3
U.S.S.R.	167.5	186.8	181.2	168.0	— 7.3
TOTAL	226.8	242.8	250.0	241.2	— 3.5

exported to eastern Europe, and it is probable that some small quantities will be used for maintaining exports to a few developing countries.

The negotiations with the United States in the autumn of 1971 already indicated clearly the intention of U.S.S.R. authorities to secure large quantities of grains for the implementation of an ambitious longer term programme in livestock, poultry and dairy production. The fact that imports of grains, after having been almost discontinued in 1969, began to rise again in 1970 — the best agricultural year in the history of the U.S.S.R. — was already indicative of fast-growing grain requirements for feeding purposes. The same factor explains the rising trend in net grain imports in eastern Europe as a whole (Table 2-9).

Good harvests of sugar beet were recorded in all eastern European countries. Larger areas under crops, generally coupled with higher yields, resulted in impressive increases in output over 1971 in Poland, Czechoslovakia, Bulgaria and, especially, in Hungary (2.7 million tons, up 36 percent) and Romania (5.3 million tons, up 33 percent). Production

TABLE 2-9. – EASTERN EUROPE AND U.S.S.R.: TRADE IN GRAINS, 1966-70 AVERAGE AND 1970-71

	1966-70 average	1970	1971
	Million tons		
EASTERN EUROPE			
Exports	2.4	1.9	1.5
Imports	6.3	7.7	8.9
Balance	— 3.9	— 5.8	— 7.4
U.S.S.R.			
Exports	5.6	5.7	8.6
Imports	2.8	2.2	3.6
Balance	2.8	3.5	5.1
TOTAL			
Exports	8.1	7.6	10.2
Imports	9.2	9.8	12.4
Balance	— 1.3	— 2.2	— 2.2

SOURCE: Statistical yearbooks of the Council for Mutual Economic Assistance. Moscow.

in the U.S.S.R. at 75.7 million tons was 5 percent higher than in 1971, but smaller than the 1966-70 average.

Potato production, on the other hand, was less successful. Only Poland recorded a very good potato harvest (48.8 million tons). In most other countries output was lower than in 1971, and in some it was below the 1966-70 average. The 78 million-ton harvest in the U.S.S.R. was 16 percent less than in 1971 and 18 percent below the 1966-70 average.

Output of vegetables increased in the majority of eastern European countries. Compared with 1971, the expansion was fastest in Poland, but good results were also achieved in Bulgaria, Hungary (especially for tomatoes and peppers) and the German Democratic Republic. Romania's production was about the same as in 1971, whereas a substantial decline was reported in Czechoslovakia. Output in the U.S.S.R. fell some 5 percent, but state purchases were about the same as in 1971. Fruit production on the whole was good in Hungary and Bulgaria, although in the latter country some products (plums, prunes, strawberries) did not do particularly well. Output was average in Romania and poor in Czechoslovakia. In the U.S.S.R. state procurements were 17 percent below the 1971 level.

Production of industrial crops varied greatly by country and by product. Sunflowerseed output expanded in Romania and Bulgaria, and dropped in the U.S.S.R. Crops of cotton, hemp and, especially, flax in Bulgaria were smaller than in 1971, and a sharp reduction in the total production of oilseeds was reported in Poland. The U.S.S.R. harvested a record crop of 7.3 million tons of cotton (unginned).

The performance of the livestock sector in eastern Europe varied from country to country, but on the whole it lagged behind that of the crop sector. However, total animal production in Poland expanded by nearly 10 percent; fairly good results were obtained in the German Democratic Republic and Czechoslovakia, but they were very modest in Bulgaria and Hungary. No information is available for Romania, but indications are that in this country too the contribution of the animal sector to the fast expansion of agricultural output was on the modest side. In the U.S.S.R., where the feed situation was heavily affected by the weather, total livestock production increased only marginally from the 1971 level. Meat production increased everywhere, including the U.S.S.R. where a 2.3 percent advance was reported. However, it is said to have declined by 10 percent in the first four months of 1973 at the state slaughterhouses compared with the same period a year earlier. In the majority of eastern European countries total meat supplies increased by between 3 and 5 percent over 1971. In Poland, however, output expanded by as much as 11 percent.

A characteristic feature of meat production in both eastern Europe and the U.S.S.R. of late has been the steeply rising share of pig and poultry meat in the total. To meet rapidly increasing demand, all countries have made special efforts to develop fast large-scale pig and poultry production, which is quicker and cheaper than the expansion of beef production. As a result, more than two thirds of the total increase in meat production in the region in the last three to four years consisted of pork and poultry. This orientation in production accounts to a large extent for rising consumption of coarse grains in both eastern Europe and the U.S.S.R.

Growth in the cattle population in 1972 was fast in Bulgaria, Romania and Poland (between 3 and 5 percent). The situation in Hungary remained about the same as in 1971, but in comparison with the downward trends of earlier years this should be viewed as an achievement. Cattle numbers in the U.S.S.R. increased by 1.6 percent. Pig numbers in Poland and Romania rose by more than 13 percent; in the U.S.S.R., on the other hand, a decline in the pig population of about 7 percent was reported.

Output of milk in most eastern European countries rose marginally, and remained constant in the U.S.S.R. Egg production increased moderately, but in the U.S.S.R. went up by as much as 7 percent. Output of wool increased in Bulgaria and probably Romania, but declined in Hungary and the U.S.S.R.

As part of the important shift toward large specialized livestock units some important developments were realized in 1972 in the U.S.S.R. Two large-scale pig-breeding enterprises were inaugurated in the provinces of Gorki and Belgorod. Each of them breeds about 108 000 pigs annually. A beef-breeding complex with a capacity of 10 000 head annually was established in the province of Leningrad. The total capacity of the "poultry factories" was increased by an additional 9 million laying hens and 14 million chickens per year. New developments are outlined in the 1973 plan: the capacity of poultry factories is to increase by some 19 percent and that of large pig-breeding units is to double.

Farm incomes and welfare policies

Information on the incomes of the farm population in the region is rather sketchy, but indications are that in most countries the position of farmers improved further. Despite poor output, the average level of remuneration of collective farm members in the U.S.S.R. rose by 5 percent in 1972. The introduction of higher tariff rates for tractor drivers and machine operators on state farms in certain parts of the country was completed.

Gross receipts of Polish farmers from the sales of agricultural products expanded by 23-24 percent, personal incomes (in real terms) by about 10 percent. Most gains reflected a larger volume of sales, but in part were also the result of earlier increases in the prices paid by the State for livestock and milk, and of the abolition in 1972 of compulsory deliveries of agricultural products (see next section) as well as the reduction in the number of farmers.

Romania also reported good progress in the incomes of the farm population. Cash incomes expanded by at least 6 percent. At the end of 1972 the guaranteed minimum to cooperative members specializing in animal breeding was raised from 400 to 800 lei a month, providing they work for at least 25 days a month. The guaranteed minimum for all members of collective farms was introduced in 1970. At that time it amounted to 300 lei a month for ordinary members and to 600 lei for the chairman of the farm. Allowances for temporary disability of members of collective farms were granted as well as a monthly allowance for children below the age of sixteen.

Investment, agro-technical measures and policies

Further efforts to improve the agro-technical base were made in all eastern European countries. Deliveries of fertilizers increased by between 5 and 11 percent compared with 1971. The number of tractors, combine harvesters and other machines also increased, especially in Poland and Bulgaria. It is reported that cereal harvesting in Czechoslovakia was completely mechanized in 1972 and that great progress was achieved in the mechanization of potato and sugar-beet harvesting. Mechanization progressed in Hungary, particularly in traditionally labour-intensive crops such as fruit and vegetables. More land was brought under irrigation, especially in the German Democratic Republic and Romania. The irrigated area in Romania expanded by about 160 000 hectares and reached a total of more than 1.1 million hectares.

A rather comprehensive programme for the development of cattle-breeding has been recently adopted in Hungary. The programme provides measures for specialization, expansion of crossbreeding, better marketing methods and higher incentives to producers. In order to stimulate the breeding of dairy cows, the state purchase price for milk was increased by about 30 percent as of 1 January 1973. Consumer prices for milk and most dairy products were raised by about 28 percent, but even so milk prices do not cover more than half the actual cost of production. Milk and dairy products will therefore continue to be heavily subsidized by the State.

In the U.S.S.R. special attention was given to soil improvement through irrigation, drainage and other work. Another 800 000 hectares were irrigated in 1972 and drainage was completed on 900 000 hectares. Investment in agriculture increased in 1972 by 8 percent, reaching a total of 23 700 million roubles; investment in soil improvement, however, expanded by 13 percent. Total investment outlays in 1973 are planned at 25 400 million roubles, of which 16 400 million are to be provided by the State and the rest by collective farms. One third of the state outlay is earmarked for irrigation, drainage and reclamation of land. In 1972, 54 million tons of mineral fertilizers were applied in the U.S.S.R., exactly double the quantity available in 1965.

In 1973, 57 million tons of mineral fertilizers and increased quantities of machinery will be delivered, and the total engine capacity of tractors will be increased by 11 percent.

Measures were introduced in 1972 in the U.S.S.R. to stimulate production of root crops. Procurement prices for sugar beet were raised (with additional payment for higher sugar content), and a 50 percent premium was established for deliveries in excess of plan figures. A similar premium was introduced for potatoes, and in some areas the purchase of potatoes produced on private plots will be carried out on the basis of freely agreed prices subject to centrally fixed upper limits which may vary according to the local conditions of supply. Among other measures, mention should be made of the decision to centralize the distribution of feedgrains and mixed feed to state and collective farms. This distribution in the future will be carried out by the Ministry of State Procurements according to the central plan, and taking into account the delivery quotas for oilseeds, cotton and sugar beet allotted to individual farms.

An important law issued in January 1973, after discussion by the Supreme Soviet in September 1972, relates to the preservation of the environment, determining measures against air, water and soil pollution. Annual and long-term plans concerning the protection and management of resources will be established and incorporated in development plans as from 1975. These will concern erosion, the use of water, soil and forest resources, the prevention of pollution and the management of peat accumulations. Functions and tasks of various ministries and administrations have been defined by the Act. The Ministry of Agriculture is to control the appropriate use of land resources, the use of toxic materials and the control of pests. Various measures are to be taken in the field of scientific research and education.

A government decision was also announced for the protection of the Volga and Ural rivers against pollution, and the problems of the Danube river —

flooding and pollution — were discussed at the meeting of the executive committee of the Council for Mutual Economic Assistance held in Moscow in January 1973.

The search for more efficient forms of organization and better planning methods continued in the region, especially in Czechoslovakia and the German Democratic Republic where comprehensive discussions took place on ways and means to promote concentration, specialization and integration within agriculture as well as on the ties of agriculture with other production sectors.

The system of agro-industrial complexes in Bulgaria was further consolidated and put under the same planning regime as the industrial concerns. There are now 170 agro-industrial complexes in this country, covering about three quarters of the agricultural area and employing the same proportion of the permanent agricultural labour force. As with the industrial complexes, the plans of these large units will contain a few centrally fixed targets, notably the physical volume of production of certain commodities, the volume of investment and some measures relating to the introduction of modern technology.

As in other countries of the region, the establishment of agro-industrial complexes reflects a deeply ingrained belief in the advantages of industry over agriculture in the traditional sense in organization, planning, economies of scale, and so on. The basic intention is to evolve organizational forms which would virtually eliminate the demarcation line between agricultural and industrial activity by integrating the two as fully as possible. It is important to note that the agro-industrial complexes in these countries provide for an organic development of the badly needed links between agriculture and other related sectors (supplying industries, transport, storage facilities, processing, distribution services, various forms of economic and social infrastructure, etc.), which are of crucial importance for improving productivity. These new forms obviously contribute toward an integrated development of rural areas. In addition, they greatly facilitate central planning by reducing its role to the virtually indicative planning of a few rather general targets.

The fact that Bulgaria has gone further than any other country in this respect can be explained by the attitude of the Bulgarian authorities which (in contrast to earlier policies in other countries) have always considered agriculture a particularly important activity, despite the drive for industrialization. [4] It might be added, perhaps, that the Bulgarians have also been more dogmatic in applying what are usually called Marxian principles in the organization of agriculture, but this does not change the fact that they have shown great perseverance in overhauling the sector. Parallel with efforts to build up large integrated units and expand production, Bulgaria has always paid great attention to the quality of its produce, taking full advantage of the long experience of its farmers in most of the labour-intensive crops. Bulgarian tobacco, vegetables and fruit, as well as some processed products, have an international reputation which of late has gained by well-conceived and organized export promotion. A large number of the agro-industrial complexes, well over 80 percent of the total, are engaged in the production of grains combined with animal production of some kind; about 40 percent also specialize in producing vegetables, 22 percent in viticulture and 20 percent in fruit.

A reorganization of rural administration was carried out at the end of 1972 in Poland. The 4 313 former rural administrative units (*gromada*) were replaced by 2 380 larger and more viable units (*gmina*), covering an average area of 130 square kilometres each, with a population of about 7 000 people. The new units should have a greater say in economic management and social welfare, including education, and will take over a number of functions which were previously the prerogative of superior administrative authorities. The structural reform in agriculture made further progress: important transfers of land from retiring farmers to the State were reported, and new regulations were introduced concerning the use of land for nonagricultural purposes. The free national health service, previously restricted to the population employed in the state and collective farm sector, was extended in 1972 to all farmers.

Compulsory deliveries for grains, potatoes and livestock (live animals and meat products) were abolished in Poland on 1 January 1972. The present system consists of contractual transactions with state purchasing agencies at centrally fixed prices with some degree of flexibility. There is also a free market, mainly for fruit and vegetables and for small quantities of other products.

In Hungary, where a system of direct contracts between farms and associations of producers, on the one hand, and trading and processing firms on the other (without any intervention of state agencies) is highly developed, the contracting parties have considerable freedom in stipulating prices and other terms of contract. Under the Polish system, prices will almost certainly continue to be fixed centrally and reflect the relation between supply and demand. The abolition of compulsory deliveries in 1972 was accompanied by increases in price ranging from 7 percent for wheat to about 20 percent for beef, so that prices in general have reached the free market level.

[4] As a result, Bulgaria's agricultural performance is very high, exceeded only by Israel among the 50 countries covered by the study of E.F. Szczepanik *Agricultural policies at different levels of development* (in preparation for publication by FAO).

During 1972 total agricultural production in North America approximated the record level of 1971,[5] about 10 percent above the 1968-70 average. With strong domestic and export demand, prices received by farmers were much higher and farm incomes in Canada and the United States reached record levels in 1972.

Large exports of grains brought the region's wheat stocks in 1973 to the lowest level since 1952, and there is the prospect of a sharp reduction also in stocks of feedgrains. Domestic demand for meat continued to exceed available supplies, and prices rose steeply to become an important factor in further increases in the national indices of consumer prices and consequent pressures for higher wages and prices in other sectors. In anticipation of continued strong domestic and export demand, both the Canadian and the United States Governments have taken steps to encourage increased agricultural production in 1973, especially of grains and, in the United States, soybeans.

The Canadian economy continued its expansion in 1972. Gross national product (GNP) increased by about 10 percent (5 to 5.5 percent in real terms) and the index of industrial production is estimated to have been higher by the same proportion. Although employment rose, the unemployment rate averaged 6.4 percent in 1972 (the same as in 1971). The labour force continued to grow at an annual rate of roughly 3 percent, mainly because of higher participation rates. Monetary policy continued to be strongly expansionary through the first half of 1972, with a deceleration in the rate of growth in the money supply during the second half. Fiscal measures also encouraged economic expansion, with a larger government budget deficit projected for the 1972/73 fiscal year. The general level of prices continued to rise with the rate tending to accelerate during the latter part of the year, largely due to increases in certain food prices. With the Canadian dollar continuing to float, and despite deterioration of its balance on current account, Canada's international financial reserves showed a small increase for 1972.

The three major goals of United States economic policy in 1972 were to achieve a strong rate of economic growth, to reduce the rate of inflation and to develop a stronger international position. The rate of economic growth was strong through 1972 and the expansion was broadly based. GNP increased by almost 10 percent (6.5 percent in real terms) and the index of industrial production was higher by about 7 percent. Employment registered one of the largest year-to-year increases on record, 2.3 million. The unemployment rate, nevertheless, averaged 5.6 percent during 1972 (5.3 percent during the fourth quarter), as the civilian labour force also showed a large increase. Ample credit was available to support the economic expansion, although monetary policy was tightened somewhat in the closing months of the year. Fiscal policy continued to be highly expansionary, with the federal budgetary deficit for the fiscal year ending 30 June 1972 approximating that of the preceding year. Price and wage control programmes operating during 1972 consisted mainly of those administered by the Pay Board and the Price Commission, which set guidelines for wage and price behaviour and reviewed wage and price actions. In general, the rate of price increases slowed, with the marked exception of certain food prices which rose steeply.

There was a further sharp deterioration in the United States trade balance in 1972, reflecting partly the initial perverse effect on the value of imports of the 1971 devaluation as well as the fact that economic activity in the United States was expanding faster than in most industrialized countries. The balance on long-term capital account improved significantly, however, as the outflow of long-term capital declined sharply. Thus, the basic deficit (on current account and long-term capital) was about the same amount as in 1971. The most significant development in the United States international position in 1972 was the vast reduction in recorded and unrecorded outflows of short-term capital. The reduction in these outflows approximated the improvement in the United States official reserve transactions balance, from a deficit of $29 765 million in 1971 to one of about $10 000 million in 1972.

Agricultural production

Total agricultural production in North America during 1972 is estimated to have approximated the record level of 1971, which was about 10 percent above the 1968-70 average. A modest decrease in the total output of livestock products was largely offset by a similarly modest increase in total crop production. Canada's total agricultural output decreased by 6 percent while in the United States production showed little change.

Grain harvests were smaller in both Canada (by an estimated 7 percent) and the United States (by an estimated 4 percent). In Canada, wheat production approximated the 1971 level (22 percent

[5] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

below the 1965-69 average), as a 10 percent increase in area was offset by lower yields. In the United States, wheat production was about 5 percent below the record 1971 harvest, as planted area and yields were lower. Rice production in the United States is estimated to have been slightly smaller than in 1971; although the national area allotment was unchanged, average yields fell short of the 1971 record. Feedgrain production in Canada was about 15 percent below the 1971 level as the result of a 10 percent decrease in area and lower yields. In the United States, feedgrain output was lower by about 4 percent; a 10 percent reduction in area was offset by record yields of maize and grain sorghum.

Although oilseed production in Canada was lower by almost a third as a result of smaller areas, it reached a record level in the United States (about 13 percent above 1971). In Canada most of the reduction was accounted for by rapeseed, in terms of both area and production. In the United States, soybean area, yields and production all set new records. Groundnut production was also a record, mainly because of higher yields. However, flaxseed production dropped sharply as the result of smaller areas in both countries; in the United States the harvest was the smallest since 1938.

Sugar-beet production in Canada was lower due to both marginally smaller area and lower yields. In the United States, however, sugar crops set record levels, with production (raw basis) estimated to be almost 9 percent higher than in 1971; the sugarcane crop increased by over 20 percent, as area again expanded (by more than 10 percent) and average yields recovered from the relatively low 1971 level; sugar-beet production increased by about 5 percent, as the result of larger area and higher yields.

The United States cotton harvest was more than 30 percent higher than in 1971 and the highest since 1965, with increases in planted area (14 percent) and in yields (15 percent).

In both Canada and the United States beef production increased, by 5 and 2 percent respectively. The base for further increase was expanded, as the number of beef cows rose by about 2 percent in each country. Milk production showed a relatively small decrease in both countries, and the number of dairy cows continued to decline. With the downswing in the pig production cycle, pork output was lower by about 8 percent in both Canada and the United States. Production of veal was much lower in both countries, as a larger proportion of calves were fed to heavier weights. Egg production was also lower. The sharp increases in feedgrain prices during the latter part of the year appear to have had an adverse effect on livestock/feedgrain price ratios generally, although prices for most livestock products also rose.

Agricultural prices and farm incomes

Prices received by North American farmers averaged much higher in 1972, by about 10 percent in Canada and 12 percent in the United States. The increase in prices received for livestock and livestock products was significantly higher than for crops. In the United States, the index of prices received by farmers for all products began to move upward in May as demand for livestock and livestock products pushed prices for these items higher. With the announcement of large export sales to the U.S.S.R., wheat prices started to increase sharply in August and feedgrain prices followed in September. December brought a sharp acceleration in the rate at which the index was rising, which continued through February 1973. Compared with a year earlier the February 1973 index of farm prices for all products was higher by 22 percent, that of prices for meat animals by 27 percent and for poultry and eggs by 37 percent, that for foodgrains by 46 percent and for feedgrains by 25 percent. In contrast, the index of farm prices for dairy products was higher by only 7 percent.

Gross farm income in North America reached record levels in 1972 (Table 2-10). The increase of about 9 percent over the previous year was mainly a result of the higher prices for farm products, as the marketed volume was approximately the same. Production costs were again higher, although the rate of increase slowed to less than 3 percent in Canada. In the United States, the total of government payments was higher by $900 million, with the feedgrain programme accounting for most of the increase. With the reduction of farm inventories

TABLE 2-10. – NORTH AMERICA: ESTIMATED FARM INCOME

	Canada			United States		
	1970	1971	1972	1970	1971	1972
	Thousand million Can. dollars			*Thousand million U.S. dollars*		
Cash receipts from farm marketings	4.2	4.5	5.2	50.5	53.1	58.5
Government payments				3.7	3.1	4.0
Income in kind	0.5	0.5	0.5	3.7	3.9	3.9
Net change in farm inventories	+0.1	+0.2	−0.2	—[1]	+1.3	+0.6
GROSS FARM INCOME	4.8	5.2	5.5	57.9	61.4	67.0
Production expenses	3.5	3.7	3.7	41.1	44.0	47.2
NET FARM INCOME	1.3	1.5	1.8	16.8	17.4	19.8
REALIZED NET FARM INCOME	1.2	1.3	2.0	16.8	16.1	19.2

[1] Less than $50 million.

(mainly of wheat in the Prairie Provinces and of potatoes in Prince Edward Island), Canada's realized net farm income is estimated to have exceeded the previous record set in 1966 by more than 15 percent. Although farm inventories again increased in the United States, the 1972 total realized net farm income was almost 20 percent above the 1971 level and about 12 percent above the previous record set in 1947; per farm it attained a record level of $6 800, about 18 percent more than the previous highest figure of 1970.

Problems, policies and programmes

WHEAT PRODUCTION AND STOCKS

The very strong export demand which developed during the summer of 1972 has become the dominant factor in the North American wheat situation. It brought a sharp increase in world wheat prices and a dramatic increase in North American exports (Table 2-11). In the United States, farm prices for wheat rose from $1.32 per bushel in July 1972 to $2.38 in January 1973, the highest for the month of January since 1947. The region's carryover of wheat into the 1973/74 season is estimated as the smallest since 1952. With prospects for strong continuing export demand combined with the need to rebuild stocks, the Canadian and United States Governments have both taken steps to encourage larger harvests in 1973.

The Canadian Wheat Board (CWB) indicated that it would accept producer deliveries of wheat during the 1973/74 season of 15.1 million tons. Thus, a total Canadian harvest of 19 million tons would not be likely to exceed total requirements. On this basis, the Canadian Government suggested an area of 28 million acres (11.3 million hectares) to be planted to wheat in the Prairie Provinces in 1973. This is about 7.5 million acres (3 million hectares) more than was planted in 1972 and would approximate the record areas planted in the mid-1960s.[6] First payments for deliveries to CWB from the 1973 harvest have been set on the basis of Can.$1.76 per bushel, the same level set in October 1972 for deliveries from the 1972 harvest.

The United States wheat programme for 1973, as announced on 17 July 1972, was similar to the 1972 programme[7] and designed to reduce wheat area slightly; the acreage set-aside mandatory for farmers choosing to participate in the 1973 programme was increased to 86 percent of their domestic farm allotment. Despite the sharp increase in wheat prices, the area planted to winter wheat for harvest in 1973 was estimated to be only slightly larger than that planted for harvest in 1972 because of unfavourable weather at planting time. Thus, on 1 January 1973, changes were made in the programme which served to remove virtually all restrictions on wheat areas. The mandatory set-aside provision was eliminated, releasing an estimated 15 million acres (6 million hectares) for additional crop production in 1973. Although the provision for voluntary set-asides was retained, restrictions on the use of this land for other crops or grazing were relaxed. These changes were too late to influence the area planted to winter wheat (which in recent years has accounted for about three quarters of total United States wheat production), but were expected to result in a larger proportion of the area planted being harvested for grain. In terms of wheat area, however, the effect was mainly to increase plantings of spring wheat by an estimated 20 percent. If 1973 average wheat yields follow the trend (that is, about 6 percent above the 1972 average), the total United States wheat harvest in 1973 will be 5 to 10 percent above the record level of 1971.

TABLE 2-11. – NORTH AMERICA: SUPPLY AND UTILIZATION OF WHEAT[1]

	Canada			United States		
	1970/71	1971/72	1972/73[2]	1970/71	1971/72	1972/73[2]
	Million metric tons					
Beginning stocks	27.5	20.0	16.0	24.1	19.9	23.5
Production	9.0	14.4	14.5	36.8	44.0	42.0
Domestic use	4.7	4.7	5.0	20.9	23.2	22.2
Exports[3]	11.8	13.7	16.3	20.1	17.2	31.3
Ending stocks	20.0	16.0	9.2	19.9	23.5	12.0

[1] August-July season for Canada; July-June season for the United States. – [2] Preliminary. – [3] Includes wheat equivalent of wheat flour exports.

FEEDGRAIN SUPPLIES AND PROGRAMMES

Demand for North American feedgrains was strong in both domestic and export markets during 1972 and showed additional strength during the latter part of the year. As it became evident that 1972 production would fall short of the 1971 level (Table 2-12) and as the 1972 harvest was delayed by unfavourable weather, particularly in the United States, prices rose and the larger volume of exports reduced stocks. As in the case of wheat, the Canadian and

[6] Farmers' planting intentions in March 1973, however, pointed to a wheat area of only 24.3 million acres.
[7] See *The state of food and agriculture 1972*, p. 66.

TABLE 2-12. – NORTH AMERICA: SUPPLY AND UTILIZATION OF FEEDGRAINS [1]

	Canada [2]			United States [3]		
	1970/71	1971/72	1972/73 [4]	1970/71	1971/72	1972/73 [4]
	..... *Million metric tons*					
Beginning stocks . .	6.9	5.4	6.7	44.6	30.9	45.1
Production	19.9	24.4	20.9	146.3	189.7	182.0
Imports	0.3	0.3	0.6	0.3	0.4	0.2
Domestic use	17.4	18.0	18.8	141.4	151.1	164.1
Exports	4.3	5.4	3.6	18.9	24.8	30.7
Ending stocks	5.4	6.7	5.8	30.9	45.1	32.5

[1] Rye, barley, oats, maize, mixed grains, sorghum and millet. – [2] August-July seasons. – [3] July-June seasons, except for maize and sorghum which are October-September. – [4] Preliminary.

United States governments have both taken steps to encourage larger feedgrain harvests in 1973.

In anticipation of continued expansion of export demand, the Canadian Government recommended larger plantings of feedgrains in 1973, particularly of barley. Initial prices for deliveries to CWB from the 1973 harvests were raised, for barley to Can. $1.20 per bushel (15 cents above 1972) and for oats to 80 cents per bushel (10 cents above 1972). However, increased areas were also desired in western Canada for wheat (see above) and for oilseeds (rapeseed and flaxseed). The total of increased areas desired in 1973 for grains and oilseeds would have necessitated a sharp reduction in the area of summer fallow, by at least a third from the 1972 level. The Canadian Government's outlook reports emphasized the importance of maintaining exports of feedgrains and oilseeds, as these are considered to have a better long-range growth potential, because of expanding world livestock industries, than wheat.

Provisions of the United States feedgrain programme for 1973, announced in December 1972 and modified in January 1973 and again in March 1973,[8] were designed to increase areas planted to feedgrains, and also to soybeans. The modified programme allowed a sharp reduction in the area set aside by participating producers,[9] which in 1972 had totalled 37 million acres (15 million hectares), approximately a third of the United States feedgrain base acreage. Elimination of the mandatory set-asides under the wheat and cotton programmes also made larger areas available for additional feedgrain plantings. Under the modified 1973 feedgrain programme, a participating grower was given two options with respect to the set-aside provision. He could choose to set aside 10 percent of his feedgrain base and, after meeting his conserving acreage requirements, be subject to no further restrictions on his feedgrain area. Under this option, a participant receives government payments based on 50 percent of his base acreage at the rates of 32 cents per bushel of maize, 30 cents per bushel of grain sorghum and 26 cents per bushel of oats. Under the second option, a participant chooses a zero set-aside and receives government payments at lower rates provided that the feedgrain area which he plants in 1973 is no larger than that which he planted in 1972.

[8] After the survey of farmers' planting intentions revealed that the indicated area for coarse grains, especially maize, would not produce sufficient grain to meet foreseeable requirements.
[9] See *The state of food and agriculture 1972*, p. 67.

ADJUSTMENTS IN CANADA'S AGRICULTURAL SECTOR

Canada's 1971 agricultural census showed continued rapid adjustments in the structure of its agricultural sector. As expected, the number of farms had declined from 430 000 in 1966 to 366 000 in 1971, or by 15 percent. Compared with 1966, the total area of farm land was reduced by approximately 3 percent. Farm size, measured by average acreage, expanded in all provinces and the national average rose from 404 to 463 acres.

During this five-year period, the Canadian farm population dropped by 24 percent (from roughly 2 million to 1.5 million). Less than 7 percent of the Canadian population lived on farms in 1971, compared with 10 percent in 1966 and 12 percent in 1961. The number of farm operators not living on their land rose from 35 000 in 1966 to 40 000 in 1971, or from 8 to 11 percent of all farm operators. Saskatchewan had the highest proportion of nonresident operators, with 24 percent. However, the increasing trend to nonresident operation was evident in every province. New information, not available from previous censuses, showed that 92 percent of Canadian farms are operated by private individuals, 2 percent by corporations and the remaining 6 percent by partnership and other types of organizations. Nearly a third of the operators rented part or all of the land they farmed.

In terms of market sales, farms with sales of Can. $10 000 and over increased from 95 000 to 113 000 (from 22 to 31 percent of all farms) and the number with sales of less than $5 000 decreased from 237 000 to 170 000 (from 55 to 46 percent of all farms). In the classification of farms with sales of $2 500 and over by type of production, the number of mixed livestock farms rose from 71 000 in 1966 to 90 000 in 1971, mainly in the Prairie Provinces. Wheat farms, on the other hand, dropped drastically from 71 000 in 1966 to 34 000 in 1971, although the low

volume of wheat production in 1970 may have distorted this comparison. The number of dairy farms increased in Quebec and offset a decrease in Ontario, and the national total remained unchanged.

At the same time that Canadian farmers are changing the structure of their farms, they are also finding new sources of income. A special survey conducted in July 1972 by the Agricultural Division of Statistics collected information concerning the income of farm operator families from nonfarm sources. Preliminary results of this survey indicate that in 1971 more than 95 percent of Canadian farm operator families received income from off-farm sources (wage, salary or self-employment income earned off the farms; family allowances, old age pensions or other income from government sources; or other such as interest, dividends or investment income). Total off-farm income of all farm operator families is estimated to have been about Can. $1 546 million, compared with total realized net farm income in 1971 of $1 300 million. The off-farm income of all members of farm operators' families averaged $4 200 in 1971, ranging from $2 300 in Saskatchewan to $8 400 in British Columbia.

Canadian Small Farms Development Programme

The Canadian Government's intention to implement a Small Farms Development Programme was announced in February 1972. The overall objective is to assist the owners of small family farms either to expand their holdings, so that they can earn an adequate living from farming, or to sell them at a reasonable and fair price so that they can take advantage of other opportunities available, including retirement.[10]

During 1972 the Government entered into agreements with five provincial governments (Alberta, British Columbia, New Brunswick, Prince Edward Island and Ontario) to implement the programme. Although some agreements differ in certain details, the programme in each province consists of a land transfer plan with special credit facilities for buyers and assistance grants for sellers, and of farm management and rural development services with supporting advisory and information activities. In each province the programme is coordinated by a joint federal-provincial small farms advisory committee. In general, the land transfer plan is handled by the (federal) Farm Credit Corporation (FCC) with the respective provincial government and the Canada Department of Agriculture jointly responsible for the farm management and rural development services. The Government has set aside Can. $150 million for the programme for a seven-year period.

The land transfer plan in each province consists of special credit facilities for eligible buyers, assistance grants for eligible sellers and a listing service to bring buyers and sellers together. To be eligible for the special credit facilities the buyer must be principally occupied in the operation of a farm which he owns or rents, have assets not exceeding $60 000 and be prepared to purchase additional land available from an eligible seller so that the consolidated farm will, in the opinion of FCC, have sufficient land, labour and capital to become economically viable. In addition to the normal loan provisions of FCC, eligible farmers will be offered the opportunity to purchase farms on agreement of sale. Under this feature of the plan, FCC purchases land outright from an eligible seller at a fair market value and resells it to an eligible buyer at cost. In this case the buyer is required to make a down payment of only $200 on any sale of $20 000 or less, with the balance spread over a period of up to 26 years at the same interest rate charged by FCC on mortgage loans. The buyer is not required to mortgage the farm he already owns as security for his payments for the newly acquired land. Priority is given to eligible owners of smaller rather than larger farms.

To be eligible for an assistance grant the seller must be the owner of a farm of uneconomic size and principally occupied in its operation and must offer to sell substantially all that farm, be able to show that he has alternative means of livelihood (excluding welfare) adequate to maintain himself and his dependants in a manner equal or superior to that being realized from the farm, and does not intend to take up operation of a farm as a self-employed operator in the future. An eligible seller is entitled to receive a grant of $1 500 plus 10 percent of the value of his farm, with the maximum total grant not to exceed $3 500. Assistance grants may be paid in a lump sum or used to purchase an annuity to provide for the seller's future income. The seller may make arrangements with the buyer for continued use by himself and his wife of the farmhouse, including a suitable surrounding area, and still be eligible for the assistance grant.

Canadian Egg Marketing Agency

The Canadian Egg Marketing Agency was established in January 1973, the first agency to be created under the Farm Products Marketing Agencies Act,

[10] Small farms are also discussed in the sections on Latin America and the Far East.

enacted a year earlier.[11] The agency will supervise and coordinate operations of the existing ten provincial egg marketing boards, in implementation of a national egg production and marketing agreement developed by the Canadian Egg Producers' Council and approved by the federal and provincial governments. The plan was designed especially for the problems involved in the movement of supplies between provinces. It covers the following main areas: establishment of the total market demand and provincial shares; procedure for adjusting the national marketing quota and allocating shares to the provincial egg marketing boards; procedure for managing surplus production; and procedures for coordinating prices. The plan calls initially for national production of 475 million dozen eggs annually, with provincial quotas allocated to producers by the provincial egg marketing boards. Proposals to create similar national marketing agencies for other commodities are under active consideration.

Future structure of United States agricultural production and marketing

The theme of the United States Department of Agriculture's Outlook Conference in February 1973 was the future structure of agricultural production and marketing. The conference was provided with the Department's current appraisal of prospective United States farm production in 1985, together with projections of domestic demand for farm products and of exports. Views were also presented concerning the types of farm enterprises that are likely to make up the United States agricultural sector in the foreseeable future. In this respect the conference would appear to have constituted an important contribution to the discussions which will lead to legislative action in 1973 concerning United States agricultural policies and programmes, to be effective after the Agricultural Act of 1970 expires on 31 December 1973.

Compared with 1969-71 averages, an increase in total United States farm production of about a third (an average annual rate of almost 2 percent) was reported as a reasonable prospect for 1985. The prospective increase in crop production (36 percent) is larger than that in livestock products (28 percent). For crop production, notably larger than average increases are foreseen for soybeans (88 percent), groundnuts (66 percent), and feedgrains (44 percent), but they are significantly smaller for tobacco (14 percent), potatoes (15 percent), noncitrus fruits (16 percent), cotton (19 percent) and wheat (20 percent). Among livestock products large increases are anticipated for chicken (54 percent), turkey (51 percent) and cattle and calves (46 percent), with smaller increases for milk (3 percent) and eggs (17 percent).

It was estimated that aggregate domestic demand for food products in 1985 would exceed the 1969-71 average by approximately 24 percent (20 percent for population growth at the average annual rate of 1.2 percent, and the balance for increased per caput consumption). Since the projected increase in total agricultural production is higher than that in domestic demand, the projections imply a rise in United States self-sufficiency. This rise in self-sufficiency would concern crops rather than livestock products. The projected increase in production exceeds anticipated domestic demand for wheat, rice, feedgrains, soybeans, groundnuts, sugar and turkey. It falls short of anticipated domestic demand only for milk, vegetables and melons, and tobacco. For other major commodities the projections imply no important changes in self-sufficiency ratios.

Export projections include two alternatives for feedgrains, depending on the extent to which the U.S.S.R. and eastern Europe attain self-sufficiency in grains by 1985 and on the rate of expansion of livestock and poultry production in developing countries. Under the high alternative, total United States exports of agricultural commodities in 1985 are projected at $14 100 million ($11 700 million at 1970 prices), or about 88 percent above the 1969-71 average (55 percent at 1970 prices). Under the low alternative, the increase would be about 75 percent (45 percent at 1970 prices). At 1970 prices, projected increases in exports of major agricultural commodities include: wheat 26 percent; feedgrains, high alternative 100 percent, low alternative 33 percent; rice 41 percent; soybeans 83 percent; oil cake and meal 42 percent; vegetable oils 19 percent; cotton 25 percent; livestock and meat products 40 percent. In terms of actual value at projected 1985 prices, approximately two thirds of the increase under the high alternative, or three fifths of the increase under the low alternative, would consist of soybeans, feedgrains, wheat, and oil cake and meal.

The views of the United States Department of Agriculture concerning farm legislation to be enacted in 1973 were summarized as being in favour of an extension, with some modifications, of the Agricultural Act of 1970. It favours retention of the mechanism for setting aside a part of agriculture's excess capacity as the supply-demand situation for farm products dictates, and continuation of the arrangement whereby commodity loans provide an emergency floor under prices. However, it also favours changes that would phase down supplemental income

[11] See *The state of food and agriculture 1972*, p. 65.

payments, especially at the present time when farmers have been able to increase their incomes from the marketplace, and changes that would update the structure of commodity base acreages and allotments, including transition to a consolidated crop land base for individual farms.

Rural development legislation in the United States

The Rural Development Act of 1972 outlines United States policy with respect to economic and social development in rural areas. The general aims are to strengthen the economic vitality of farm towns and rural communities by expansion of off-farm employment opportunities within these areas, and to stop the population exodus from the countryside by improvement of facilities and services to make rural living more attractive. The legislation also emphasizes the need for development and conservation of both land and water resources in rural areas and for prevention and abatement of agriculture-related pollution. It directs the Secretary of Agriculture to carry out a national land inventory and monitoring programme to identify the current status of and future changes in the nation's total land and water resources.

Rural areas are defined as communities of 10 000 or fewer inhabitants, except for purposes of business and industrial loans and grants which may be made in areas of up to 50 000 inhabitants. The Department of Agriculture retains responsibility for operation of most of the programmes authorized by the new legislation and for coordination of all federal government activities in rural development.

Many of the provisions of the Act involve continuation, expansion or modification of activities previously carried out by the Department of Agriculture, particularly by the Farmers' Home Administration. The assistance for rural development is to consist largely of loans and grants for community facilities (water systems, sewers, waste disposal plants, fire protection facilities, community and recreational centres, etc.); loans for expanding rural electric and telephone services; grants to public bodies for industrial development such as the establishment of industrial parks, and loans to rural residents to acquire, establish or operate small business; loans for rural housing; and grants for preparation of comprehensive rural development plans. In connexion with the proposed budget for the fiscal year 1974, it was emphasized that the programmes are to be carried on only in selected areas and on a modest scale initially, to ensure that they are actually achieving the desired results.

Other United States commodity policies and programmes

Rice. With strong export demand and a further reduction of stocks during the 1972/73 season, the United States rice acreage allotment for 1973 was increased by 10 percent (to 800 000 hectares).

Cotton. With more than ample stocks of cotton from the larger 1972 harvest, the national base acreage allotment for the 1973 crop has been reduced by 13 percent (to 4 million hectares). However, the mandatory set-aside for participants, which had been 20 percent of their base acreage allotment in 1972, has been eliminated. It is estimated that this will free about 800 000 hectares for other crops. Soybeans, for which a larger acreage is desired in 1973, have become an attractive alternative in many cotton-growing areas.

Soybeans. Although there are no government programmes which directly affect the production of soybeans, further expansion is required in 1973 to meet strong domestic and export demand. This was an important reason for liberalization of the set-aside provisions of the 1973 feedgrain programme and for elimination of such requirements in the 1973 cotton and wheat programmes.

Groundnuts. With groundnut supplies at a record level and in excess of commercial market requirements, the national acreage allotment and the marketing quota for groundnuts have again been set at the minimum level permitted under existing legislation.

Milk. The support price for manufacturing milk has been raised by 7 percent for the 1973/74 marketing year. The prices for manufactured dairy products at which the Government will intervene to support the price of milk have been changed, however, to encourage production of cheese and nonfat dry milk rather than butter. The intervention prices for cheddar cheese and nonfat dry milk have both been raised, by about 13 and 18 percent respectively, while that for butter has been lowered by 10 percent.

Meat. Import quotas for fresh, chilled and frozen beef, veal, mutton and goat were suspended in June 1972 as retail meat prices continued to rise. Imports of these meats during the last six months of 1972 were about 25 percent above the 1971 level. Retail meat prices nevertheless continued to rise and the quotas were also suspended for 1973, subject to reconsideration if market conditions change substantially. Government subsidies for exports of poultry products and lard to certain western European countries were discontinued in January 1973.

Oceania

Economic activity strengthened in Australia and New Zealand during the course of 1972 to provide a promise of recovery from a period of near stagnation. At current prices GNP is estimated to have risen by 10 to 12 percent; at constant prices, however, the increase was of much more modest proportions. In both countries, consumer demand strengthened during 1972 although investment demand continued to be rather uncertain. The rate of wage increases slowed and unemployment, although reduced, remained high by historical standards in both countries. The rate of increase in consumer prices also slowed during the course of the year. With favourable export demand and higher prices, especially for agricultural commodities, the balance of payments position of Australia and New Zealand improved notably. The value of imports also increased, but much less than the value of exports. With surpluses on current account and continued net capital inflows, the international reserves of both countries rose to record levels.

Agricultural production

Total agricultural production in Oceania during 1972 is estimated to have been lower by about 3 percent.[12] Production in Australia was sharply reduced as the result of serious drought. The Australian wheat harvest was smaller by more than 20 percent and amounted to less than half the record crop of 1968. Harvests of barley and oats were even more sharply reduced, by 46 and 56 percent respectively. Production of grain sorghum was down by 5 percent despite a further increase in area, and that of rice was down by one fifth. In New Zealand, 1972 wheat output was about one third greater, and production of barley, oats and maize also expanded.

Australia's sugarcane crop was about the same as in 1971, as a small increase in harvest area offset a similarly small reduction in average yield. Cotton production increased sharply and was again a record. Oilseed production was greater, with the exception of linseed. The 1972 crops of most fruits were greater in both countries. Australian production of dried vine fruit was almost 70 percent higher than the low 1971 level and 20 percent above the 1965-69 average. Output of canned fruit was significantly smaller, however, as canneries restricted their intake of peaches and pears.

The wool clip was smaller in both countries. The Australian clip, because of drought, was about 7 percent below 1971 and the smallest since 1967. Meat production continued to increase in both countries. In Australia, beef and veal production during the 1972/73 season is estimated to have been larger by about 20 percent and pigmeat production by about 15 percent; production of mutton, however, was lower by about 25 percent and lamb by 10 percent. It is estimated that production of beef and veal and lamb was higher by 5 percent in New Zealand. Total milk production is estimated to have continued the slightly downward trend of recent seasons in Australia, and to have shown an increase in New Zealand.

Agricultural prices and incomes

With generally higher prices for farm products, net farm incomes were sharply higher during 1971/72 in Australia and New Zealand. With further increases in commodity prices in 1972/73 farm incomes are estimated to have again risen by important proportions, despite reduced production in Australia.

In Australia, total farm income during 1971/72 was about 25 percent above the 1970/71 level, which was, however, unusually low. The gross value of 1971/72 farm production was larger by about 10 percent as the result of increased output and higher commodity prices. The index of prices received by farmers averaged about 7 percent higher. Production costs rose by about 3 percent; the index of prices paid by farmers averaged 6 percent higher but the aggregate of farm inputs was somewhat smaller. Despite the reduced level of production in 1972/73, the gross value of Australia's agricultural output is estimated to have been more than 10 percent higher than in 1971/72 as a result of further increases in commodity price levels. Although production costs also rose, the increase was of significantly lesser proportions. Thus, Australian farm income during 1972/73 may have reached a record level.

In New Zealand, gross farm income in 1971/72 is estimated to have been 10 percent higher than in 1970/71. Gross returns are estimated to have been higher by 40 percent for grains and field crops (principally because of the recovery in production from the abnormally small 1970/71 harvest), by 20 percent for wool and by 12 percent for dairy products as a result of higher prices. Gross returns for mutton and lamb were reduced by about 15 percent, however,

[12] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

reflecting the lower level of prices paid for lamb by the New Zealand Meat Board. Although production costs also rose, the increases were less than those in gross income. Net farm income during the 1971/72 season was therefore higher by about a third. In addition, funds held in the dairy stabilization account and those retained by dairy companies under government income stabilization measures were increased significantly. If these funds — which are available for distribution in later years — had been distributed in 1971/72 the increase in net farm income would have been about 50 percent. A further increase of perhaps 15 percent is foreseen in net farm income during 1972/73, as a consequence of increased output and of continued relatively favourable price conditions.

Problems, policies and programmes

WOOL PRODUCTION AND STOCKS

Export demand for wool strengthened suddenly during the early part of 1972 and prices rose sharply. With market prices above the support levels the wool commissions in both countries were able during the remainder of the 1971/72 season to reduce the stocks previously acquired through their price support operations. Deficiency payments in Australia were adjusted downward and then discontinued as market prices rose to exceed the support level in early February 1972. With continued strong demand and reduced supplies during the 1972/73 season, the commissions completed liquidation of their stocks (Table 2-13). In Australia, sheep numbers were further reduced, following the downward trend of recent years. With the sheep retention payments in New Zealand, a small increase in numbers is reported.

The Australian Wool Board and the Australian Wool Commission are being merged to form the Australian Wool Marketing Corporation. The functions of the new corporation are in general those previously performed by the board and the commission. The deficiency payments scheme remains in effect, although no payments have been made since early February 1972 when prices rose to exceed the established support price of 79 Australian cents per kilogram. The proposed acquisition of the country's total wool clip was not incorporated in the new legislation; this remains a highly controversial issue in Australia, as it does also in New Zealand. However, the corporation is authorized to make recommendations to the Government for changes in the marketing of Australian wool, including, presumably, the establishment of a total acquisition scheme.

TABLE 2-13. – OCEANIA: WOOL PRODUCTION AND STOCKS

	Australia			New Zealand		
	1970/71	1971/72	1972/73 [1]	1970/71	1971/72	1972/73 [1]
	..... *Thousand metric tons*					
Beginning stocks (1 July). clean basis						
Wool Commission	—	27	11	39	30	8
Other	13	19	24	13	12	10
Production. greasy basis	886	899	813	334	322	320
Exports. greasy basis	684	732	...	294	305	...
Ending stocks (1 June). clean basis						
Wool Commission	27	11	...	30	30	...
Other	19	24	...	12	8	...

[1] Preliminary.

Legislation to establish the New Zealand Wool Marketing Corporation was enacted prior to the 1972 general elections. The new corporation, effective from 30 November 1972, absorbed the New Zealand Wool Commission which had been in operation since 1952. The legislation grants the corporation broad general powers relating to all aspects of the handling and marketing of New Zealand wool. Although current market prices have remained far above the established support level of 50 New Zealand cents per kilogram, the corporation is required to intervene, if necessary, to maintain this guaranteed minimum level for at least 12 months. A referendum is to be held after 1 January 1974 on the highly controversial issue of whether the corporation's activities should include acquisition of New Zealand's total wool clip.

WHEAT PRODUCTION AND STOCKS

With strong export demand, Australia's wheat exports during 1971/72 were limited only by the depletion of available supplies. Record exports during the 1970/71 season had sharply reduced stocks (Table 2-14). Delivery quotas were increased for the 1971 crop but it fell short of the level anticipated. In consequence supplies were insufficient to enable Australia to take full advantage of export opportunities, especially when these expanded during the summer of 1972. The serious drought in 1972 reduced production sharply and this has created a very tight export supply situation for the 1972/73 season. There has been a further increase in delivery

TABLE 2-14. – AUSTRALIA: SUPPLY AND UTILIZATION OF WHEAT

	1970/71	1971/72	1972/73 [1]
	..... *Million metric tons*		
Beginning stocks (1 December)	7.2	3.5	1.4
Production	7.9	8.5	6.5
Domestic use	2.6	2.9	3.1
Exports [2]	9.0	7.7	4.4
Ending stocks (30 November)	3.5	1.4	0.4

[1] Preliminary. – [2] Includes wheat equivalent of wheat flour.

quotas for the 1973 crop, to 14 million tons or just slightly less than the record harvest of 1968. The guaranteed first advance payment for deliveries from the 1973 harvest has been raised by 10 cents per bushel to A$1.20. Although the current wheat stabilization plan expires at the end of the 1972/73 season, it is expected that a further scheme will be adopted during 1973.

GOVERNMENT SUPPORT FOR AGRICULTURE

Government policies and programmes of support for the agricultural sector have in recent years become increasingly important in Australia and New Zealand. In both countries conventional forms of government assistance to expand agricultural production and improve efficiency in the operation of individual farms have been continued, and in some cases expanded. This support has largely taken the form of research, education and advisory services, assistance for the development of land resources (irrigation, land clearing, range improvement, etc.), improvement of transportation and other infrastructure, special credit facilities, subsidies on inputs, and so on. During the 1950s and 1960s these conventional forms of assistance contributed importantly to adjustments — predominantly expansionary — in the agricultural sectors of both countries. Another major objective of government policies and programmes during this period was the stabilization of producer prices, primarily to improve farm incomes. Almost all the region's major farm products are included in marketing schemes and pooling arrangements, operated for this purpose by the governments and various commodity boards.

In both Australia and New Zealand the problems and issues relating to the agricultural sectors have increasingly come to involve changes in the patterns of production and in farm structure. Although both countries, especially Australia, have come to rely less on agricultural commodities as a source of foreign exchange, the agricultural sectors remain heavily dependent on export markets as outlets for a large part of their production. Markets have continued to change, especially with respect to location. The shift from traditional markets in the United Kingdom and western Europe to those in North America, Japan and other Far East countries has continued,[13] and is expected to accelerate with the enlargement of the European Economic Community.

A number of government measures have been introduced in recent years for the specific purpose of adjusting production to changes and trends in export demands. In Australia a system of delivery quotas was established for wheat in 1969, for the purpose of reducing the then excessive stocks. As export demand strengthened in subsequent seasons the delivery quotas have been adjusted upward (see above). New Zealand, also in 1969, introduced a system of grants as incentives for shifting from dairy to beef production. In Australia, in 1970, government payments in support of the dairy industry were limited in such a manner that if production exceeded a certain volume the level of support decreased. In connexion with the new dairy stabilization scheme which became effective on 1 July 1972, the Government announced that the amount of assistance that would be provided during each of the following five years would take into account, *inter alia*, action by the states to adopt an effective production control scheme. More recently, New Zealand adopted a sheep retention payment scheme to halt the decline in sheep numbers;[14] payments are reported to have been NZ$63 million during the fiscal year 1971/72 and estimated at NZ$12 million for 1972/73. In an effort to bring Australian fruit production into line with market demand, programmes were established in 1972 offering compensation to growers for voluntary removal of fruit trees to reduce supplies of fresh apples and pears and of canning peaches and pears. Compensation payments are in the form of loans, with provision for conversion of the loans to grants with rebate of all interest charges at the end of five years if the grower does not replant specified fruit trees.

Special programmes designed to assist adjustments in farm structures became operative in Australia during 1970 and 1971. Under the Marginal Dairy Farms Reconstruction Scheme a total of A$25 million was to be available over a four-year period to assist low-income farmers who wish to leave dairy production to do so, to enable existing holdings to be enlarged, and to encourage diversification from butterfat production. As of 30 June 1972 payments under this programme had totalled about A$11 million. Applications for assistance have been fewer than anticipated, as export demand for dairy products

[13] See *The state of food and agriculture 1969*. p. 55.
[14] See *The state of food and agriculture 1972*. p. 74.

strengthened during 1971 and 1972 and the financial position of producers tended to improve. As a consequence, the number of farmers who opted to leave dairying (and therefore the number of farms available for purchase to enlarge other holdings) was smaller than had been expected.

Under the Australian Rural Reconstruction Scheme, adopted in 1971, A$100 million were to be available over a five-year period for reconstruction of farm debts (that is, consolidation of outstanding debts), enlargement of farms, and rehabilitation assistance for farmers who desired to leave their holdings. Although this scheme was designed with sheep farmers predominantly in mind, no rural producers (except those eligible for assistance under the dairy scheme) are excluded. As of 31 December 1972 A$104 million had been allocated under this programme, mostly for debt reconstruction. The Government agreed to make available an extra A$15 million to enable operations to be continued, and it is expected that additional funds will be provided as needed.

In addition to these reconstruction schemes, the Australian Government has also established training programmes to assist the exodus of labour from the rural sector. Under the Rural Reconstruction Employment Training Scheme, introduced in 1971, eligible farmers and members of their families may obtain training for employment in other sectors. Eligible farmers include those considered not to be economically viable (to the extent that their applications for debt reconstruction assistance have been or are likely to be refused) and those whose farms have been acquired for enlargement of other holdings. Workers who lose their jobs through the introduction of technological changes on their employers' farms are eligible — on the same basis as workers in other sectors of the economy — for training under the Employment Training Scheme for Persons Displaced by Technological Change. Similarly, married and adult single women whose domestic responsibilities on farms have restricted them from seeking other work, but who now desire to find employment, can qualify for training under the Employment Training Scheme for Women Restricted from Employment by Domestic Responsibilities, again on the same basis as women in other sectors of the economy.

Latin America

During 1972 Latin American countries quickened their pursuit of national goals and showed increased interest in plans for regional development. Regional interdependence grew through cooperation in the Andean Group — within the Latin American Free Trade Association (LAFTA) — and in the Caribbean Common Market — within the Carribbean Free Trade Association (CARIFTA). Greater self-reliance and intraregional cooperation, especially in the field of international trade with developed countries, are needed if Latin America is to convert some of the good intentions voiced at the United Nations Conference on Trade and Development (UNCTAD), held in Santiago in April and May 1972, into real economic and social progress.

Preliminary GDP estimates indicate a probable levelling off of the overall economic growth of the region with great variations in performance among individual countries. Agricultural production increased at only a slow pace. An important barometer, the cost of living, rose to new levels in many countries. In Argentina it increased by 64 percent and inflation in Chile raised living costs by 163 percent, possibly the world's record for 1972. Yet in Argentina there was general optimism about the 4.1 percent growth in GDP, with exports much stronger than in 1971. In Brazil, the cost-of-living index rose only 14 percent while GDP increased by 10.4 percent, supported by an active industrial sector. Developments in Colombia's economy included good results in international trade. Ecuador appears to have maintained the 8 percent rate of growth in GDP attained in 1971, with oil exports a dramatic new factor.

Nicaragua suffered a devastating drought, which made it necessary to obtain food relief, followed in late December by the earthquake that almost destroyed Managua, the capital. Paraguay's economy did well, with a rise in GDP of 5.7 percent nearly doubling the average rate of growth of the 1960s (2.9 percent). Peru's economy suffered, although less gravely than in other countries, from generally poor weather and floods which damaged some crops, and a crisis in the important fish meal and oil industry caused by the disappearance of anchoveta from its coast.

In Venezuela the GDP growth rate dropped from 4.5 percent in 1971 to about 3.5 percent in 1972, principally because of developments in the dominant petroleum sector.

Agricultural production

Agricultural production rose by 1 percent over 1971, but food production showed no change and on a per caput basis fell by 3 percent.[15] The region's totals for oilseeds, tobacco, cotton, and citrus and other fruit were all higher than in 1971. Sugar production was up in Argentina, Bolivia, Brazil, Colombia and Peru, but down in Cuba and several other countries. The better wheat crops of Argentina, Colombia and Peru were counterbalanced by an exceedingly poor crop in Brazil and a reduction in Chile. The region's total wheat output of some 12.5 million tons was 5 percent better than in 1971.

Argentina's wheat production at 8.1 million tons was almost 45 percent better than in 1971, although the area planted increased by only 15 percent. Very favourable growing conditions increased yields to a level one third above the average of the previous five years. This large crop was especially fortunate, as when it was planted in July very little was known about the serious difficulties which were to arise in the world wheat market later in the year. On the negative side, maize, sorghum and millet harvests were much lower and citrus fruit production was down about 20 percent. Livestock production, especially of beef and poultry meat, rose considerably. Meat exports reached the highest recorded level for Argentina, $684 million, compared with $263 million in 1971. Beef alone accounted for $587 million of this total. Such large exports were partly made possible by the continuation of the ban on domestic beef sales on alternate weeks.

Bolivia recorded increases in wheat, sugar, citrus and cotton, but crops of maize and rice were lower. Brazil's wheat crop, originally estimated at some 2.5 million tons, eventually produced only 680 000 tons. Excessive rains, frost and insect attacks caused extreme damage in the Rio Grande do Sul, Santa Catarina and Paraná wheat areas. Early import arrangements were made to meet the deficit in supplies, officially estimated at 3.1 million tons. Brazil's coffee plantations, especially in Paraná and São Paulo, suffered heavily from a severe frost in mid-1972 which damaged the flowering for the 1973/74 crop but had little effect on 1972/73 output. Exports approached a record level in 1972 and there was a further decline in stocks. Undamaged by frost, Brazil's soybean crop was a record, and production is expected to be even higher in 1973.

Agricultural production in Chile in 1972 suffered from unfavourable weather and internal institutional problems. Extremely heavy rains damaged crops, including wheat, but less area was planted to wheat than usual as a result of dislocations caused by the implementation of agrarian reform, which involved some 35 percent of the cropland. Less attention was given to crops, which also suffered from a countrywide shortage of fertilizer. As a result the wheat crop was the worst for many years. Chile depends on wheat for about 40 percent of calorie requirements, and a poor harvest necessitates sizable imports which use scarce foreign exchange. To reduce these imports in 1972, the Government directed that milling practices obtain 8 percent more flour from milled wheat, a provision which increased the supply of flour for a not too popular dark bread, but this used up milling residues normally fed to livestock. One result was that chickens and pigs had to be marketed before maturity, because farmers could not buy enough feed.

Since the record sugar harvest of 8.5 million tons in 1969/70, Cuba has suffered three relatively poor crops. Following the very low 1971/72 crop (4.4 million tons) plantings were increased, but with little apparent effect. Colombia enjoyed a good year for almost all crops. Cereals increased by over 9 percent and sugar, citrus, cotton and coffee were all up. The increase in coffee production swelled export receipts, which were about 24 percent above the 1971 level, partly reflecting the higher price for Colombian coffee. In Ecuador, cocoa and sugar output remained relatively stable. Coffee dropped about 18 percent but banana production expanded by almost 25 percent. Dry weather in the highlands and rain in the coastal plains continued into 1973, with the wet weather adversely affecting rice, bananas and cotton.

In Nicaragua maize production remained unchanged while the bean crop expanded by 5 percent. Some cash crops, such as coffee, were affected by drought.

Paraguay's crops, especially of soybeans and cotton, were much better than in 1971. Maize remained unchanged and livestock production grew by 2 percent; with the extra attention being given to the livestock sector it may soon become an important source of export earnings. In Peru, despite poor weather and floods which caused widespread damage to many crops, wheat, maize and sugar harvests were generally good and above those of 1971. Both Uruguay and Venezuela had poor results.

British Honduras was among the countries in the region that suffered from too much rain, and Mexico lost yields due to dry weather in the northern and central zones. Barbados, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Guyana, Haiti and Montserrat had spells of drought that were detrimental to crops and grazing.

[15] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

Development plans and policies

There is an increasing awareness in Latin America of the importance of a long-term planning framework. In addition, planning authorities are showing more interest in the preparation of annual operational plans. The possibility of developing food and nutrition policies for introduction into agricultural and socioeconomic development planning is being studied in some countries of the region, and such policies are already being implemented in Peru and several Caribbean countries.

Although the quality of planning procedures has improved compared with the late 1960s, documents drafted by central planning agencies are still, to a large extent, being foisted on the rest of the administration and thus on the whole economy. To counter this tendency recent plans (in Ecuador, Honduras, and Trinidad and Tobago, for example) aim to decentralize preparation and decision-making. Farmers' organizations and, in many countries, planning units of the Ministry of Agriculture, are sharing more in national and regional planning.

Agricultural planning is still badly handicapped by a lack of well-conceived and prepared projects and of annual operational plans. Detailed programmes for specific targets are still not always attempted. A persistent major weakness is the almost complete absence of periodic evaluation and revision of national development plans and agricultural sector programmes.

During 1972 and the beginning of 1973 new development plans and strategies were put into effect in Brazil, Colombia, Ecuador, El Salvador, Guyana, Haiti, Surinam and Uruguay. Plans were being drafted or revised in Barbados, Chile, Honduras and Nicaragua. In most, high priority is given to a sharp reduction in unemployment, improved distribution of income, a lessening in regional disparities and, especially in the Caribbean area, to diversification.[16]

Argentina's five-year development plan (1971-75) envisages an annual average growth rate in GDP of 7 percent for the plan period, and a corresponding growth rate of 5.5 percent in per caput income. Primary objectives are an acceleration in the rate of economic growth, an increase in real wages and an improvement of the distribution of income, as well as a reduction in unemployment (from the national average of 5.6 percent to less than 2 percent in 1975). Another priority, the development of backward areas, stresses increased investment, involving more public investment through higher domestic savings, and substantial increases in imports, to be financed in part by expanded exports resulting from both agricultural and industrial development. Total national investment will amount to 24.7 percent of GNP. Domestic savings will finance 96 percent of the investment effort. The agricultural sector is projected to grow by an annual average rate of 4.4 percent. Agricultural production, including foodgrains and other cash crops, will be increased through seed improvement, greater use of pesticides and fertilizers, and expansion of agricultural land. The contribution of the agricultural sector to GNP is expected to decline from 14 percent in 1970 to 12.3 percent in 1975.

Uruguay's national development plan for 1973-77 has the following basic objectives: increase in per caput income, full employment, and strong improvement in the balance of payments. The plan envisages an average growth rate of 4 percent, which is expected to reach 5 percent per year in 1977. Priority is given to agriculture, industry, construction and tourism. Expansion of the industrial sector will be based primarily on the growth and diversification of the export industries. Primary objectives for the agricultural sector are larger exportable surpluses and selective import substitution, improved agro-industry integration, redistribution of agricultural income, and a general improvement of new employment opportunities. The sector is expected to grow at an annual rate of 3.8-4.6 percent (low and high hypotheses). Livestock production is to be expanded.

The first national development plan of Brazil will coordinate government activities in 1972-74. It has three major programmes: modernizing the economy, expanding the economic frontier, and social integration. The target for GNP is an annual rate of increase of 8 to 10 percent. Per caput GNP is forecast to reach US$500-510 by 1974. In particular, public spending will be directed into the growth-sustaining areas of education, industrial development, hydroelectric power and transportation. The plan calls for an accelerated development of agriculture to match the growth already achieved in industry. Formation of efficient farm units, use of fertilizers and expansion of land under irrigation are being emphasized by the Government in order to change the traditional agricultural practices in the northeast of the country. In its determined efforts to lower the rate of inflation (to only 12 percent in 1973), the Government is again compelling financial institutions to reduce costs and charges, and is exerting strong pressure on states and municipalities to reduce production costs in industrial enterprises, and on wholesalers and retailers to avoid unjustified price increases. A national integration programme incorporated in the plan envisages the eventual economic integration of the northern and northeastern regions with the developed areas through a new road

[16] The main features of current development plans in Latin America are given in Annex table 12.

network, which has as its principal axis the Transamazonian highway. The programme includes a project for colonization along this highway, intended to ease population pressure in the northeast.

In June 1972 the national planning office of Colombia published a document on the four strategies for development: the urban sector, export promotion, agricultural productivity, and income distribution. Priority is given to urban development through more investment in housing and other urban complementary services, primarily to create urban employment. The current subsidized housing programmes will continue, together with a new housing programme that would be financed independently by a saving and housing fund. A substantial increase in export earnings is to depend mainly on those agricultural products for which Colombia has comparative advantages, such as maize, sugar, bananas and rice. Several promotion policies have been prepared for this purpose. Improvement in agricultural productivity is to be achieved through increased use and better utilization of inputs such as fertilizer and improved seeds. Agrarian reform will continue to be an element in this strategy. Reducing disparity in income distribution is to be attempted through more progressive taxation, stricter control of the monopolistic industries, and wage and price policies.

The comprehensive plan of Ecuador (1973-77) is well balanced in its presentation of policy orientations, institutional changes and projects. The development of the oil industry is likely to bring about important changes in the country's economy. The plan's fundamental objectives are: national integration; raising standards of living, especially of the poorest sector; and improvement of productive capacity through better utilization of human, natural and financial resources. A number of basic reforms will be carried out in relation to public administration, taxes, and agrarian structures. Plan targets include annual rates of growth of 9.9 percent (at market prices) in GDP, of 3.4 percent in employment and of 16.4 percent in oil exports. Agricultural output is given a yearly growth rate of 5.3 percent. Food consumption is expected to rise by 6.7 percent annually, due to higher income levels, with the highest rate — 8.5 percent — for meat and fish and the lowest — 5.5 percent — for cereals.

The plan has four basic and three supporting programmes for agriculture. The basic programmes relate to agrarian reform, colonization and settlement, agricultural marketing, and production. Supporting programmes involve research, technical assistance and the production and distribution of certified and high-yielding seeds. Agrarian reform will involve the transfer of some 75 000 families to 600 000 hectares, at present underutilized. The colonization programme is complementary to this. At present there are specific projects for the settlement of 5 500 farm families in the next five years. The final target is 15 000 families. The cost of this programme is estimated at 442.5 million sucres (1972 prices). Most financial support will come from the public sector, as private investment is likely to be 90 million sucres or less. Improvements in marketing, in addition to the rationalization of existing services, will include minimum price guarantees for producers, the expansion of storage and warehouse facilities, and a "guaranteed permanent supply of food at equitable price levels." The production programme is divided in three main groups: (*a*) products for domestic utilization to substitute imports, such as oilseeds, castor beans, cereals, potatoes, rubber and tobacco; (*b*) traditional and new export products such as bananas, cocoa, coffee, sugarcane, fibre crops (cotton and abaca), pyrethrum and tea; and (*c*) other products such as livestock, fruit and vegetables.

Among the supporting programmes, technical assistance is given greater attention than in previous years and will cost 156.8 million sucres. Applied research directed toward crops for export and for import substitution will cost 594 million sucres.

Bolivia is currently preparing a new medium-term plan for economic and social development, following annual emergency plans for 1971 and 1972.

The 1971-75 development plan of Paraguay projects an average annual growth of 6 percent in GDP. A total investment averaging 21.6 percent of GDP annually over the period will be needed to sustain this growth rate. Public investment should increase from 27 percent of total investment in 1970 to 37 percent in 1975. The plan bases its strategy on the development of agro-industrial units, as well as large public works, but does not give details of unemployed labour it hopes to utilize. The plan affirms that Paraguay is too small to be self-sufficient in industrial production, and that it should take fuller advantage of abundant unused agricultural land and ample hydroelectric power to supply fresh and processed food to the large markets in Brazil and Argentina. Emphasis is thus being shifted from basic infrastructure projects to projects that directly increase agricultural and livestock production. Investment will be directed mainly toward programmes begun in the 1960s on a relatively small scale and now being considerably expanded covering livestock, wheat, supervised credit to small and medium farmers, and colonization.

Mexico continues to have no formal development plan but a planning and programming unit has been established in the Ministry of the Presidency. This office coordinates sectorial programmes prepared in the various ministries and public agencies. Development objectives involve a more equal distribu-

tion of economic activity throughout the country to diminish regional income disparities, a reduction in unemployment, and an increase in productivity in stagnant sectors. For agriculture, the principal aim is to bring about a more rapid transformation of traditional farming which suffers from low productivity and income levels.

In Guatemala the projected annual growth rate in GDP of the 1971-75 plan has been reduced from 7.8 to 6.2 percent, due to adverse factors affecting the economy. The plan aims at a substantial increase in public and private investment spread more evenly throughout the country, an improvement in the balance of payments situation, a reduction in income disparities, and the diversification of agricultural and livestock production. The longer term objectives for the agricultural sector include better distribution of income and the more active participation of the *campesinos*.

A new five-year plan (1973-77) has been prepared in El Salvador with the principal aim of reducing under- and unemployment — especially in agriculture. Other objectives are to raise nutrition levels, improve health services and potable water supplies, and expand public housing programmes. Agricultural output should be increased to meet the demand not only of growing population and rising incomes, but also that resulting from redistribution of income which is a feature of the plan. Special attention will be given to the expansion of technical and credit assistance programmes in the agricultural sector, and to changes in the land tenure system.

The new Government of Honduras is in the process of revising the development plan for 1973-77. One of the main objectives in its strategy is the sharing of the peasant population in economic and social responsibilities, such as development of forest resources. Modernization of peasant agriculture and a changed agrarian structure are essential to the plan and will involve an increase in production and income levels as part of the planned redistribution of income and the greater utilization of farm labour.

In Nicaragua, the national development plan for 1972-76 has been prepared. The document stresses the need for a greater output from agriculture. The earthquake of December 1972 has compelled a large part of public investment and current development outlays to be used on reconstruction works. Early in 1973 the Government asked the Permanent Secretariat of the General Treaty on Central American Economic Integration to make an evaluation of the economic impact of the earthquake.

The basic development objectives of the Government of Costa Rica are a sustained economic growth, more equal distribution of income and full employment. An agricultural development programme for the period 1971-74 covers training, credit, cooperatives, marketing services and land tenure, as well as the establishment of modern rural centres. The total expenditures of the programme were budgeted at 247.2 million colones. Its implementation during the first two years has given important results in training programmes, decentralization of agricultural services and, in particular, improved coordination between extension and credit services. The programme has also led to better agricultural planning at national, regional and canton levels.

Early in 1970 Panama prepared a ten-year national development strategy, followed by a five-year public investment plan for 1971-75. Primary objectives of the development strategy are to take advantage of Panama's geographic position, especially through the expansion of tourism and assembly plants and its future as an international financial centre. An increase in national wealth is expected from export diversification, national and regional economic integration, social integration through community development, and the provision of social benefits and new employment opportunities for the population. The five-year public investment plan envisages an annual average growth rate in GDP of 8 percent for the plan period and an average total gross investment (of which about one third is public investment) accounting for approximately 22 percent of GNP. The Government's improved capacity to identify and prepare projects has resulted in large project commitments from international financing agencies.

No new national development plan has been adopted in Jamaica since the termination of the five-year independence plan (1963-68). At the end of 1972, however, preparation of a plan for agricultural reconstruction and development was started. The broad objectives are likely to include: a higher rate of agricultural production sufficient to satisfy all demand categories; improvement of the standards of living of the rural population; a more equitable income distribution within agriculture and a correction of the strong imbalance between agricultural and nonagricultural productivity and income. It will stress the importance of decentralization in plan preparation to ensure the participation of all groups involved in sectorial planning activities.

The major goals of the third five-year development plan (1969-73) of Trinidad and Tobago are diversification of the oil-based economy, substantial reduction in under- and unemployment (the principal problem), a shift in economic decision-making from central to local institutions, and a more even distribution of income. However, the discovery of new oil resources and socioeconomic and political problems have limited progress, especially in diversification. The plan's targets for agriculture

are diversification of production, reduced dependence on imports and full absorption of the abundant and underemployed rural labour force. At the end of 1972 the planning authorities, aware of the need for strengthening the planning mechanism in general and project formulation and execution in particular, were working on a fourth five-year development plan.

The national development plan for 1970-74 of the Dominican Republic stressed the importance of public investment in electric power, communications, transport, irrigation and agriculture. In 1974 public sector capital formation must reach 43 percent of total investment effort. For agriculture there is a comprehensive development programme with a planned growth rate of 5.5 percent annually. Expansion of the cultivated area is expected to provide 60 percent of this increased output. Programmes for agricultural development provide for the dissemination of modern technology through assistance to smallholders in the fields of extension, agricultural education, marketing, credit services and research. Agrarian reform plans envisage the settling of 30 000 farmer families with complementary assistance programmes.

In Haiti, a five-year development plan (1971-76) is in course. Nearly half of total investment is to be financed by foreign resources. Objectives are the acceleration of agricultural development through sustained increase in yields and expansion of cultivated area, and the development of other sectors, especially industry and tourism, in order to create more employment opportunities. The plan requires relatively heavy investment in agriculture to raise productivity through the better utilization of water resources, increased use of fertilizers and other inputs, improvement of pastures and the establishment of small-scale plants for processing crop and livestock products. A major obstacle to carrying out this programme successfully is the lack of feasible projects for financing by international agencies.

The second five-year plan (1972-76) of Surinam underlines the need to reduce unemployment, which amounts to some 12 percent of the labour force, by half. It also emphasizes the need to improve personal and regional income distribution. In the agricultural sector the plan concentrates on crop development, in particular of rice, the country's most important staple, oil palm and bananas.

In Cuba, the central planning board is responsible for working out long-term development alternatives, establishing priorities and coordinating the annual plans of ministries and government agencies. The present medium-term development strategy aims at a 47 percent growth in crop and livestock production in the period 1971-75, as well as an expansion in processing of agricultural products, to increase domestically generated income and export earnings. High priority is given to mechanization and improved organization in sugar production, and to diversification in the agricultural sector, particularly through the promotion of livestock development. At present the Cuban planning authorities are working for the coordination of planning activities of government agencies, decentralization of decision-making, and more formal long-term planning.

Guyana's five-year development plan (1972-76) emphasizes a reduction in unemployment and an acceleration in autonomous economic growth. Public investment will be concentrated on agriculture, forestry and fisheries development, transport infrastructure, electric power and housing. The main agricultural objectives are: to become less dependent on sugar (sugar and its derivatives account for one third of total exports and 10 percent of GDP); self-sufficiency in food production; development of hinterland resources; and the creation of employment opportunities for the agricultural population.

Agrarian reform

Serious efforts in agrarian reform are now being made by several Latin American countries, which at the same time are departing from some of the traditional concepts propounded by the social scientists. Economic indicators such as GNP, rate of technological adaptation, rate of economic growth and others are now recognized as having only partial significance in measuring the stage of development for developing countries.

Recent meetings have recognized a broader concept of rural development, such as the FAO Regional Conference for Latin America held in Caracas[17] which recommended to member countries and to the Director-General of FAO the following concept or frame of reference concerning development: "Development means more than economic growth with the limited goal of increasing production. It has been repeatedly recognized by the United Nations that development is a much broader concept implying redistribution of income and of productive resources and a broad participation by all sectors of the population in social and political institutions. In Latin America, development must be approached as a process of structural change entailing not only increased production but also institutional changes with the creative participation of the entire population."

The adoption of the resolution which included the above statement is an official recognition that

[17] *Report of the eleventh FAO Regional Conference for Latin America, Venezuela, 12-20 October 1970*, p. 42, Rome, FAO, 1970.

agrarian reform, and the broader concept of rural development, require a reorganization of the whole institutional framework. Some countries of the region have not only recognized and adopted this concept of development but are already implementing it.

New approaches to agrarian reform have recently come into existence, the most important being those concerned with its implementation. When the reform was centred around the land tenure concept alone the principal concern was the simple distribution of land, paying little attention, or devoting few resources to social change, production and supporting services. Reform had more of a juridical nature, concentrating on legal aspects of transferring the land and issuing titles. Not surprisingly the expected results did not materialize.

In the new dynamic concept, agrarian reform is no longer only a legal instrument with a series of provisions regulating land expropriation, compensation, rent, issuing titles and so on. Now, it is considered as a means of overall, integrated development. Ownership of the land is becoming less significant — the important issue is its utilization and the distribution of the benefits derived from it.

The new framework also includes action concerning the social structure, production and supporting services, which a true agrarian reform needs. Agrarian reform has crossed technical and administrative frontiers and is becoming a process of social change, transferring part of the economic and political power from the landlords to the peasants. During the 1970 FAO Regional Conference for Latin America, the processes that are now taking place in the region were examined and grouped into three types,[18] characterized as follows:

1. Processes directed fundamentally at the modernization of agriculture.
2. Processes involving gradual change of agrarian structures.
3. Radical processes involving changes in the agricultural sector as well as in the society as a whole.

An important feature of the new approach to agrarian reform is the active participation of the campesinos in decisions concerning their future development and their willingness for change. They are developing strong organizations with clear and definite objectives.

In Chile, the five national confederations and one provincial federation of campesinos now have a total membership of about 253 500. In Colombia the recently organized Asociación Nacional de Usuarios Campesinos is reported to have about 1.5 million members, and in Cuba 4 490 campesino associations have about 148 000 members. In Honduras, the Federación Nacional Campesina de Honduras, the Federación de Cooperativas de la Reforma Agraria de Honduras and the Asociación Nacional de Campesinos de Honduras have over 100 000 members. In Panama the Confederación Nacional de Asentamientos Campesinos, of recent formation, already has 10 000 members. In Peru the campesinos participate in the process mainly through the production structures, cooperatives and agricultural societies of social interest.

These organizations, besides being active in the campesino movement in general, are the backbone of the new production structures. As a rule these are the same campesino organizations that fought for the land and normally adopt an associative form of exploitation of land, differing from the campesino organizations of the past which concentrated on the acquisition of the land alone, leaving to the individual peasant or to government agencies the methods or schemes of production to be adopted.

It is possible that the creation of campesino organizations with this new outlook in these six countries (Chile, Colombia, Cuba, Honduras, Panama and Peru) will give a new dimension to the role and sense of solidarity of the campesino in other countries, and a more active platform to the old organizations that once played an important role in the agrarian movements of their countries, as was the case of the Confederación Nacional de Campesinos de México under the regime of Lázaro Cárdenas, the Federación Campesina de Venezuela under Rómulo Betancourt's government, and the Confederación Nacional de Trabajadores Campesinos de Bolivia at the outset of the revolution.

The individual parcel or family farm unit is the outcome of traditional subsistence agriculture, where farmers used primitive methods of production and rudimentary hand tools. These units are giving way to new structures being developed in accordance with the prevailing economic and political systems. Past experience in parcelling out the land and giving a tract to each family has amply demonstrated failure in many countries. The reasons for failure are of a technical, administrative and social nature. Latin American experience in general has shown that a small unit, even though it is an enterprise, cannot benefit from the adoption of technology, credit, marketing and management as can a large enterprise. Socially the farmer becomes individualistic and sometimes an isolated human being without participation in the affairs of his own community.

Campesinos and government officials in some countries have reached the conclusion that production structures should be geared to the interests of the

[18] *Report of the eleventh FAO Regional Conference for Latin America, Venezuela, 12-20 October 1970*, p. 88, Rome, FAO, 1970.

group or community as a whole, as should the ownership of land, and have therefore developed different types of organizations with a marked trend toward associative or group farming. When deciding on the type of production organization structures, it is important to differentiate two aspects: first, the land tenure or control of the land, and second, the form of exploitation. In this context four combinations of group farming enterprise have developed:

1. Ownership of land is on an individual basis: each member puts his parcels of land at the disposal of the group and the exploitation is collective.
2. Ownership of land and exploitation are collective. The title is issued to the group as a whole and no individual property exists.
3. A combination by which each member owns and exploits individually a small parcel, and the larger area is owned and exploited collectively.
4. Each member owns a small parcel to farm individually, and the larger area is also owned individually but exploited collectively.

The most important element is the system of exploitation and not the ownership of the land. However, the combination of collective ownership and exploitation appears to be proving the most desirable from economic, social and technical aspects. It has the additional advantage of preventing the fragmentation of land and the reversion to concentrated ownership by one person or company. Therefore this combination eliminates the possibility of the formation of minifundia and latifundia, the two land tenure systems that prevent a sound solid agricultural development in many countries.

Agrarian reform structures

The following are some of the new agrarian reform structures found in Latin American countries.

Chile. Settlement (*asentamiento*) — a transitory organization created when an agricultural enterprise is expropriated and in which all the former workers (heads of family only) become members and work the land collectively. After a period of three to five years the settlers decide on the type of permanent organization to be adopted. In some cases the settlers have at the same time a small parcel for individual exploitation.

Agrarian reform centres (*centros de reforma agraria*) — a collective organization that differs from settlement in many aspects. The family participates in the group — women and children of 16 years and over; the ownership of the land is collective, the only individual ownership being the plot for the house and family orchard; administration and all the operations of the enterprises are the full responsibility of the campesinos, including procurement of credit and other inputs. Control is exercised by a committee selected by the assembly; hired labour may be contracted only at peak periods.

Colombia. Community enterprises (*empresas comunitarias*) — a group of campesinos receives title to the land as a group and immediately forms a collective society to cultivate the land recently acquired. Besides the agricultural activities the society may also engage in agro-industries. Benefits are distributed according to the work performed by each individual member.

Honduras. Production cooperatives for agrarian reform (*cooperativas de producción de la reforma agraria*) — an organization adopted by a group of campesinos to exploit the land collectively. The land and other productive resources are also owned collectively. No individual subsistence parcels are given to the members. The present legislation gives the campesinos up to five years to decide if they want to continue with this type of organization or want the land distributed in individual parcels.

Panama. Campesino settlements (*asentamientos*) — since the beginning, the organization of the asentamientos was proposed as a transitory form of communal exploitation of the land, but at the same time provisions were made for adjudication of individual parcels to members. The asentamientos were also considered a means of full participation by the campesinos in the operation and development of the agrarian reform programmes. After a period of three years the campesinos will decide the type of organization to be adopted.

Peru. Production cooperatives (*cooperativas de producción*) — an organization adopted to operate and manage the agro-industrial complexes. All the workers (labourers, technicians and administration staff) become members and owners of all the assets of the enterprise. The exploitation is carried out on a collective basis and no individual property exists. The dividends are distributed according to the work performed by the members.

Agricultural societies of social interest (*sociedades agrícolas de interés social*) — the former workers of a farm organize a service cooperative to manage and operate it but the benefits are divided among the members of the service cooperatives as well as the surrounding communities that have become members of the agricultural society. Each entity receives

a percentage of the benefits; in the case of the communities the money is used for investment in communal facilities only.

Progress in agrarian reform

These new structures have proved to offer the following advantages:

1. Social and economic. The working organization adopted by the farmers is at the same time a social organization, achieving the welfare and participation of the community, more rapid increases of per caput and per family income, better use of resources, economies of scale, planning of food production for domestic consumption and improvement of the nutrition levels of the national population.
2. Production techniques. Advanced technology, especially mechanization, is easily adopted; many crops can be grown economically and efficiently only in large tracts; production can be export-oriented, crops enter more easily into world trade because they are produced at competitive prices and in adequate volume, and quality control practices can be established.
3. Supporting services. Agricultural credit can be more easily obtained and managed; extension services can be more economically and efficiently provided; marketing mechanisms and facilities can be established; participation in processing and other agro-industries is facilitated.

Some of these changes are occurring in many countries of Latin America, especially campesino participation and the emerging associative production structures. It is not possible in this publication to examine the programmes of each country and a summary of progress in agrarian reform for two — Chile and Peru — is presented.

Chile

Land distribution in Chile began in 1929 with the Caja de Colonización Agrícola distributing national lands. The first agrarian reform law was enacted in 1962 and later replaced by the 1967 legislation.

During the period 1929 to 1962 when the first law was enacted, 4 026 families benefited by agrarian reform and colonization projects, on the average less than 130 families per year. From 1963 to 1964, 2 350 families benefited. Progress was insignificant in these two periods covering 1929 to 1964 and, as a result of rather slow and probably unwilling effort, the situation in 1965 was practically unchanged. There were only 4 876 farms involved at that time. The institutional framework of agriculture in 1965 was rather proliferous and confused as far as action and responsibilities were concerned. There were 28 different institutions dealing with the agricultural sector, and 4 additional institutions were later created. So, 32 institutions are operating in the agricultural sector in Chile at present and they respond to five different ministries. For example, 80 percent of the budget of the agricultural public sector is administered and spent by institutions outside the Ministry of Agriculture. In other words, the economic decisions in relation to agricultural development are not taken by the ministry responsible for the policies and development of the sector.

The duplication and overlapping of functions and the difficulty of coordination can be understood when it is seen that 16 institutions have responsibilities in campesino training (7 from the public and 9 from the private sector), 16 in marketing, 10 in extension services and credit, and 4 in planning.

This proliferation of institutions and dilution of resources has resulted in the centralization of agricultural technicians in Santiago and the provincial capitals, with a very limited number of technicians in close contact with the campesino in the rural areas. In 1970 the agricultural technicians, including forestry engineers, were distributed as follows: 47 percent in Santiago, 42 percent in the provincial capitals and only 11 percent in the rural communities.

The credit programmes were also affected by the institutional framework: up to 1970 only 94 000 farms (approximately 30 percent of the total) received credit and from this group 2 000 landlords received 20 percent of the credit granted in the country.

The change in Chilean agrarian reform began in 1965 with a series of transitory measures while the second reform law was being discussed by the Government, but drastic and rapid changes began to take place following the change in government in 1970. The objectives of the agrarian reform policy to be pursued by this Government can be summarized as follows:

1. To implement a rapid change in the land tenure system, eliminating the latifundia and stimulating the creation of cooperatives and other socialist forms of agricultural production.
2. To change the economic interrelationships between agriculture and the rest of the economy with the purpose of increasing production and productivity, eliminating rural unemployment,

and at the same time improving the agricultural income in relation to the other sectors of the economy.

3. To stimulate peasant participation in the whole process of change.
4. To plan and reorient the production structures in order to obtain a better utilization of the natural and economic advantages of the principal geographical regions of the country.
5. To improve the conditions of the significant groups that have been traditionally neglected, such as the indigenous populations.

The first action in agrarian reform taken to implement new policy was to reduce the latifundia. In this respect the Government was confronted with legal provisions, such as Article 3 of the present law, which exempts from expropriation farms with an area of less than 80 hectares of irrigated land (or its equivalent, *hectáreas de riego básico* [HRB]), and in the case of expropriation the owner has the right to keep an area of 80 HRB.

The landlords availed themselves of these legal provisions by dividing their large holdings into areas of no more than 80 HRB. For instance, since 1965 substantial increases in the area of the properties between 40 and 80 HRB have taken place. Before 1965 the area of these units was 12.8 percent of the productive land of the country; by 1972 the area of farms of that size had been increased to 27.3 percent of the productive land. The area of farms between 5 and 40 HRB also increased, but not as much as the previous category.

It can be said that the Chilean agrarian reform programme has eliminated the latifundia: from 1965 to 30 June 1972, 4 642 latifundia were expropriated, covering a total area of 8 858 979 hectares, and 75 000 families have benefited.

Once the latifundia were taken over the problem of how to substitute the structure and organization of the previous agricultural enterprises had to be solved. The policy adopted was to maintain the expropriated unit and in some cases to merge it with another unit for the sake of economy and efficiency.

Under the previous government the campesinos joined production organizations such as settlements (*asentamientos*) to manage expropriated farms, but under the present regime they have also organized committees for agrarian reform (*comités campesinos de reforma agraria*), centres for agrarian reform (*centros de reforma agraria*) and also production centres (*centros de producción*). All these structures involve group or associative farming. In many cases a small parcel is also given to the members of the group to be exploited individually.

There are three types of production cooperative:

1. Production cooperatives formed by small landholders (*cooperativas de asignatarios*) are agrarian reform cooperatives whose members have individual title to the land alone or with other partners.
2. Cooperative ownership and cultivation of land (*cooperativa asignataria*), in which the land is given to the group as a whole and no individual property exists.
3. Mixed cooperatives (*cooperativa mixta*), which have title to land for the group as a whole and at the same time members own land individually.

For promoting the participation of the campesinos in the whole process, the Government created the Consejos Comunales Campesinos, but at present they have only consultative functions and no legal instrument to implement their decisions. In spite of this limitation the campesino organizations have increased in membership and effectiveness.

The administrators decided that only one institution in the country should handle agricultural credit — the Banco del Estado de Chile — thus eliminating the Agrarian Reform Corporation and the Agrarian Development Institute as credit intermediaries for the agrarian reform beneficiaries. Also, the documentation and other requirements for the borrowers have been simplified, the only requirement now being the presentation of the cropping plan.

As a result of the agricultural credit policy a substantial improvement in loans granted and repayments made has taken place. For the 1971/72 agricultural year the agrarian reform beneficiaries received 1 574 million escudos. The nonagrarian reform beneficiaries received 2 697 million escudos.

Confronted with the impossibility of obtaining the approval of Congress for the legislation needed to change the institutional framework, the Government opted for coordination among all the numerous institutions involved. For this purpose it established nine national technical programmes (production, training and campesinos organization, conservation of natural resources, credit and inputs procurement, etc.). By this system all the institutes with responsibilities in a particular field have to channel their efforts and resources to the success of the corresponding national programmes.

In spite of all the accomplishments of Chilean agrarian reform the legislators must still tackle the problem of the small landholders and the water rights that up to now have not been affected by the reform programme.

Many planners have also stated the need for increased agricultural production, reduction in the

importation of foodstuffs, and rationalization of distribution for the domestic market.

Peru

First attempts at agrarian reform in Peru were made in 1956 through the Instituto de Reforma Agraria y Colonización. Law 15037 (1964) transformed this institution into the Oficina Nacional de Reforma Agraria. Both institutions were handicapped by provisions in the law which gave protection to the agro-industrial complexes in the coastal areas and the large ranches in the Andean and tropical regions. Legal and administrative procedures further delayed expropriation.

In 1965, when the present law was enacted, the Peruvian agrarian structure revealed that 99 farms occupied 40 percent of the land in the coastal area, and that 181 farms occupied 60 percent of the land under cultivation in the sierra area. Further analysis showed that 59 large farms or enterprises on the coast occupied a total area of 230 000 hectares.

A high percentage of the farms in some areas were owned by foreign investors; in one case foreign ownership was almost complete — only 0.01 percent was in the hands of Peruvians.

The expropriation of these large farms to the Peruvians therefore meant not only a simple transfer of the property into the hands of the workers, but also the reestablishment of national sovereignty over the resources of the country and a guarantee of reinvestment in national development of large resources that in the past were taken out of Peru.

Peruvian agrarian reform, like that of Chile, has taken advantage of the structural organization of the agricultural enterprises already in existence in the latifundia that were expropriated, and has maintained them as economic, technical and social units with all the benefits derived from specialization and the division of labour. The fundamental change introduced in the new structure is the appropriation and distribution of the benefits of production. The introduction of this type of organization was also made easier by the customs of the campesinos, especially the campesinos of the sierra, who by tradition are inclined toward communal ownership and exploitation of land.

The innovation and novelty of Peruvian agrarian reform has been the creation of agricultural societies of social interest (*sociedades agrícolas de intéres social*). When the question of how to manage and distribute ownership of the well-organized and highly efficient latifundia in the sierra arose, the Government was confronted with the fact that the enterprises were operated by a relatively small group of hired labour. To transfer the enterprises to this group would have amounted to suddenly converting a relatively small number of workers into rich owners, leaving thousands of peasant families in the surrounding communities with no resources at all. The Government appointed a technical commission to determine the best type of campesino organization to be adopted, and from a comprehensive study of the social, economic and technical conditions of the latifundia and of the surrounding communities the agricultural societies were created.

In a society the former workers are organized in a service cooperative, which operates the agricultural enterprise and becomes a member together with some of the surrounding communities. The member communities are selected according to certain criteria. For example:

1. Geographical location in relation to the expropriated latifundia. In this respect the adjacent communities have preference.
2. Possession by the community of part of the land belonging to the latifundia, or juridical cases pending by the community claiming some of the latifundia land.
3. Activities performed by the majority of the citizens of the community in relation to the activities of the expropriated farm, for example, the community with a sheep-raising activity will have a priority in a sheep-raising farm, provided other requirements are met.
4. The need for land by the community.

In a specific case, a farm with 216 000 hectares carrying 105 000 head of sheep was transferred to 16 communities, and the service cooperatives organized by some 350 former workers of the farm. The financial benefits received by the communities can be used only for investment in communal programmes such as public buildings, schools, water supply systems, and so on.

The other type of organization that has been widely promoted has been the production cooperative. This was the system most commonly used in the organization adopted by the previous latifundia of the coastal region, especially in the agro-industrial sugar complexes. In one case, more than 20 000 former workers (labourers, technicians and administrative staff) of an industrial complex became members of the production cooperatives and the owners of 76 000 hectares planted to sugarcane, plus the allied sugar mills.

Under the previous legislation (Law 15037) agrarian reform accomplished little in six years (1964 to June 1969), as the agrarian reform agency acquired 834 370 hectares and distributed only 384 259 to 14 345 families.

Reform became dynamic with the enactment of Law 17716 on 24 June 1969. This contains provi-

sions which affect the agro-industrial complexes in the coastal area and the large ranches in the sierra that were protected by the previous legislation. The general law on water was enacted a month later on 24 July 1969. This was a step forward in a country like Peru where water is a scarce resource, and where in the past water rights were controlled by small groups; now, without exception, these are the property of the State. Under this legislation the water rights and their rational use can only be granted in harmony with the social interest and development of the country.

Between June 1969 and October 1970 the agrarian reform programme affected 2 847 477 hectares and benefited 81 155 families. The total programme, up to 1975, calls for the expropriation of 14 170 000 hectares to benefit 320 000 families.

Although limited in its coverage, this analysis is an example of what can be accomplished. Chile and Peru illustrate how an adequate distribution of productive resources can have an immediate impact on income distribution and the living standards of the rural population. The analysis also shows that in spite of these accomplishments more resources should be devoted to agrarian reform, especially in those countries where the problems of the campesino population are still acute.

Regional economic integration

The year 1972 was one of encouraging activity in the field of economic integration in Latin America. The most important event was the entrance of Venezuela into the Cartagena Agreement (Andean Group). After a period full of difficulties for the Central American Common Market, it seems that a way is being found to overcome past shortcomings. Member countries of the Caribbean Free Trade Association (CARIFTA) decided to go ahead with the conversion of the present free trade area into an economic community. Finally, the meetings of the Latin America Free Trade Association (LAFTA) discussed the urgent need to overcome the present stagnation.

The participation of Venezuela in the Andean Group gives a new impulse to this integration scheme which has been characterized by its dynamism. With Venezuela as its sixth member, the Group will have a new and substantive source of capital for investments. At the same time many Venezuelan enterprises which have been operating below capacity will have the opportunity to increase their output and reduce production costs, so that they may become more competitive with similar industries in the area. The six countries in the Group will have nearly 91 million inhabitants by 1980, when the integration programme should be completed for the four more developed countries.

The planning council of the Cartagena Agreement Commission approved a study of a subregional strategy involving: a wide dissemination of the document on general bases for a subregional development strategy[19] (prepared with FAO assistance); discussion inside each member country; submission of comments and suggestions by members to the Agreement Commission; and, finally, a new meeting of the planning council to analyse the comments and suggestions received. The following subject matters will be discussed: the general development objectives for the region and the role of the integration process; the aims of industrial development; the concept of economic space and the strategy for physical integration; the role of the agricultural sector and the problems of its integrated development; financial and investment problems; policies for the incorporation of foreign technological knowledge; trade policies; human resources and employment; selection of strategic projects; and priorities in the coordination of policies.

The Group has obtained or is negotiating trade agreements with Mexico, Argentina, Japan, the Central American Common Market and the European Economic Community. Ecuador, one of the two less developed countries of the Group (with Bolivia), benefited from the elimination of the administrative barriers to its exports to Peru and Chile. Ecuador's exports to the subregion increased by 84 percent in 1971 (over the 1965-69 average), compared with only 2 percent in 1970.

The Andean Development Corporation has approved loans to Colombia for prefeasibility and feasibility studies of agricultural projects, to Bolivia for a prefeasibility study to support a marketing system for exporting cattle products, and to a joint venture financed by Ecuador and Chile for refrigerating facilities, Ecuatoriana de Atún, S.A.

During 1972, progress in the Central American Common Market was adversely affected by the imbalance of trade between Costa Rica and other member countries, in addition to the problems raised by the Honduras-El Salvador conflict. After several meetings of the Ministers of Economy of the member countries, it was agreed to adopt a system by which Costa Rica may reduce its imports from the other Central American countries, through different rates of exchange for each kind of product classified as essential and nonessential. It was also agreed to cancel Costa Rica's indebtedness to the Central American Clearing House with the help of the Central American Monetary Compensatory Fund.

[19] *Bases generales para una estrategia subregional de desarrollo*, 3 vols. Lima. 1972.

A regulatory commission was established to reshape the clearing house in order to improve the legal bases of integration and to develop common regional economic policy.

The Ministers of Economy, who met in San José, Costa Rica, on 18 October 1972, have agreed to a series of meetings to discuss and negotiate the reorientation of the Central American Common Market. A document prepared by the Permanent Secretariat of the General Treaty on Central American Economic Integration (SIECA) will be used in these meetings.[20] This study suggests the bases on which member countries could begin negotiations for restructuring the Common Market and it recommends that the General Treaty be modified with the aim of converting the Common Market into an economic community.

The member governments of CARIFTA have agreed to move from a simple tariff union into a Caribbean Common Market as from 1 May 1973. The new treaty harmonizes fiscal incentives for agriculture and industry, and gives special concessions to the economically less developed countries: Grenada, St. Lucia, St. Vincent, Dominica, St. Kitts-Nevis, Antigua, Montserrat and British Honduras. A development plan will be prepared within the regional framework.

In a recent meeting of LAFTA member countries the role of the national agricultural marketing agencies was studied. A document prepared by the permanent committee underlined the important function that these agencies are playing in the supply and price stabilization of agricultural products. They are directed to grant the smaller farmer a minimum income and to supply essential commodities at the lowest prices. These agencies are also helping the governments to control imports and regulate exports of agricultural products. As various countries have not yet ratified the Caracas Protocol, the last LAFTA conference approved some provisional measures. The conference agreed on the harmonization of agricultural trade policies and sanitary regulations and decided to carry out an analytical and comparative study of agricultural supply and trade policies and the means for their implementation.

[20] Based largely on information provided by the FAO Advisory Group for Central American Economic Integration.

Far East

DEVELOPING COUNTRIES

Economic growth in the Far East in 1972 was markedly affected by the poor performance of agriculture in most countries of the region, mainly as a result of the failure of the monsoon. The weighted average growth rate of GDP, which has been falling since 1969 when a peak of 5.8 percent was reached, will therefore probably be only about 4-5 percent in 1972. India's national income increased by only 1.5 to 2 percent in spite of a 7 percent expansion in industrial production. In Bangladesh difficulties in rehabilitating the national economy were compounded by the adverse effects of the drought, requiring an increased allocation of scarce foreign exchange to import more foodgrains. The growth rate in Burma fell to 3.1 percent from 6.2 percent the previous year, reflecting relatively low growth in the agricultural sector which was only partly offset by a 12 percent expansion in mining production. In the Republic of Korea the rate of growth in GNP fell from 10.2 percent in 1971 to 7.1 percent, following the implementation of stabilization measures. In Thailand economic performance fell short of the 7 percent annual growth target in the country's development plan for 1972-76. Indonesian GNP probably expanded more slowly than the previous year's rate of 6.9 percent in spite of greater industrial output and production of crude petroleum. The effects of the drought were also felt in the Khmer Republic, Laos and the Republic of Viet-Nam, where war and disturbed conditions continued to radically reduce economic activity, and in Nepal and Sri Lanka where little progress was recorded.

In Pakistan, on the other hand, agricultural production contributed to the 1.7 percent growth of GNP, as the industrial sector recorded a setback in spite of a gradual recovery from the widespread effects of the war. In Malaysia the growth of the economy, although amounting to about 5.8 percent, was below the 6.5 percent target set in the second five-year plan. This rate of growth was higher than the previous year's, in spite of difficulties stemming from unfavourable prices for Malaysia's main exports; industrial production continued to grow rapidly at about twice the general rate. In the Philippines, expectations of a 6 percent growth in 1972 were not realized because of the severe effects of typhoons and floods in July. Economic expansion in Singapore continued at a high rate of 12 percent, compared with 10 percent in 1971.

Agricultural production

The performance of the agricultural sector was severely affected by the failure of the monsoon in the summer of 1972 in most of southeast Asia.[21] A 3 percent drop in production followed only a slight increase in 1971, giving rise to particularly difficult supply situations in many areas. In practically all countries per caput food production dropped for the second consecutive year, but national average figures do not adequately describe the extent of hardship among the vulnerable low-income groups which are most severely affected by rising prices of scarce staple foods.[22] The need to import large quantities of foodgrains at higher prices also meant that additional foreign exchange was required for commercial purchases.

The effects of the drought on production, of cereals in particular but also of important commercial crops, revealed the continued heavy dependence of agriculture in the region on favourable rains, and thus emphasized the urgent need for a strategy to reduce instability of production through measures to expand areas under irrigation, improve management of water resources, and evolve suitable techniques of dry farming. Moreover, the difficulties most developing countries experience in absorbing shortfalls in food production underline the need for adequate stock policies to insure against crop failures. As an indication of instability, Table 2-15 gives the average percentage fluctuation around the trend of output of particular cereals in major producing countries for the period 1961-71.

The decrease in agricultural production was particularly marked in India, which accounts for almost half the regional output. Forecasts of larger foodgrain crops than the previous season, when output amounted to 105 million tons, were progressively reduced to 100 million tons as extremely dry weather continued in almost all of India throughout autumn and early winter, leading even to a scarcity of drinking water in some areas. The low water level in power reservoirs resulted in reduced electricity output which limited the use of electric irrigation pumping systems and also curbed fertilizer production. To offset losses in the main summer crops, including paddy, millet and maize, an emergency production programme was launched to provide an additional 15 million tons of foodgrains (8.4 million tons of wheat, 3.5 million tons of rice and 3.3 million tons of coarse grains) through late summer sowing and additional planting of winter crops. However, the continuation of drought, shortages of fertilizer and power, and outbreak of disease prevented the achievement of the target.

The shortfall in foodgrain production in India had a severe impact on food supplies, particularly for low-income groups. Wholesale prices of all food items increased by almost 20 percent between the end of 1971 and the end of 1972. Prices of rice and wheat increased by about 15 and 10 percent respectively and, as a result of stagnating production, prices of pulses also rose sharply. While government procurement of grain for distribution fell far short of the target, the buffer stock which was reported at about 9.5 million tons in mid-1972 amounted to only 3.5 million tons by the year's end. Arrangements were therefore made for purchases on the world market of foodgrains, mainly wheat and sorghum, during the early part of 1973, and about Rs.2 500 million were allotted for relief operations, including free feeding and emergency work programmes. The Government also took over the wholesale trade in wheat from March 1973, in order to provide

TABLE 2-15. – FAR EAST: RATES OF GROWTH AND ANNUAL FLUCTUATIONS IN PRODUCTION OF SELECTED CEREALS IN MAJOR PRODUCING COUNTRIES, 1961-63 TO 1969-71

	Rate of growth 1961-63 to 1969-71	Average annual fluctuation [1]
	..... *Percent*	
RICE (paddy)		
Bangladesh	1.6	6.1
Burma	1.1	4.3
India	2.2	6.7
Indonesia	5.2	5.4
Philippines	3.8	4.2
Thailand	2.4	4.5
WHEAT		
India	7.9	12.9
Pakistan	6.9	9.4
MAIZE		
India	3.9	7.3
Indonesia	0.2	17.2
Philippines	6.0	4.3
Thailand	13.5	4.1

[1] Annual average percentage fluctuation from trend is calculated according to the following formula:

$$F = \frac{100}{n} \sum_{i=1}^{n} \frac{[x_i - \bar{x}_i]}{\bar{x}_i}$$

where x_i = volume of production at time i

$\bar{x}_i$ = corresponding trend value

n = number of years

[21] Indices of regional food and agricultural production are given in Table 1-2, Chapter 1.

[22] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

remunerative prices to the farmer and at the same time make supplies available to the consumer at reasonable prices and check speculative hoarding.

Among the important commercial crops affected by drought, oilseeds and jute suffered severe setbacks. Groundnut production fell by more than 20 percent, resulting in a shortage of edible oils on the domestic market which required expanded imports. Cotton production was lower than the previous year's record but still substantially higher than the average for the preceding five years. Sugar production was also lower. For the season ending September 1972 the area under sugarcane was 8 percent less than the previous year, and milled sugar output dropped by 17 percent, partly as a result of diversion to non-centrifugal production. Although the tea crop in southern India was affected by the dry weather, total production increased to a record level.

The drought had severe effects in other countries. In Bangladesh, with average rainfall some 50 percent below normal, the main rice crop fell about 2 million tons (25 percent) below the target and the total food-grain deficit for 1973 is estimated at 2.5 million tons. Prior to the 1972/73 season, the overall deficit was between 1.2 and 1.7 million tons. Arrangements were made for commercial imports of about 800 000 tons, in spite of limited foreign exchange. For the balance an international appeal was launched in early 1973 by the United Nations Secretary-General in association with the Director-General of FAO. Among other crops, jute sowing was nearly normal in 1972, but prolonged drought affected the growth of standing crops. Tea production recovered to about 23 000 tons, compared with the war-damaged harvest of 9 000 tons in 1971.

Also in Indonesia dry-season rice and maize crops were substantially lower, mainly because of wide-spread drought in all major agricultural areas, insufficient supplies of fertilizer and outbreak of disease. Paddy production was estimated at about 19.5 million tons (against a target of 20.3 million tons), but the final output may be even lower. The national programme to attain self-sufficiency by 1974 therefore suffered a setback, following three years of growth which exceeded the figures anticipated under the current plan. Although reserves held by the official rice agency were near target levels at the beginning of the season, by the end of 1972 prices had doubled, leading to a substantial rise in the general cost of living. Imports of about 1.2 million tons were scheduled to relieve the tight situation until the harvest of the main crop in the second quarter of 1973. More favourable results were obtained with the major export crops, however. Rubber output expanded by about 4 percent, palm oil and palm oil products exceeded the previous year's level, but tea production decreased slightly.

Among other countries where food production declined, in Nepal, because of exceptionally low rainfall in the main paddy-producing areas, both area planted and yields were lower. Normally a net exporter, Nepal needed imports to meet domestic requirements. The World Food Programme supplied 6 700 tons of maize on an emergency basis while bilateral aid was extended by several developed countries. In the Khmer Republic, war caused half the rice-producing area to remain unused and paddy production fell to 1.9 million tons. Prospects for the 1972/73 crop indicated a further drop to 1 million tons, about one fourth the output in 1970. Formerly a rice-exporting country, the Khmer Republic also required assistance to meet the shortfall. In the Republic of Korea, too, rice production was lower. Following record imports of more than 1 million tons in 1971, 565 000 tons were imported in 1972. The country's tobacco output again increased notably, by almost 50 percent, partly as a result of larger planted area following sharply increased prices to farmers.

In the Philippines cereal crops were estimated to be 2-3 percent lower, due to the floods in central Luzon in July and August 1972 and drought in the southern regions. Because of the damage to the rice crop, also affected by tungro disease, imports of 800 000 tons were authorized, and shipments of rice as food aid were received during the last quarter of 1972. Sugar production declined, but some recovery was expected during the 1972/73 season. The production of copra, which accounts for more than 15 percent of the value of agricultural exports, increased substantially. Agricultural output in Sri Lanka, which fell in 1971, was further reduced in 1972, partly because of unfavourable weather. Rice production fell by 6 percent, and temporary shortages occurred because of delays in arrivals of imported supplies. Tea production was lower, and rubber output fell slightly. Production of rice in Thailand, the largest exporter of the region, was affected by floods and drought. Estimates of the 1972/73 paddy crop indicated a drop of about 14 percent to some 12 million tons, as a result of lower yields and a reduction in area of 2 percent. Because of the very dry weather there was a fall of as much as 43 percent in the maize crop. On the other hand, production of kenaf rose as cotton and maize farmers adversely affected by drought increased planting by about 15 percent, and sugar output expanded further as area under this crop was also sharply extended. In Burma, the second rice exporter, adverse weather reduced the late 1972 paddy crop by 8 percent to 7.6 million tons. Partly reflecting this reduction, a temporary ban was placed on rice exports from March 1973. Paddy accounts for about three quarters of total crop production and also for three quarters of agri-

cultural exports. To avoid this dependence, crop diversification is being encouraged.

Only a few countries in the region recorded higher food production. In Malaysia rice output increased further as a result of extended planting and better yields, and the country achieved its 1975 target of 90 percent self-sufficiency. Production of rubber remained about the same as the previous year's record. A diversification programme plans to reduce current dependence on rubber for more than 70 percent of the value of agricultural exports. The production of palm oil, which now accounts for more than 10 percent of the value of exports compared with only about 3 percent 10 years ago, continued to expand rapidly by about 20 percent, principally due to an increase in bearing tree acreage but also to improved yields. In Pakistan, the rice crop was about 1 percent less than in 1971. Wheat production recovered although it remained below the 1970 level. Cotton production was maintained at a high level, but sugarcane output declined because of the diversion of area to other crops.

Development plans and policies

While an average annual expansion of 4 percent in agricultural output is envisaged in the international development strategy for the Second Development Decade, many countries in the region are aiming at a relatively higher increase during the first half of the decade, as is evident from the targets set in their national development plans.[23] While Malaysia has set a high agricultural growth rate of 8.3 percent per year, Thailand has set 5.1 percent, Sri Lanka 4.9 percent and the Republic of Korea 4.4 percent. Burma, on the other hand, has set a relatively modest target of 3.8 percent.

Apart from the adverse weather conditions which lowered agricultural output in a number of countries in 1972, some basic factors have been responsible for failure to achieve national targets. Investments have frequently failed to match plan allocations. Thus, in Sri Lanka there was a sharp fall in public investment in 1971 by about 33 percent, due to delays in Government reorganization, while in Burma the lag in investment has been ascribed to the variance between the administrative structure and the structure of the plan, and the inability of implementation committees to coordinate the efforts of individual agencies. Among external factors the decline in export earnings has had an impact on the volume of investments. The prices of many of the important commodities produced in the region, rice, rubber, tea, jute, and so on, have declined so much that export earnings have not increased in proportion to the increase in export volume. Import expenditures, on the other hand, have risen more rapidly than export earnings as a result of growing requirements and higher prices, adversely affecting the balance of payments and foreign exchange reserves in many countries. This has taken place at a time when the net flow of foreign aid (net after deducting debt servicing payments) has been diminishing.

The shortage of the managerial and technical personnel necessary for programme implementation is another common factor. In Malaysia the programme of land development has lagged behind schedule due to a lack of trained personnel, especially for management. A similar situation in Burma has been one of the factors responsible for the wide gap between plan target and achievement.

Objectives to provide more jobs and reduce the inequality of incomes are embodied in some of the national plans, such as those of Malaysia and Sri Lanka. The land development programme in Malaysia continues to provide an important source of employment, while reform of the economically depressed rural areas is based on providing more equitable access to production resources and a more even distribution of incomes. Public sector expenditure has been accelerated to achieve these socio-economic objectives of the second Malaysian plan. In Sri Lanka, local employment programmes such as restoration of minor irrigation projects are being undertaken, while other labour-intensive projects are to be planned and implemented through divisional development councils. A limit of 50 acres (20 hectares) has been imposed on landholdings and land in excess of this is being redistributed to smallholders.

Modifications of current plans

A two-year regional development programme (1972/73-1973/74) has been initiated in Nepal's current five-year plan to further the development of the hill zones where nearly two thirds of the population live. Four economic zones in the hills have been chosen for concentrating the allocation of resources. In addition, four north-south axes or corridors will serve as links to the Terai plains, the granary of Nepal, in order to accelerate commercial exchange between the hill zones and the Terai. A national food consumption survey is being organized to provide a basis for including food and nutrition policies in national development plans.

The fourth five-year plan (1970-75) of Pakistan and the long-term perspective plan (1965-85) have become partly out of date due to the developments which led to the separation of Bangladesh. An an-

[23] Main features of current development plans in the Far East are given in Annex table 12.

nual plan (1972/73) was formulated to bridge the gap between the fourth and the new fifth plan, which is likely to be finalized in 1974. The broad objectives of the annual plan include the revival of economic activity by reversing the declining ratio of investment to GDP. A massive attack on unemployment, especially rural unemployment, is planned through an extensive people's work programme, and the promotion of agriculture and agro-based industries. The plan also draws attention to bottlenecks in such areas as power, water, and fertilizer procurement and distribution. Emphasis on price stability, bridging the protein gap, public health, education and social justice are other important aspects. The total expenditure of the plan is Rs.7 350 million, Rs.4 150 million in the public sector and Rs.3 200 million in the private sector. Of the public sector outlay Rs.385 million are allocated to agriculture; the allocation of Rs.1 143 million to water and power and Rs.824 million to the Tarbela dam will also benefit agriculture.

In the Philippines a new economic body has been established, the National Economic Development Authority, consolidating the National Economic Council, the Presidential Economic Staff and the Office of Economic Coordination, to ensure better utilization of public resources and increased efficiency. The Tariff Commission, development authorities and government-owned or controlled corporations and agencies have been placed under the direct administrative supervision of this new body.

NEW PLANS

New development plans have been formulated in Bangladesh and the Republic of Viet-Nam, while India has outlined the objectives of its fifth plan.

The basic objectives of the first five-year plan of Bangladesh (1973/74-1977/78) are self-sufficiency in the production of foodgrains, particularly rice, and creation of employment opportunities for the rural unemployed and underemployed. Food production in Bangladesh has not been keeping pace with population growth and rising incomes. While rice production grew by about 2 percent per year in the 1960s, food demand increased by 3.4 percent. As a result there has been a steady increase in food imports, from 0.7 million tons in 1960/61 to 1.5 million tons in 1969/70. The attainment of self-sufficiency in foodgrains will not only end dependence on imports but also make it unnecessary to rely on substantial increases in exports of jute and tea to pay for food imports. Moreover, foodgrain production promises high and quick returns on capital and is expected to create employment. The strategy for attaining self-sufficiency in rice production involves extending plantings of high-yielding varieties to areas under controlled irrigation (it is envisaged that about 2.5 million hectares will thus be under high-yielding varieties) and to 1.2 million hectares of rainfed land to attain a production level of about 15.2 million tons by the last year of the plan against a base (1969/70) figure of 11.3 million tons. This target is dependent on the provision of a package of services and inputs which have to be taken to the farmer through a strengthened extension service.

The creation of employment is also a pressing need. Bangladesh's labour force is rapidly increasing (3.3 percent per year) and the country has a high population density. Moreover, 85 percent of the labour force is in agriculture. The plan aims to halve unemployment and underemployment in agriculture from the present 30 percent to about 15 percent by the end of the plan period, mainly through the crop sector which is expected to grow by 36 percent, the widespread use of labour-intensive techniques, and the rural works programme.

The four-year national economic development plan of the Republic of Viet-Nam (1972-75) is based on a long-term strategy aimed at transforming the economy from its current state of disequilibrium and underdevelopment. The objectives are economic stabilization, export expansion, increased employment and improvement of living standards. Given the present state of the economy after the long war, these objectives are appropriate.

GNP is to grow annually by 6.3 percent, agriculture by 9.7 percent, industry by 11.7 percent and services by 3.3 percent. Employment figures are to be increased from about 7.2 million in 1971 to 9 million by 1975. Labour mobility between regions will be encouraged to relieve population pressure in densely populated areas, and displaced farmers assisted to return to abandoned lands. Foreign assistance is expected to continue its important role; however, as a proportion of GNP it is to be reduced slightly from 6.6 to 6.3 percent. Regional development has also been underlined in the plan.

Agricultural development has been given the highest priority in an effort to attain self-sufficiency in food, provide raw materials for industry and expand exports. For import substitution, emphasis has been placed on increasing the output of rice, livestock products and sugarcane. Rice production is to grow from 6.7 million tons in 1971 to 7.6 million tons in 1975, an increase of about 13 percent, by the planting of high-yielding varieties combined with water control programmes. Livestock production is to increase by about 58 percent to replace meat and livestock imports. Starting from a very low base, substantial increases in sorghum and maize crops, mainly for livestock feed, have also been planned. Growth in sugarcane production, from 800 000 tons in 1972 to 1.3 million tons in 1975, is aimed at satisfy-

ing part of the domestic demand. For expansion of exports, the plan concentrates on rubber, bananas, fisheries and forestry. Rubber plantations are to be rehabilitated, and production is to increase from 50 000 tons in 1972 to 70 000 tons in 1975 and exports from 45 000 tons to 62 000 tons. Banana shipments will rise from about 35 000 tons in 1972 to 214 000 tons in 1975. Fisheries production will be increased rapidly to satisfy growing domestic demand and provide an exportable surplus of about 270 000 tons in 1975. By systematic development of forestry resources the country is expected to have a potential export of 915 000 cubic metres of timber in 1975. To support the development programme it is proposed to expand farm credit substantially through the Agricultural Development Bank and to strengthen agricultural extension. The contribution of the agricultural sector to GNP is to increase from 30 percent in 1971 to about 34 percent in 1975.

The two basic objectives of India's fifth five-year plan (1974/75-1978/79) will be the elimination of poverty and the attainment of economic self-sufficiency. It is recognized that poverty is too big and complex a problem to be overcome within the span of a single five-year plan; however, definite steps are to be taken during the fifth plan toward this goal. Poverty has been defined in terms of a minimum level of consumption. Private consumption expenditure of Rs.20 per caput per month at 1960/61 prices or Rs.40 per caput per month at October 1972 prices has been deemed a desirable standard. For a successful attack on mass poverty, both economic growth and reduction in inequality are considered indispensable. A 5.5 percent rate of growth in GDP has been established as the appropriate growth rate for the economy, against the 5.6 percent envisaged in the fourth plan. For reduction in inequality, it is recognized that fiscal measures for redistribution of income cannot by themselves make a significant impact on the problem. It has to be supplemented by a policy of mass employment and greater availability of goods and services for mass consumption. A national programme for minimum needs in respect of education, health, nutrition, drinking water, housing, communications and electricity has been outlined. A 7 percent annual rate of growth of exports and of import substitution compatible with growth of basic industries has been envisaged, for attaining self-sufficiency in the sense of reducing net aid (net of debt servicing) to zero. Annual average growth rates of 4 percent for agriculture (5 percent in the fourth plan) and 8.1 percent for mining and manufacturing have been laid down. The production of foodgrains is to increase from 115 million tons in 1973/74 (base year) to 139.9 million tons, a rise of 4 percent annually. Livestock and fisheries production is to grow at a rate of 5.8 percent per year.

A total investment outlay of about Rs.512 000 million has been fixed for the fifth plan. The distribution between the public and private sectors is in the ratio of 66:34, and 19.7 percent has been allocated to agriculture compared with 20.7 percent in the fourth plan. Successive plans have shown growing concern over regional imbalances in development. The fifth plan proposes to identify backward areas and formulate integrated development programmes according to their resources, giving high priority to the creation and expansion of infrastructure, including irrigation, communications, credit, marketing, electricity, education, health and administration.

The small farm

The small farm in Asia has often been associated with the backwardness of traditional agriculture. Contrary to the causality often implied the small farm is itself a result of the same cause, that is, the scarcity of land and capital in relation to labour. It is society's response to an economic situation of resource scarcity. Recent studies of the small farm confirm that it is as well managed, within its resource limitations, as large farms.[24]

The poverty of agriculture in general and of the small farm in particular cannot be remedied by a reshuffling of existing resources into a different farm structure. The need is not for a larger farm structure but for more resources. The debate about farm size is really not relevant to the main issue in that sense. It is relevant, however, to the most economic use of existing resources. Given this situation, the guiding criteria and objectives for an agricultural development strategy should be a more labour-intensive and more productive agriculture with the widest income distribution and employment effects. These objectives can possibly best be met in the short term (say the next 15 years) by the small farm, allowing that private enterprise is the accepted philosophy.

A definition of the small farm is necessary in any discussion of the problem. Surface area is obviously not an ideal measure, since there is a great difference between 5 hectares of arid land and 5 hectares of fertile irrigable land capable of multicropping. Gross output or gross inputs have often been considered more relevant measures of farm size. It suffices here to make a distinction between the *size* of the farm, that is, the area of the operational holding, as opposed to the *scale* of the farm measured by value of gross

[24] See for example Pan A. Yotopoulos, On the efficiency of resource utilization in subsistence agriculture, *Food Research Institute Studies*, 8(2), 1968, Stanford University.

TABLE 2-16. – FAR EAST: AVERAGE SIZE OF AGRICULTURAL HOLDINGS AND NUMBER OF PERSONS ECONOMICALLY ACTIVE IN AGRICULTURE IN SELECTED COUNTRIES, 1963-67

	Average size of holding	Persons economically active in agriculture, per holding	Agricultural GDP per caput of population economically active in agriculture [1]	Index of agricultural performance [2]
	Hectares		*U.S. dollars*	
Indonesia	1.1	2.1	118	122
Japan	1.2	2.1	337	151
Sri Lanka	1.6	1.7	261	118
Korea, Republic of	2.1	2.5	171	142
India	2.5	3.0	116	104
Thailand	3.5	3.9	145	120
Philippines	3.6	4.0	156	121

SOURCE: Edward F. Szczepanik, *Agricultural policies at different levels of development*. Draft prepared for publication by FAO in 1973.

[1] Value adjusted regionally in terms of relative wheat prices. – [2] Synthetic index of agricultural performance based on factor productivity, growth, and stability. Performance is highest in Japan and lowest in India.

inputs or resultant gross output. The size of the farm is taken as the basis for the following discussion in order to adopt a standard in terms of the data available.

Some indication of the nature and magnitude of the small farm problem, and the best indicator of the pressures that create it, namely the ratio of persons economically active in agriculture in relation to arable land, are given in Table 2-16. It shows that the average size of holdings varies from just above 1 hectare in Indonesia to 3.6 hectares in the Philippines. In countries with large enclaves of plantations such as Indonesia and Sri Lanka, figures of average farm size conceal the fact that most holdings outside the plantations/perennial crops sector have only 1 hectare or less. Moreover, if things are left to follow their own course, small farms in the region will increase because of relentless pressure from population. An increase in the region's agricultural labour force of some 48 million persons is already projected between 1970 and 1985. Faced with this particular situation, planners have recommended and indeed many governments have already acted to increase the number of small farms through land reform and settlement programmes.

ECONOMICS OF THE SMALL FARM

Farm management data from most countries in the region during the period 1945-65 have almost consistently shown an inverse correlation between the size of farms and yields.[25] This is not surprising, since given a larger holding and the lack of capital or improved technology to exploit its advantages, yields per hectare depend mainly on the intensity of labour input. The small farm's greater land productivity is also reflected in higher levels of cropping intensity as shown by multiple-cropping indices in Japan, the Philippines and India. This situation would change if new capital inputs not now available to the small farmer, or new technologies which were highly responsive to scale, became available. Fortunately, the new technology of high-yielding varieties is roughly scale-neutral, requiring larger working capital inputs and greatly increased labour inputs. Small farms, in fact, have equalled if not surpassed the yields of the improved varieties on large holdings in many parts of India, Indonesia and Sri Lanka, where adequate inputs (irrigation, credit) and institutional services have been made available. Moreover, the shorter growing season of the high-yielding varieties makes it possible for the small farm to increase its possibilities of multicropping.

Labour productivity is usually much lower on small farms than on larger farms. Higher labour productivity is indeed an important economic and social goal, since it affects the income and welfare of the farmer and his workers. But labour productivity is a function of the combination of labour with other resources, and where there is more arable land and/or more capital per worker, output is likely to be higher per man. It is precisely the shortage of land and capital and conversely the relative abundance of labour that make it impractical for several decades ahead to expand the large-farm structure in the Far East.

Large farms with higher labour productivity, although often more profitable, use large quantities of scarce resources of land, capital and foreign exchange. They may not be the most economic or profitable if inputs are priced at their true cost to the nation and not at the distorted prices favouring capital-intensive large farms in many countries of the region today. In addition, the large farmer generally operates only up to his margin of profitability, using more labour to the point where its marginal productivity roughly equals the average wage. The small farmer, on the other hand, will go on beyond this point, using more of his labour (and that of his underemployed family) with a view to increasing his total income. In aggregate terms, this results in more production than would otherwise have taken place, using labour which would not otherwise have been used. The ultimate criterion

[25] This is confirmed by studies in many countries of the region. In India, the farm management studies made over a period of time in several parts of the country have repeatedly confirmed this finding, the statistical validity of which has been recently reconfirmed by an analysis of the detailed farm management data.

of economic efficiency is not so much increased labour productivity (although this is an important goal) as increased productivity of the scarce factors, achieved through increased inputs of labour — a criterion met by the small farms. Table 2-16 includes, for selected countries, indices designed to measure the productivity of all factors and gives an indication of agricultural performance. High-yielding varieties are fortunately providing a means of increasing labour productivity while increasing land and capital productivity.[26]

Small farms tend to use less capital per hectare and per unit of output in a context of capital scarcity. The seed-fertilizer revolution and multiple-cropping (lines of progress in Asia for at least the next 15 years) have given them a chance of increasing their capital productivity in relation to larger farms.[27]

Weaknesses of small farms

There is no doubt, however, that a small farm suffers from several weaknesses. Its main shortcoming stems from its inability to undertake the risks and finance of the more costly new technology of high-yielding varieties and perennial crops. This has caused a definite lag in the rate of adoption of the new varieties by small farms (compared with large farms) except where other things, such as access to irrigation, credit, working capital and inputs, are equal. And these are not usually equal.

The chief factor underlying the low risk-taking capacity and ability of the small farmer lies in the poor availability of credit and its assurance. Credit is necessary not only to finance the new inputs but to provide him with the assurance (against starvation in case of crop failure) to do so. Assured water supplies are another security needed for increased returns under the high-yielding varieties. Where this has been forthcoming from public sources the small farms' performance has surpassed that of the big farms, but not where tube wells and pump irrigation have had to come from private investment beyond the small farmer's financial and utilization capacity. Small farms are also handicapped by a lack of incentives, such as defective tenurial systems which discourage investment and production, and inadequate marketing facilities. The relationship between prices paid and received is often very unfavourable, especially when compared with the treatment received by the large farmers.

The small farmers also suffer from lack of easy access to other agricultural services, which are often either inadequate or inappropriate to his situation. This applies to agricultural extension, education, credit, marketing and processing.

Another problem is that technology available to small farmers is often designed for the larger farms well endowed with capital. It is not necessarily best suited to the needs and capacities of the small farms of the Far East. Slow response to more advanced economic and technological possibilities does not stem necessarily from the small farm size *per se*, but from the type of technology offered to it and the inappropriate institutional framework within which it operates.

Nevertheless, the small farm is heir to certain serious disabilities which spring directly from its size. Despite its high yields per hectare, a farm of a quarter hectare, common in many countries in the region, provides a gross income which is not enough to provide even a minimum standard of living to the farmer's family. This is primarily a social criterion relevant to the welfare of the family and not to the economic efficiency of the farm. But it does ultimately have important economic consequences; it compounds all the difficulties relating to its risk-bearing ability. This unit has little or no marketable surplus and little if any savings for investing elsewhere.

Implications for development policy

This brief analysis of the small farm problem has definite implications for agricultural policy. First, the small farms are there, they cannot be wished away. Nor is it any longer socially or politically practicable (even if considered desirable economically) to bypass them through a growth strategy which favours large farms. Second, the premise of past development policies which assumed that a faster rate of growth for the economy as a whole would be possible through larger farms is itself questionable, considering that roughly 70 percent of the total cultivated area of the region is in holdings of less than 10 hectares.[28] Growth on a base of 70 percent of the land presently in smallholdings will provide a greater potential for expansion than a rate twice as high

[26] Thus in Japan, in the period 1954-61, labour productivity accelerated to over 5 percent per year despite a decrease in the size of farms, while more recently in the Philippines labour productivity has increased sharply since the advent of high-yielding varieties.

[27] Thus a farm management survey in Japan in 1925 showed that at a period of comparable yields in Japanese agriculture (1910-1920) investments in farm implements and machinery constituted only 3 percent of total farm investment, while per hectare yields and labour productivity rose by over 50 percent on farms of about 1.5 hectares in size. Bruce F. Johnston. Agricultural productivity and economic development in Japan, *Journal of Political Economy*. 59:500, 1950. Data from the Philippines also show a rise in the average annual rate of increase in capital productivity by more than six times between the periods 1954-56 to 1957-59 and 1957-59 to 1966-68, respectively. Cristina M. Crisostomo *et al.*, The new rice technology and labour absorption in Philippines agriculture. *Malayan Economic Review*. 16(2):120, Table 1. 1972.

[28] Such a regional figure is misleading. It conceals the fact that in the agriculturally more advanced countries such as Japan and the Republic of Korea, 90 percent of all agricultural land is in holdings less than 3 hectares in extent, while the figures for the dualistic agrarian economies are biased upward by the plantation enclaves.

on a large farm base of only 30 percent of the cultivated land. Third, given the labour pressures confronting Asian economies in general and agriculture in particular, the ideal farm structure would be that which maximizes labour absorption in productive employment. Smaller rather than larger farms are better for this. Fourth, the importance of income distribution to generate a higher and sustained level of production, through both increased demand and a new pattern of demand, is now gaining increasing recognition. Growth through small rather than through large farms will tend to have these desired effects since the production base (area and numbers involved) will determine to a large extent the distribution of the product.

Implications for policy become clear. It may be necessary for many countries to increase the number of small farms as a means of intensifying production and absorbing labour.[29] Land reform programmes which involve increases in numbers of small farms are in fact being carried out in India, Pakistan, the Republic of Viet-Nam, Sri Lanka, Nepal and the Philippines, while land development and settlement schemes in Malaysia, Indonesia and Thailand seek to do the same. Most of these programmes are also concerned to avoid a reduction in farm size below a certain minimum "economic" unit — although the concepts, criteria and size of an "economic" holding vary from country to country.

Then, if it is accepted that many of the limitations to the development of small farms lie in the institutional and service structure within which they operate, government intervention to alter this framework is imperative. This usually reflects the social, economic and political power structure, and for this reason changes are not easy to make, particularly agrarian reform. Programmes of tenurial reform are on the statute books of almost all countries in the region but few have yet been effectively implemented.

Many of the problems of smallholdings stem from unsuitable organization or inadequate provision of agricultural services. Governments have sought to provide credit through cooperatives, as, for instance, in the Republic of Korea, India, Pakistan and Sri Lanka, or through farmers' associations as in Malaysia and the Philippines. Where the cooperatives have failed, a recent tendency has been to bring commercial and agricultural banks into smallholder credit schemes (India, Pakistan, the Philippines, Sri Lanka, Malaysia, etc.). However, these have mainly benefited the large and medium farmer. Moreover, no more than 10 to 20 percent of the agricultural credit needed in the developing countries is met from institutional sources and the small farmer continues to get a proportionately lower share of this. The advantages of tying credit to marketing and/or tying credit to extension (via farm plans) are well known. Supervised credit programmes which provide such linkages, as yet on a limited scale, are in operation in parts of India, Pakistan, Malaysia and the Philippines, usually through the rural banking system.

Special arrangements for the marketing and processing of smallholder production have been attempted in Malaysia and Sri Lanka for food crops, rubber and tea, and for sugar milling in India and the Philippines.

With regard to changes in agricultural extension, there is, first, a shortage of personnel. There are also weaknesses in the extension approach. For instance, a method of face-to-face extension applicable to a developed country, where one extension worker covering 2 000 hectares would have to deal with only 20 to 40 farmers, can hardly be expected to show results in countries where there would be 2 000 farmers on 2 000 hectares. Other forms of group extension through farmers' organizations or other means are needed. Interesting experiments in this connexion have been tried in Bangladesh and Sri Lanka. Likewise, the accepted importance of links between research and extension is overshadowed in the small farm situation by the need for more effective linkages between extension advice and the means to apply it, through supplies of credit, inputs, and so on. This has obvious lessons for agricultural organization and also for the training and deployment of staff. A pyramidal structure is required with a broad base of farm- and middle-level technicians rather than an inverted pyramid with proportionately fewer workers at field level and relatively large numbers of highly qualified specialists at the top.

These institutional and service requirements of the small farmer need to be perceived and provided for in an integrated manner, in respect of every stage of production. The Small Farmers' Development Agency in India was established with this end in view.

A crucial test of the small-farm economy for the future lies in its capacity to adopt new technology. It appears necessary to provide a technology to suit the factor proportions and farm structure of the Far East, rather than vice versa. It would also seem both economically and socially desirable to introduce such technology through a process of "progressive gradualism" so that it is assimilable on the broadest base possible (which often promotes faster growth and wider income distribution), rather than introduce a capital-intensive sophisticated technology for large farms which patently cannot be adopted on

[29] As recommended in the Interagency Employment Team Report to Sri Lanka: *Matching employment opportunities and expectations: a programme of action for Ceylon*. Geneva, International Labour Office, 1971.

the small farms that cover a greater part of the cultivated area. A lower cost technology (for example, improved varieties showing higher response to lower levels of fertilizer application and greater resistance to disease) is required to encourage the widest adoption of production improvement techniques while providing the psychological climate for the acceptance of more demanding technologies as a next stage.

Even where the technology is more capital-intensive it should still be selected for its land-augmenting possibilities and capability of adoption within the small-farm structure — as in the case of micro-mechanization earlier in Japan and in many other parts of the region today. On the other hand, where there are definite economic advantages in utilizing a "lumpy" capital input (such as a large tractor or tube well) which cannot be adapted to fit the small farm, institutional adaptation may be necessary to suit the technology — so as to exploit any potential economies of scale. This has been done in many countries through cooperative use of tractors, tractor pools, custom-hiring and similar arrangements for pump irrigation. The logical direction is thus toward cooperative farming or collective organization of production, an important subject in itself. It is therefore necessary to survey the whole range of technological and institutional possibilities for adapting a technology to suit the small farm before condemning it for its inability to adopt an inappropriate technology.

The implications for policy stemming from the above consideration would be to maximize the *economic* size of farms (as measured by gross output) and not necessarily the *physical* size, as the only realistic means of increasing labour productivity in the face of mounting pressures and demands on scarce resources. If obstacles to doing so stem from the fact that prices, institutions, services and technology are often weighted against the small farm, these need to be changed. This may involve various forms of vertical organization which tie up different stages of production, marketing and processing (for example, the sugarcane cooperatives in India and private tobacco companies in many countries, which provide all services through most stages of production and processing), as well as various forms of horizontal organization involving the grouping of a number of farms for certain operations.

The strong point of the small-farm structure is that it makes the most intensive use of labour within the farm. But it can obviously absorb additional labour only *within* the farm. Employment off the farm (especially the nonviable farm) has occurred through the emergence of part-time farming in many countries of the region, notably Japan. It provides a bridge during the transition to industrialization. The further absorption demanded by the projected growth of the agricultural labour force has to be found within such a context (in the absence of employment in other sectors) through other approaches, such as community development, rural works programmes, and so on. The small farm is thus not the complete nor the only response to the problems of land and capital scarcity and unemployment. The communes in China, based on a different socioeconomic philosophy, motivation and organization, but with similar constraints, have made effective use of their resources — mainly labour — to tackle not only the problems of productivity and labour absorption on the farm, but also to harness labour for off-farm infrastructural and economic development. The relevant question, therefore, is not one of size, but of mobilizing the only abundant resource (labour) in a situation of other resource scarcity. In the context of private property and decision-making and the prevailing technology the small farm has been able to do this best. A primary task of agricultural development strategy in most countries of the region, given the existing sociopolitical systems, should be to exploit the small farm to its full potential in the light of the new technology, with such institutional adaptation as may be necessary to do so.

Regional economic cooperation

Countries in Asia and the Far East are becoming more aware of the need to cooperate and develop programmes for solving their common problems of production, marketing and research. At the conclusion of a six-day intergovernmental consultation on regional cooperation in the pepper industry, held under the auspices of the Economic Commission for Asia and the Far East (ECAFE), the inauguration and first session of the Pepper Community were held in Bangkok on 31 August and 1 September 1972. In addition to the representatives of the member countries of India, Indonesia and Malaysia, representatives of the Khmer Republic and Sri Lanka attended as observers.

The main objectives of the Community spring from the member countries' willingness to pool resources for solving problems of sporadic price fluctuations, stockpiling and speculative action in importing countries, obstructive tariffs and nonfiscal barriers, inadequate data, and various production difficulties such as low yields and plant diseases. Among other decisions it was agreed to establish a pepper research and development centre in one of the major producing countries, preferably with international agency assistance. The offer by ECAFE to provide secretarial assistance pending the establishment of the Community's secretariat was approved and other offers

of technical cooperation by the United Nations Industrial Development Organization (UNIDO), ECAFE's Trade Promotion Centre and FAO were acknowledged with appreciation. The UNIDO secretariat in Vienna was called upon to draw up a detailed project report on the proposal to set up a research and development centre.

Under ECAFE auspices intergovernmental consultations were held in Bangkok early in January 1973 to consider the establishment of a proposed Asian Timber Community with representation covering the main exporting and importing countries of the region. The need for developing effective regional cooperation in this field was recognized and accepted in principle but agreement to establish the proposed Community on the fully representational basis outlined in ECAFE submissions could not be reached. Instead it was agreed that the four main log-producing countries of the region (Malaysia, Indonesia, the Philippines and Thailand) should begin intergovernmental consultations among themselves in the near future to identify common fundamental problems as a first step toward the regional cooperation envisaged.

Proposals for the establishment of an Asian Rice Trade Fund were discussed at a meeting held in Bangkok in March 1973, at intergovernmental level. Representatives of nine Asian countries attended and the text of a draft agreement as finalized by the meeting was approved by delegates from the Khmer Republic, the Philippines, Sri Lanka and Thailand, who agreed to submit the draft to their respective governments for urgent consideration and approval. The draft agreement envisaged the establishment of a fund of US$50 million to be secured initially from developed countries and international financial institutions through grants and/or loans on concessional terms. The Fund would provide refinancing facilities to cover government-to-government rice sales involving deferred payments, thereby facilitating intraregional trade among developing ECAFE member countries.

CHINA

China's grain production,[30] which is the key sector of agriculture, fell from the record level of 250 million tons in 1971 (revised upward from an early figure of 246 million tons) to 240 million tons, a drop of 4 percent. The year was the driest in the north of the country since 1921 and natural disasters at the national level were among the worst for many years. Nevertheless existing water storage and conservation facilities helped to resist the impact of this drought. Although water conservation in many places is still not sufficiently developed, an estimated 78 percent of crop land is now irrigated compared with only 16 percent in 1952.

Diversification to crops other than rice and wheat is now officially encouraged. Indeed the success of industrial and cash crops in 1972 partly made up for ground lost through the drop in grain production. Official statistics of individual grain crops are not published. According to FAO estimates,[31] production of rice fell by about 5 percent from 106 million to 101 million tons. There were slight decreases in output of barley (to 18.5 million tons), maize (to 28.5 million tons) and millet and sorghum (to 22 million tons). Potato production is estimated to have fallen by 11 percent (8 million tons in grain equivalent), sweet potatoes by 7 percent (5 million tons in grain equivalent) and cotton by 14 percent (to 1.4 million tons). Oilseeds were also slightly down. Wheat production, however, increased by 6 percent to 34.5 million tons, and sugar output (cane and beet) rose slightly. Production of pigs and other livestock showed only small increases.

Although China purchased an estimated 5 million tons of wheat in 1972 (from Canada, France, Australia and the United States) compared with 4.5 million tons in the previous year and 5 million tons in 1970, known rice exports, at 960 000 tons, were higher than in 1971.[32]

An outstanding feature of the 1972 drought was the relative stability of food supplies. Several factors are responsible for this achievement. Historically, China's food supply has been governed by massive movements of foodgrains from south to north. In 1965 Chairman Mao called on all people's communes in the north to "pass the Yangtse river" — that is, to reach the harvest levels of the more productive communes in southern China either by preparing for two harvests a year or raising yields to such a level that a single harvest would bring the same amount of produce as the two harvests in the south. By 1971 such traditional deficit areas as Honan, Shantung, Hopei and Shansi had become self-sufficient. Several entire provinces in the north had "passed the Yangtse river" en bloc, Liaoning, for example. This brought vast relief to the transport system. Another factor is that great importance is attached to the building up of adequate buffer and emergency stocks. Each commune has this responsibility. The national grain reserve is offi-

[30] Including grain equivalent of potatoes and pulses.

[31] These unofficial estimates are based on the historical grain composition of China's total cereal production, adjusted for weather conditions in different producing areas of the country from year to year. They should be regarded as indicators only, which would need to be replaced as soon as official data are made available.

[32] Official Chinese sources have indicated that total rice exports were much higher, about 3.5 million tons; this means that large quantities are probably shipped to importing countries for which data are not available.

cially estimated at over 40 million tons. The Government in its official propaganda has continued to place the main emphasis on the need to store more grain. It appears to be concerned that even with the continued effort in agricultural investment to conserve water, undertake flood protection, and so on, grain production in 1973, still affected by earlier drought, may be low enough to require substantial consumption of stocks. Another effort to help avoid famine has been the immense campaign to persuade peasants to conserve grain and reduce storage losses.

Plans and policies

The basic principle of economic policy in China, as officially stated, is that agriculture is the foundation of the economy although industry is the leading factor. In practical terms this means that China is not using agriculture to subsidize industry. The main elements of the "agriculture first" policy are a tax system which weighs very lightly on the people's communes and quite heavily on industry, and a pricing policy which has gradually raised prices paid to farmers for their produce while keeping retail food prices stable.

Over 90 percent of the central budget, which is used to finance capital development as well as current expenditure, is derived from taxes paid by industry and agriculture and from the surpluses of state and municipally owned factories. But agriculture's share of the burden is less than 4 percent according to the Finance Ministry's figures. Moreover, agricultural taxes have been stabilized in net monetary terms (not percentage terms) since the beginning of the 1960s. There are, of course, other burdens on agriculture besides direct taxation. Each of China's 75 000 communes is assessed for a certain tonnage of grain or other produce, which must be sold to the State at a fixed price. But the system allows a degree of flexibility, since a commune's assessment is generally less than the amount it has for sale after meeting its members' basic needs. The additional surplus can be sold to the State at the "trade price," that is, on more favourable terms than those set for the basic assessment.

The people's commune, created in 1958, is the main instrument of government policy; in brief, it is a system which aims to facilitate political control, develop collective ownership, act as the basic unit for the farmers' education toward a socialist progressive agriculture, prevent class differentiation, serve as the organizational basis for diversifying activities such as small-scale industries, help in unifying and implementing planning, and organize collective efforts of capital construction. Distribution in communes is based on the principle "each according to his effort," although the Five Guarantees are being maintained (enough to eat, decent housing, clothing, daily necessities such as fuel, and a decent burial). The system has undoubtedly enabled China to overcome difficulties caused by its relative lack of capital for major industrial or agricultural infrastructure projects; for the country possesses enormous labour resources which have been used more completely in recent years than before, particularly in the countryside during the slack agricultural seasons.

One major aim of government wage policy is gradually to abolish differentials in income and living standards between rural and urban communities. With the exception of state farms (about 1 500 with some 1.2 million hectares, mainly in border and land reclamation areas) the agricultural sector does not pay wages. Rather, it distributes "residuals," that is, the benefits from collective effort after all expenses have been met and the allocations in the commune's budget have been made. The amount distributed is not simply what is left after these deductions. Allocations are made to the commune's welfare fund and public works fund — the former for schools, clinics, pensions, etc., and the latter for capital equipment (and therefore industrialization), conservation works, and so on. These allocations are determined by the commune assembly; they are not statutory. The communes have wage autonomy and the Government does nothing to prevent a wide income spread in agriculture. On the contrary, it seems to encourage the emergence of income differences as an incentive to less prosperous collectives to emulate the more successful ones. But the communes to be emulated are not necessarily the more prosperous but those which have shown a high level of political consciousness and consequently are making the most rapid progress. Their absolute level of prosperity is not the key issue. Moreover, the weaker communes are encouraged and assisted by more generous grants and loans, for example, and by assistance from neighbouring communes. Industrialization at the commune level is part of the general policy of reducing disparity in rural and urban living standards. It has the effect of absorbing surplus labour in the commune, utilizing waste materials and by-products, checking rural-urban migration and reducing transport costs.

The commune's buying and selling cooperatives handle the collection and delivery of all commune products to the State trading organizations under plan commitments and delivery quotas. Beyond that they have the funds, and now also the sole authorization, to purchase above-quota deliveries from commune production and private sideline activities, and to market them. They are also responsible for purchasing inputs not only for the commune but for individual consumers. The Government views all pri-

vate trading as a potentially grave menace to the socialist character of Chinese agriculture. State trading agencies appear to have been relatively liberal in allotting supplies, credit and managerial personnel to the trading cooperatives in order to strengthen them.

China started its fourth five-year plan in 1971. Major emphasis continues to be given to modernizing farming systems. The various technical aspects include soil levelling to permit optimum use of tractors and other mechanized tools and the continued terracing of hilly areas. The supply of chemical fertilizers, estimated at about 20 million tons in 1971, is gradually being increased until application reaches Japanese levels. Simultaneously, the use of natural fertilizers is being intensified until all communes reach the level of 10 tons per hectare, and the growing of crops for green manure is becoming more general throughout southern China. Water conservation projects and other land improvement schemes continue to receive much attention in order to make China completely immune to the effects of natural calamities. An estimated 25 000 million man-days are used annually in this work during the agricultural slack seasons. Mechanization is being introduced at a faster pace than in the 1960s. There were about 200 000 tractors in 1971 (in terms of 15-horsepower units) and annual output is now estimated at more than 40 000. China started using its first improved varieties of grain in 1956 and is now at the third generation stage. These improved (now called high-yielding) varieties are being introduced to all communes and during the current plan yields are to be increased 10 to 30 percent. Research and development are to be further decentralized so that each province becomes fully self-reliant in the development of new strains and each of the more advanced communes self-sufficient in the production of mother seeds. The stage has been reached where land can be diverted from foodgrain production to industrial crops and other activities. This change is officially encouraged.

The plan involves a big collective effort in afforestation, one of the major labour drives each winter when about 10 million hectares are planted (including areas which have had to be replanted several times due to failure of previous plantings). Various types of forest are being created: for timber products — 600 000 hectares of cedar plantations in Guandong and 200 000 hectares of walnut in Shansi, for example; for shelterbelts and sand breaks — in the old course of the Yellow river a forest belt some 500 kilometres long and 25 kilometres wide has been created and similar schemes have been carried through in the Haiho and Sinkiang basins.

The fourth plan is part of the second long-term programme for agriculture which began in 1968 and extends to 1980. The second programme resumes the main points and chapters of the first but refines the instructions and targets. Rural industrialization, now well on its way, is given the task of achieving basic self-sufficiency not only nation-wide but also regionally, in all basic commodities — consumer goods as well as industrial inputs. Grain stores at the communes have to be increased to an 18-month supply. Pollution appears for the first time as a problem for urgent attention. The second programme is frankly critical of the gaps and shortcomings not dealt with in the first 12-year period. It is instructive to repeat them here. China's agriculture is not moving as fast as the Government desires. The overall levels of production are not yet high enough. In many places development is not balanced and quality often leaves much to be desired. Many farm units are still not fulfilling their targets and, in spite of a great deal of sustained capital construction, China's agriculture is not yet fully protected against natural calamities. There are still threats of drought, waterlogging, floods and pests. The irrigation facilities in hill areas are not yet sufficient. The extent and quality of agricultural training and extension are not yet satisfactory. The Government believes that the second long-term programme must try to remedy all this; an immense effort, especially considering China's climatic structure which makes the country particularly sensitive to meteorological hazards.

JAPAN

The Japanese economy recovered during 1972, with an annual rate of growth in GNP at constant prices of about 10 percent. In contrast to earlier periods when high rates of economic growth were primarily export-based, the 1972 recovery stemmed largely from domestic demand, particularly in residential construction and increased investment by the nonmanufacturing sector and small enterprises. Despite the revaluation of the yen in 1971 and the liberalization of Japan's import measures, the surplus on current account tended to widen. Inflows of speculative capital also added to Japan's holdings of international reserves and contributed to a further revaluation of the yen in February 1973.

The recent downward trend in Japan's total agricultural production was halted in 1972. The rice crop was larger than in 1971 by over 9 percent as favourable growing conditions more than offset a further slight decline in area. However, harvests of wheat, barley, oats and rapeseed were all smaller as the result of further area reductions. Maize production expanded by 16 percent. Sugar produc-

tion was about 9 percent lower. Production of most deciduous fruit increased and that of oranges reached a record level. Vegetable production also continued to expand.

Total livestock production rose in 1972, but the rate of increase slackened for most items. Although beef cattle numbers continued to decline, increased feeding of dairy steers contributed to a small increase in beef production. Pig numbers continued to increase and pigmeat production is estimated to have risen by 5 percent, compared with about 15 percent in 1971. Milk production was again slightly higher, as increased output per cow more than offset a slight decline in numbers. Production of poultry meat rose by about 6 percent in 1972, double the rate of 1971; and egg production was slightly lower.

The government programme to reduce excessively large rice stocks has continued in effect.[33] Surplus disposal measures reduced government-held stocks of old crop rice on 31 October 1972 to 2.6 million tons (milled basis), about half the level of a year earlier. Despite the larger harvest in 1972 it is anticipated that government-held stocks will be further reduced during 1973.

Guidelines for the direction and magnitude of adjustments desired in Japan's agricultural sector during the next decade were adopted by the Government in October 1972. Those guidelines also expressed the intention that Japan's total imports of agricultural commodities will continue to increase, roughly in proportion to the anticipated expansion of domestic consumption. The guidelines consist essentially of domestic production goals for major agricultural commodities in 1982, expressed in terms of both quantity and self-sufficiency ratio. The goals are based on projections of domestic demand and on anticipated improvements in productivity in the agricultural sector, which are expected to result from structural adjustments and the more widespread application of improved production and management technology. They have also taken into account the prospective availability of import supplies and the competitive position of domestic production with respect to these, the role of specific commodities in farm production patterns and the position of agriculture in rural regions, the effective utilization of national resources and the income position of the farm population, conservation of the natural environment, and so on.

The projections of domestic demand for major agricultural commodities are based on anticipated increases in personal consumption expenditures (three alternative levels), changes in the pattern of food consumption, and population growth. With the medium assumption of an 8 percent annual rate of growth in personal consumption expenditures at constant prices, it is estimated that total expenditures for food would increase by 5.3 percent annually and, in 1982, would be almost 90 percent above the 1970 level. On this basis, per caput consumption of meat would double, it would increase by 50 percent for dairy products, by 40 percent for fruit and fats and oils, and by 20 percent for vegetables and sugar. A decrease of about 20 percent is anticipated in per caput consumption of rice, however, and a small decline in that of wheat.

It is foreseen that labour productivity in agriculture in 1982 will average approximately two and a half times the 1970 level. Larger scale production enterprises, further mechanization, increased multiple-cropping, and so on, are to be the principal means for attaining the prospective increase. With respect to resources, it is anticipated that the area of cultivated land will decline to about 5.2 million hectares in 1982 (5.8 million hectares in 1970) as the result of net diversions to industrial, residential and highway sites. The area of permanent grassland is expected to increase sharply, however, as forage requirements expand. It is expected that the agricultural labour force will drop to about 4.3 million in 1982, about half the 1970 level. The number of farms is also expected to decrease, but at a much slower pace than the agricultural labour force. Of those remaining in 1982 it is anticipated that about 60 percent (compared with 51 percent in 1970) will be part-time farms, with the greater part of the family income coming from nonfarm sources. Group farming, with full-time farmers utilizing also resources owned by part-time farmers, is envisaged as an important means for increasing the scale of crop-growing enterprises.

The goals established for 1982 represent an increase in Japan's total agricultural production of almost a third over the 1970 level. Livestock production would be higher by about 90 percent (pigmeat 160 percent, chicken meat 130 percent, beef 90 percent, milk and milk products 77 percent, eggs 30 percent) and would constitute almost a third of Japan's total agricultural output, compared with only a fourth in 1971. In contrast, rice production would be smaller by 15 percent and fall to about only a quarter of total agricultural output, compared with more than a third in 1971. Production would also be higher for sugar (65 percent) and vegetables (40 percent). The area devoted to forage crops and permanent grassland would be increased to provide roughly 60 percent of the total feed requirements for dairy and beef cattle.

The overall self-sufficiency ratio in the 1982 goals is estimated to be 75 percent, approximately the same as in 1970. Moreover, those for individual commod-

[33] See *The state of food and agriculture 1972*, p. 101.

ities are roughly the same as in 1970, except for increases for soybeans and sugar and a decrease for concentrated feedstuffs. Rice is the only commodity for which the 1982 goal is 100 percent self-sufficiency, with, however, no exports. It is expected that rice will continue to be the most important staple food and also the principal crop for the majority of Japanese farmers. The 1982 production goals are designed to continue virtual self-sufficiency in vegetables and eggs and to cover roughly 90 percent of the projected consumption requirements for meat, dairy products and fruit. Self-sufficiency in vegetables is desired because of the difficulties involved in the transport of imports from overseas, and is expected in eggs because of the improvement in productivity anticipated from further enlargement of flocks. It is expected that the self-sufficiency ratio for pigmeat and broilers can be raised by expanding herds and flocks and, in view of the prospective shortage in world markets, the production goal for beef has been increased. Approximately 50 percent self-sufficiency is desired in pulses (including oilseeds other than soybeans), which are considered important for crop rotations in upland farming regions. Among the commodities for which Japan intends to remain chiefly dependent on imports, the self-sufficiency ratios are to continue relatively unchanged for wheat (9 percent) and barley (25 percent). They are to be raised, however, for soybeans (from 5 percent in 1970 to 10 percent in 1982) and for sugar (from 23 to about 27 percent). Soybeans are recommended as a crop substitute for rice in the programme for downward adjustment of the rice area. Production of sugar (beet and cane) is of special importance in some of the remote regions. For concentrated feedstuffs the self-sufficiency ratio is expected to fall from 33 percent in 1970 to 20 percent in 1982.

The balance between demand projections and production goals implies that Japan's total imports of food and feed commodities in 1982 will be almost double the 1970 level. For most commodities it is implied that the volume of imports required will be larger. With the further expansion of livestock production, import requirements for concentrated feedstuffs should be more than double the 1970 level. Fruit imports may also double. Imports are also expected to be larger for soybeans (about 20 percent), sugar (15 percent), and wheat (almost 10 percent).

Near East

DEVELOPING COUNTRIES

As in most other countries in 1972 inflationary pressures increased in the Near East region but economic performance may be considered satisfactory. Most countries had a better economic outlook and some had substantial growth in foreign exchange revenue from oil, agriculture, tourism and workers' remittances. Oil, although not evenly distributed in the region, is the undisputed first among the earners of foreign exchange, and it gained in prominence in 1972. Agriculture, on the other hand, which grew by about 7 percent, forms the base of the region's economy, contributes a fifth or more to the gross domestic product, shares significantly in development budgets, and employs a vast majority of the region's labour force.

During the decade ending with 1972 Iran has experienced rapid economic development, backed by a confident and active private sector and buoyed by ever-increasing revenues from petroleum. In the last year of Iran's fourth development plan, which ended in March 1973, GNP exceeded the target rate for the fourth time, rising about 14.3 percent in constant prices. The economy of Turkey in 1972 was one of mixed fortunes. There was growing confidence in the economy, which despite a bad drought produced a GNP increase of over 7 percent, almost equal to the previous year's level when weather was better. The Syrian Arab Republic has made steady economic advances since 1969 and the net domestic product of its agriculturally based economy is reported to have grown by an average of about 7.5 percent per year. GDP rose 14 percent in 1972, compared with 12 percent in 1971, both measured in constant prices. There have been a number of productive projects completed and work is reported ahead of schedule on the country's major investment, the Euphrates dam project. The country hopes that this project when completed will double national income. In Egypt work has begun on some major industrial projects in the first five-year plan (1973-77) of the ten-year programme of national action. Also, after two years of negotiations, Egypt and the European Economic Community have agreed on an arrangement for preferential trade and tariff reductions. Continued drought in Cyprus has had serious effects on crops and live-

stock and this winter's rainfall was below normal. In the Sudan the year was dominated by problems resulting from the aftermath of the civil conflict, which ended in March 1972. Development programmes are being pushed and, realistically, over 36 percent of expenditures in 1971/72 were marked for the agricultural sector. The Government of the Sudan reached agreement with its troubled southern sector early in 1972 and this was followed by enormous problems of relocation and development to get the stagnant economy of the south moving again. A plan to make the country more self-sufficient in essential products was announced later in 1972.

The economy of the Libyan Arab Republic has been expanding because of steady oil output, and Lebanon's situation has remained favourable because it is a financial centre for oil revenue. At the end of 1972, Lebanon's agricultural trade was helped when traffic could again cross the border of the Syrian Arab Republic and pass through to other Arab countries after many months of closure. Already greatly affected by regional unrest, Jordan suffered from dry weather during 1972 which was prolonged enough to damage winter crops. Saudi Arabia, which suffered a long drought from 1960 to 1967, has used some of its vast oil revenues to assist agriculture — the growth rate of which is now estimated at about 3.9 percent and expected to climb. This contrasts with the economic difficulties in the Yemen Arab Republic and the People's Democratic Republic of Yemen, caused by internal disputes and dry weather, and the near-famine conditions in parts of Afghanistan in the summer of 1972.

Agricultural production

Although not all countries of the region followed the trend, agricultural production in the Near East in 1972 grew by 7 percent over 1971.[34] Cereal production made the most important gains, increasing to 48.3 million tons, or 10 percent over the already good harvest of 1971. For the region as a whole, root crops, citrus fruit and wine were the only major categories which failed to equal or top 1971 levels, and their production was only slightly lower and well offset by increases in other crops.

The region's cereal production included record crops in Iraq, the Libyan Arab Republic and the Syrian Arab Republic, and good crops in Egypt, Iran, Jordan, Lebanon and Saudi Arabia. The weather during the crucial growing periods was a key factor in the region's better agricultural output, and will continue to be so. Turkey's cereal production in 1972 was about 12 percent lower than the previous year, although wheat, while not a record, was above average.

Preliminary figures also indicate that vegetables and legumes exceeded 1971 levels of output, but the cotton crop decreased slightly. There was little or no rainfall in Turkey in December 1972 and January 1973, causing much concern about 1973 production. The lower water levels reduced the supply for irrigation and caused power shortages. The dry spell was broken by normal February and above-average March rains.

Iran's production of cereals was considerably better than in 1971 and the output of most other crops went up. This rise in output greatly reduced Iran's food imports. The poor production of 1971 had made Iran a net importer of grains, in addition to vegetable oils and meat, the two main perennial food imports not yet produced in sufficient quantities even in good years. The variability in Iran's agricultural production is still closely tied to weather conditions as irrigation, although improving output in many areas, cannot supply enough water to counter the effects of drought. The Government has taken a number of steps to stimulate agricultural production, and has given it and rural welfare new prominence in the fifth plan (1973-78).

Unexpectedly good harvests gave the Syrian Arab Republic a record cereal output in 1972, and the cereal organization's finances were strained by the purchase of the wheat crop. But the bumper harvest came at an advantageous time and allowed a profitable export of sizable quantities of wheat for the first time in several years. Most other crops also turned out exceptionally well, far exceeding the best levels in recent years. Cotton increased about 4 percent, sugar beet 17 percent, lentils and groundnuts exceeded these levels, and tobacco production increased sharply.

Iraq, Jordan, Lebanon, the Libyan Arab Republic and Saudi Arabia all had better harvests in 1972. In Egypt, cereal production dropped slightly, but the cotton crop was a record. Also in the Sudan wheat production was less, but total grain output was larger than in 1971.

The region did have several production setbacks from unfavourable weather, which once again demonstrated the vulnerability of the Near East's agriculture to recurring drought. The forthcoming harvests of several countries that did well in 1972 are currently threatened by the dry weather conditions of late 1972 and early 1973. In Afghanistan, the cumulative effects of three years of drought have brought some areas close to famine, and external assistance is needed for even a minimum level of subsistence. This critical situation is not new. For at least 15 of the

[34] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

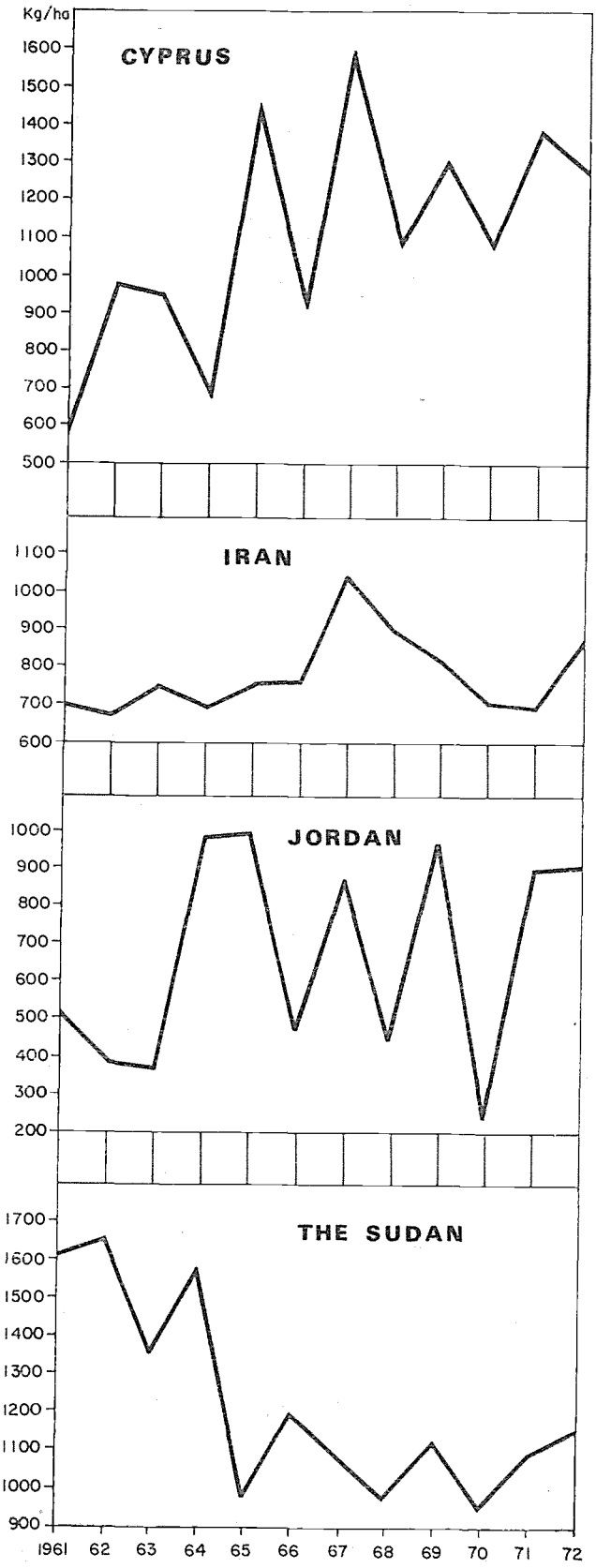
past 20 years large quantities of food have had to be imported and this condition will continue to deter Afghanistan's economic progress unless domestic food production is increased or other resources are discovered.

For the third time in five years the agriculture of Cyprus is stricken by a drought which has worsened between 1972 and 1973. Rains expected in December, January and February never came and this aggravated the effects of the 1972 drought which reduced the wheat crop by about 15 percent and barley by 28 percent. There were similar and larger losses in dryland tree and vine crops and grazing for livestock.

In both the Yemen Arab Republic and the People's Democratic Republic of Yemen, where agriculture is the main economic activity, droughts are long and frequent. In the former country a prolonged dry spell has held production back and since most of the crops are not irrigated but depend on rainfall, food aid has been necessary.

Dry spells and drought harass all the countries in the Near East, but generally not at the same time. Figure 2-1 illustrates variations, principally due to weather, in the wheat yields of four representative countries for a 12-year period beginning in 1961.

FIGURE 2-1. – NEAR EAST: VARIATIONS IN WHEAT YIELDS IN CYPRUS, IRAN, JORDAN AND THE SUDAN, 1961-72



Development plans and policies

A number of countries in the region have launched or are about to launch new development plans, including Afghanistan, Iran, Jordan and Turkey.[35] The plans of several countries, notably Lebanon, Iraq and the Syrian Arab Republic, include food and nutrition policies.

The fourth five-year plan (1973-77) of Afghanistan has been formulated during a period of serious economic difficulty for the country. Great hopes are therefore placed on it for the revival of the economy. The plan tentatively projects annual growth rates of 4.8 percent in GNP, 3.9 percent in agricultural output and about 20 percent in industrial production. Although these objectives may appear modest (with the exception of industrial production which would still have a relatively small weight in the economy), they are not inconsistent with the general aim of the plan which is to lay the basis for faster growth during the fifth plan. Because of the shortage of completed preinvestment studies, the main efforts in 1973 and 1974 would be given to the completion of projects already under way and the detailed preparation of new projects. Total investment allocations

[35] Main features of current development plans in the Near East are given in Annex table 12.

would amount to about 34 000 million afghanis, of which approximately 80 percent would come from public sources. Government allocations include 10 800 million afghanis for agriculture and irrigation, 9 700 million for industry and mining and 3 000 million for transport and communications. Priority is given to agriculture; this sector still employs 90 percent of the population and accounts for the majority of exports. Despite the efforts made during the third plan to improve the existing irrigation systems over wide areas of land and to adopt better cultivation practices, production failed to keep pace with the annual population increase of 2.3 percent. Attainment of self-sufficiency in basic foodstuffs, especially wheat, remains one of the principal goals of the fourth plan, as well as increased production of other grains, cotton and livestock products. Assistance would be offered in the form of minimum purchase prices for wheat and other agricultural products and by encouraging wider use of agricultural credit. The Government also plans to attend to such basic problems as landlord-tenant relationships, the allocation of more land for the landless, and the conditions of nomads and livestock raisers who have been particularly affected by the continuing drought.

Iran's fifth plan (1973-78) calls for an 11.4 percent annual rate of growth in GNP, in constant prices, compared with the 9.4 percent target of the fourth plan and a realized annual rate of more than 10 percent. The target growth rate of value added in agriculture is projected at 5 percent a year compared with a target of 4.4 percent and a realized rate of about 3 percent under the fourth plan. Two thirds of total investment allocations were to come from government sources. In accordance with the plan's general objectives to encourage balanced sectoral and regional growth and to make up for the deficiencies of the fourth plan, special attention is given to agriculture and social welfare. In fact, allocations to the agricultural sector have been increased from 8 to 14 percent of total investment and large sums have been earmarked for rural reconstruction and urban housing. In order to encourage greater private investment in agriculture, the Government would exempt from import duty all machinery and farm equipment required by agro-industries and exempt from taxation all income from agricultural investment. Another favourable development has been the recent move by Bank Melli Iran to extend its supply of loans and credit to agriculture in conjunction with the Agricultural Development Bank. It is hoped that more commercial banks will follow this example. As this policy may suggest, the emphasis during the fifth plan is on the formation of additional farm cooperatives and corporations through which a more efficient flow of credit could be achieved, as well as the introduction of new crops and more effective methods of cultivation. The Government envisages a reduction in the agricultural labour force from the present level of 35.6 percent of the population to about 20 percent at the end of the plan period. In order to control to some extent the migration of rural people to urban areas to earn higher wages, a significant proportion of the money allocated to agriculture will be paid out in concealed subsidies to small farmers, as some are working land which in the long term is expected to produce insufficient income. The Government is considering such measures in terms of their effect on the nutritional status of the population as a whole.

The three-year (1973-75) development plan of Jordan is an ambitious, well-prepared programme which could help bring about a quick recovery of the economy, provided that political stability, confidence from the private sector and the necessary financial aid are ensured. The plan envisages a total investment of 179 million dinars, of which about 44 percent is to come from the private sector. It aims at creating at least 70 000 new jobs, increasing GDP by 8 percent a year, developing the socio-economic infrastructure, strengthening the balance of payments and reducing the deficit in the trade balance. Transport is to receive the largest share (20 percent) of total allocations followed by housing (19 percent), agriculture and irrigation (16 percent) and industry and mining (15 percent). Agricultural income is projected to increase during the plan period at an annual rate of 6.4 percent. This high rate would be achieved by expanding land utilization and irrigation in the Jordan valley, the southern Ghor and the highland areas, and by improving production and marketing methods. The plan also aims to increase the value of exports of agricultural commodities from 4 million dinars in 1971 to 8.5 million in 1975, and substantially decrease the import bill for agricultural products. A number of measures would be put into effect during the plan period to expand and strengthen the agricultural cooperative movement, to organize a better relationship between landlords and tenants, and to develop an adequate extension service in all agricultural areas. For water resources, which are vital to the country, the plan envisages the formulation and adoption of a consistent long-term policy that would cover all sources and their use.

The third five-year plan (1973-77) of Turkey is part of a long-term programme of economic and social development to the year 1995, when full membership in EEC should be reached. The basic objective is a significantly higher standard of living for the entire population through a process of swifter industrialization. The main structural changes foreseen in the economy are: an increase of the urban population from 40 percent in 1970 to 70 percent by 1995;

a decline in the active population engaged in agriculture from about 64 percent of the total in 1972 to 25 percent by 1995, and a corresponding increase in the industrial labour force from 20 to 30 percent; a substantial change in the composition of GDP by 1995, with agriculture accounting for about 12 percent of the total, industry for 43 percent and services for 45 percent, compared with 30, 28 and 42 percent respectively in 1971; and a fourfold increase in per caput income, from about $370 in 1972 to $1 500 by 1995. In line with this long-term strategy, industrialization is the principal economic policy of the third plan. The rate of growth of GDP has been set at 8 percent annually: 3.8 percent for agriculture, 11.3 percent for industry and 7.9 percent for the services sector. Investment expenditures are expected to increase by 12.7 percent annually, reaching a cumulative total of T£291 000 million by the end of the plan period. Industry would receive the largest share, 45 percent, followed by services, 43 percent, and agriculture, 12 percent. Exports and imports are expected to increase by 9.4 and 7.1 percent a year respectively.

A more diversified structure of exports would be attained mainly through the promotion of existing export-oriented industries such as food processing, textiles, clothing, leather and nonferrous metals. Substantial import substitution is also projected for consumer goods, machinery, electrical equipment, iron and steel, fertilizers, pulp and paper, and chemical and petroleum products, for a total of about US$450 million during the third plan period. Employment opportunities for about 1.6 million persons in all sectors except agriculture will be created. Consequently, the share of the nonagricultural sectors in total employment should increase from 36 percent in 1972 to 42 percent in 1977. However, it is anticipated that the level of total unemployment (excluding the transfer of workers abroad) would further deteriorate in absolute terms and reach 1.8 million in 1977, compared with the estimated 1.6 million unemployed persons in 1972.

Other Near East countries have development plans in progress. The third five-year development plan (1972-76) of Cyprus was scheduled to begin in 1972 but was postponed by the Government for an indefinite period. Egypt has begun its second ten-year programme of national action (1972-82), divided into two five-year development plans. Iraq has a comprehensive five-year plan that runs until 1975. Lebanon has a six-year plan of social and economic development that began in 1971. Saudi Arabia's five-year plan, which ends in the summer of 1975, aims to raise the growth rate of the agricultural sector to 4.9 percent through diversification. The Sudan announced a five-year plan late in 1972 with the objective of making the country self-sufficient in essential products. The Syrian Arab Republic, which has made exceptional progress in its Euphrates dam project during the third five-year plan that ends in 1975, is striving in particular to push agricultural production well above consumption. The Yemen Arab Republic and the People's Democratic Republic of Yemen, which are moving toward unity, will, it appears, continue the plans and projects in progress and perhaps unify future development plans.

Agricultural credit

Trends in agricultural credit over the last decade have featured increasing supplies of institutional credit to agriculture, with emphasis on a more equitable distribution of loans, particularly to small farmers, and a better linkage between credit supply and marketing. The capital of agricultural credit institutions and the loans granted have doubled or tripled in most countries, and they increased fivefold in Saudi Arabia. This has resulted from the growing participation of central banks in agricultural development, especially in land settlement schemes and land tenure reforms which have obliged governments to provide the beneficiaries with production requisites. The integration of production, credit and marketing of certain crops in Egypt, Iran, Iraq and the Syrian Arab Republic was facilitated by the implementation of agrarian reform programmes. The organization of farmers' cooperatives and farm corporations in Iran served as examples for this new system. While integration has many advantages in mobilizing capital, ensuring debt repayment and improving crop quality, the cost of management is usually high and bureaucratic procedures are likely to affect operational efficiency.

Public institutions in the Near East are still unable to meet the credit needs of the agricultural sector, particularly at this stage when governments are anxious to increase food production and improve the welfare of the farmers. Institutional agricultural credit is still a recent concept, as agricultural credit banks have been established only in the last 10 or 15 years in many countries; in 1959 in the Sudan, in 1960 in Jordan and in 1965 in Saudi Arabia, for example. Although institutional credit has doubled or even trebled in the last decade, its relative share in the national credit supply to all economic activities is low when compared with the share of agriculture in GNP. In Iran, for instance, this share was only 6.3 percent of the total credit advanced to various economic activities in 1971/72, while agriculture accounted for about 20 percent of GNP. There are still a considerable number of small farmers (tenants, sharecroppers and landowners), nomads and fishermen in several countries who are unable to obtain credit

from public institutions for such reasons as their low income and therefore low repayment capacity, and the inability of credit banks to reach the small farmers in scattered and remote villages in backward areas. Efforts should be made to increase the number of credit agency branches or even mobile units. More and better trained bank personnel is needed all over the region; the lack of specialized training institutions in agricultural banking techniques is one of the major bottlenecks in the expansion of credit among the rural population.

The economic and social organization of many rural areas in the region still allows the middlemen to play an important role in providing small farmers with credit and marketing facilities. This situation arises from several factors, including the inadequate lending capacity of credit institutions, the hard terms and rigid procedures required by agricultural credit banks for creditworthiness and security, and the irregular and generally low incomes and the low productive capacity of small farmers. These factors, coupled with the weakness of cooperative institutions, have forced a considerable proportion of farmers to deal with moneylenders, village merchants and other types of middlemen, under traditional or contractual agreement whereby the farmer is bound to market his produce through the middleman who supplies him with credit. The proportion of farmers' credit requirements provided by middlemen and other sources outside the credit institutions is as high as 80 percent in Afghanistan, and about 50 percent in the Sudan and Iran. The cost of credit is invariably high, with interest rates ranging from 25 to 75 percent, and as inputs are relatively costly and prices received by farmers are low this system leads to the lowering of farm incomes and the flight of capital from rural areas. It is thus hardly conducive to agricultural development and rural welfare. Nevertheless, private lenders do provide a service which is not available from public systems. The middleman is frequently not only the main source of working capital in rural areas but he is also an innovator, spreading the use of new technology such as better seeds, fertilizers, tractors, and so on. However, some countries in the region, such as Egypt and the Libyan Arab Republic, have almost eliminated the private lender, while other governments have tried to improve and make use of private input supply distributors by providing better credit facilities for them.

To alleviate the disadvantages of the middleman system, it is essential that governments and central banks increase the supply of capital and credit to agriculture through a sound lending policy, the provision of marketing and storage services, and the creation of credit agencies and purposeful cooperatives in rural areas to service the mass of small farmers. Central banks could provide the valuable service of coordinating the agricultural credit policy of the various public and private credit institutions, and help to shift the loan basis from property to production capacity.

The weakness, or indeed the absence, of credit systems for the Near East's nomadic population who own or control a considerable share of grazing land and livestock is another important problem. Nomads form high proportions of total populations; for example, 45 percent in Saudi Arabia and 20 percent in Afghanistan. Credit to construct watering points and buy fodder and dry feed is not usually provided by public institutions, except in a few areas in Egypt, Saudi Arabia and the Syrian Arab Republic. The nomad's poor creditworthiness is largely responsible; landed property which is the traditional security for loans does not apply to individual nomads. Grazing land is usually state-owned and rights are granted collectively to a group of nomads — a tribe or subtribe. However, the livestock they own could serve as security.

Insurance against livestock death caused by disease, snow or drought,[36] provided together with credit and extension services to the nomadic population, is essential if livestock farming is to satisfy the rising demand for meat in the region.[37] Fishermen are similarly neglected, and they usually obtain credit for vessels and nets, the purchase and replacement of engines and gear and so on from middlemen at a high rate of interest. Advances are often conditional on the whole catch being delivered to the middleman at low prices. This is due partly to unsuccessful experiences in organizing fishermen's cooperatives (with the exception of Egypt, the Libyan Arab Republic and Tunisia) and partly to the low creditworthiness of the fishermen. The United Arab Emirates have organized a successful scheme through the Ministry of Agriculture and Fisheries to provide artisanal fishermen with engines for their boats and also for the subsidized maintenance of these engines.

Two other matters requiring attention are the financing of agricultural processing industries in rural zones and the encouragement of savings among farmers. The high rate of population growth, and the consequent need to provide more jobs, demand increased efforts to establish agricultural processing industries in rural areas. Agricultural credit banks have recently been allocating about 85 to 90 percent of their loans on short-term bases. An increase

[36] The Syrian Arab Republic lost about 3 million head of sheep because of drought during the 1971/72 winter season, and Afghanistan lost about 40 percent of its livestock (5-6 million head) due to heavy snowfalls.

[37] In the Near East region, the annual gap between domestic production and consumption of meat is expected to increase to 433 000 tons by 1980 and per caput annual consumption is expected to grow from 12 kilograms in 1970 to 14.5 kilograms in 1980. (FAO, *Agricultural commodity projections 1970-1980*, Vol. 1, p. 133, 137-141, Rome, 1971.)

in medium- and long-term loans is needed to finance the storage, warehousing and processing of agricultural products. Mobilization of farmers' savings is required for accelerating rural development. Both cultural and economic factors account for the current low rate of savings in rural areas. Among the cultural factors are the preference for hoarding cash for emergencies, reluctance to be known in the community as having savings, and lack of confidence in the management of local credit institutions; also, there is a tendency to confuse interest charges with usury. Among the economic factors are the low-income capacity of small farmers, lack of adequate incentives to encourage savings, failures in loan repayments to agricultural banks, and the banks' tradition of investing funds outside the community, which is of no direct benefit to the villagers. There have been successful experiences in the region, where cooperatives have built up reserve funds through compulsory saving schemes, facilitated by integrating the credit supply with marketing. There have also been successful programmes for crop (Algeria and Morocco) and livestock insurance (Egypt) which provide savings opportunities for farmers.

ISRAEL

Agricultural production in Israel was higher by about 8 percent in 1972, compared with an increase of almost 14 percent in 1971. Mainly as a result of higher average yields, the wheat harvest in 1972 was about 50 percent greater than in 1971 and a third larger than the previous record crop of 1967. Rainfall during the 1971/72 winter season was unusually favourable, a bigger proportion of the wheat area was planted to improved varieties and the use of irrigation water for wheat was increased. The citrus crop totalled 1.5 million tons, with a 14 percent increase in Shamouti orange production. The 1972 cotton crop was about 9 percent larger than in 1971, in spite of a further shift from irrigated to unirrigated land. Livestock production continued to increase in 1972, but at a more modest rate than crop production. Milk output was about 3 percent above 1971, while egg production showed a similar increase. Unusually cold weather in December 1972 and January 1973 caused extensive damage to oranges, subtropical fruit, winter vegetables and flowers, and adversely affected 1973 harvests.

The index of prices for farm products rose by almost 10 percent in 1972 while that for purchased inputs rose by 16 percent. Although farmers' net income increased by almost 11 percent, it fell short of the rise in national income. The average income of farmers was 85 percent of the average income in industrial branches, compared with 89 percent in 1971. The index of consumer prices for agricultural products rose by about 10 percent, compared with 13 percent for other commodity prices. Thus, agricultural products served to moderate the general price increase. The cost of supporting prices for agricultural products rose to I£179 million in 1972, I£29 million more than in 1971. Poultry meat, milk and eggs accounted for most of the increase.

Capital investments in agriculture amounted to I£542 million in 1972. These investments were partly financed by a World Bank loan which has been almost fully utilized. A second World Bank loan of US$30 million is being requested for improving efficiency in the use of irrigation water, for the construction of greenhouses, the expansion of equipment and facilities for handling exports, and encouraging the development of dairy farming.

Africa

DEVELOPING COUNTRIES

Estimates based on incomplete data suggest that economic growth in Africa accelerated in 1972, in spite of severe setbacks due to continuing drought in a number of countries which are particularly dependent on agriculture. The record performance of agriculture in Morocco, combined with increased exports of phosphates and other minerals and higher revenues from tourism, was reflected in a 6 percent increase in gross domestic product (GDP). Much higher increases were recorded in both Algeria (17 percent) and Tunisia (an unprecedented rate of 19 percent) where the agricultural sector contributed considerably to the expansion. Also in east Africa economic growth accelerated, as the agricultural sector recovered from the drought-affected levels of 1971. In Kenya, GDP rose by more than 10 percent, mainly because of the rapid growth in agricultural output which more than offset the slower expansion of the industrial sector. Faster rates of growth than in 1971 were recorded also in Ethiopia, Malawi, Mauritius, Tanzania and Uganda. In many countries of west and central Africa, however, the agri-

cultural sector was affected by severe drought and this restricted the overall growth rate. By the end of 1972, food supply difficulties were reported in Chad, Dahomey, the Gambia, Mali, Mauritania, Niger, Senegal, Upper Volta and Zaire. In Nigeria the economy continued to expand rapidly, due largely to the petroleum industry, while the growth of the agricultural sector was affected by drought in the northern part of the country. Economic expansion in Ivory Coast continued at a rapid rate, but growth in Zambia and Zaire was seriously depressed by the fall in copper prices.

Agricultural production

Agricultural production in the African region increased by only about 1 percent in 1972. In east and central Africa output recovered from the drought-affected levels of 1971. However, extremely dry conditions persisted in many west African countries, giving rise to severe supply shortages and the threat of famine over widespread areas, particularly in the Sahelian zone. Because of drastic food shortages in large areas of Chad, the Gambia, Mali, Mauritania, Niger, Senegal and Upper Volta (four of which are among the least developed countries of the world), FAO, in agreement with the United Nations Disaster Relief Coordinator, took the lead in early 1973 in promoting international emergency action, working in close cooperation with other intergovernmental bodies, such as the World Food Programme and the United Nations Development Programme, and bilateral aid programmes. The United Nations is coordinating plans for integrated long-term agricultural development in the area to minimize the effects of recurrent drought. Drought also affected southern Africa, where production fell sharply.

With the exception of east Africa little improvement was registered in per caput food production, and the deterioration in supplies was greatest in those countries where the situation was already unfavourable and production had not kept pace with population growth over the past few years.[38]

For the region as a whole the growth in agricultural production reflected a more than 8 percent increase in cereal crops. Output of wheat alone grew by some 24 percent, maize by about 4 percent, and barley by 9 percent. However, rice production continued to stagnate. Among other food crops, starchy roots continued to supply a large proportion of consumption requirements and pulses increased slightly. Sugar production expanded by 8 percent. Although decreases were registered for coffee and cocoa, tea production was a record 27 percent above the 1971 level. Sisal production was lower, but cotton output expanded.

In northwest Africa cereal crops reached near record levels and helped these countries to approach their objectives of self-sufficiency in food production. Morocco, which accounts for some 40 percent of wheat production of the developing countries in the region, harvested a crop of 2.2 million tons, about the same as the previous year. However, barley was considerably below the good crop of 1971, while maize showed only a marginal rise. Sugar production in Morocco continued its longer term expansion, output of pulses grew by almost 40 percent and tobacco remained at a high level. Citrus fruit also recorded increases, with new trees coming into bearing. On the other hand, output of olives and olive oil declined sharply from the very high 1971 figures, reflecting a cyclical downturn, and wine production was slightly lower. In Tunisia wheat output at some 914 000 tons was a record, and the barley crop expanded by almost 70 percent. The country's wine output showed little change from 1971, while olive oil production was less than half the 1971 record. In Algeria the wheat crop was higher by almost 40 percent than the poor 1971 harvest, and reached a record 1.7 million tons. Barley, at about 720 000 tons, was more than double the previous small crop. As in the other countries of northwest Africa, output of olives and olive oil declined, and wine production remained unchanged. Plans for uprooting vines are being implemented slowly because of the adverse effects which decreased production may have on employment; Algeria is the largest wine producer in the subregion, and it is estimated that some 2 million persons depend on work in this sector.

In east Africa the improvement in production extended to both food and export crops. In Kenya the production of maize, an important staple food in this subregion, amounted to 1.66 million tons, about 10 percent above 1971 when the crop was affected by drought. Although wheat output was lower, this downward trend is expected to be reversed as new lands are brought into production. Because of the previous year's dry weather, sugar yields declined early in the year, and in spite of greater area planted to sugarcane the output was lower. Sisal production was also less because of unfavourable weather. However, tea production increased by almost 50 percent to a record of more than 50 000 tons, and the coffee harvest was 3 percent above the 1971 level. At the beginning of 1972 the area under tea was estimated to be more than double that of ten years earlier. Government programmes have encouraged a rapid increase in the number of small tea plantations, and these now account for

[38] Indices of total and per caput food and agricultural production by country are given in Annex table 2.

over 40 percent of the total area planted to tea. Pyrethrum, a valuable source of insecticide and an important crop for many small farmers, reached an all-time high of 16 000 tons. Production of beef expanded as a result of accelerated slaughter, and in December 1972 Kenya obtained clearance for shipping frozen beef to Switzerland, but exports were delayed in January 1973 owing to an outbreak of foot-and-mouth disease.

Also in Ethiopia maize production reached a record of 1 million tons and the output of barley, for which Ethiopia is Africa's second producer after Morocco, expanded as well. Coffee, which accounts for about 60 percent of the country's total export earnings, showed a further increase in 1972. In Tanzania foodgrain production increased with larger harvests of maize, rice (which resulted in an export surplus) and sorghum. Coffee production declined slightly, but increases were again registered for tea, sugar and groundnuts. Sisal production suffered from prolonged dry weather and declined by more than 10 percent. In Uganda also, production of staple foods increased, principally due to an improved maize harvest. The cotton crop was about the same level as in 1971. Tea production was a record, due to good weather and the increase in the number of mature bushes following the steady rise in planted area. Production of coffee increased 3 percent. Production of tobacco and sugar declined.

Madagascar, Africa's largest rice producer, registered only a small increase in production but new programmes are being implemented to accelerate output, which has stagnated for several years. The increase in regional sugar production was partly due to the record in Mauritius where, in spite of a low average extraction rate, output was about 10 percent higher than the previous year and equalled the earlier record achieved in 1963. Mauritius is dependent on sugar for about 90 percent of its total export earnings, and hopes to expand output to 800 000 tons within the next five years. Tea production was also higher. In Malawi, with more favourable weather, the growth of agricultural production resumed its upward trend, with increased output of maize, the staple food, and tobacco and tea. The groundnut crop showed no change. Sugar output reached a record and further expansion for export is planned. In Zambia a bumper maize crop was harvested and production of sugar expanded, but decreases were registered for tobacco and groundnuts, although the latter remained at a high level. However, very dry weather prevailed during the final part of the year, giving rise to concern for 1973 prospects.

Many countries of west and central Africa were severely affected by drought. These included Chad, Dahomey, the Gambia, Mali, Mauritania, Niger, Nigeria (northern), Senegal and Upper Volta. In almost all these countries per caput food production for the last few years has been running below the levels of the early 1960s, and the quantity of food imports continues to increase rapidly.

The longer term problem of inadequate growth of food production in the region is considered in greater detail later in this section. Short-term fluctuations in output caused by vagaries of the weather result in severe shortages where nutritional levels are already low.

In Nigeria, which accounts for almost 20 percent of regional agricultural production, output of maize increased by about 30 percent, but most export commodities except groundnuts and timber declined. Groundnut production increased by 13 percent to more than 1 million tons. Output of palm oil, palm kernels, cocoa and cotton fell.

In Senegal the groundnut harvest which normally accounts for some 30 percent of export earnings was much lower because of prolonged drought, and production of foodgrains was also adversely affected. Paddy production was less than half the good crop of the preceding year; rice continues to be the largest single item in the country's food import bill. With continuing drought the food situation deteriorated in Chad, where millet and sorghum output declined by 25 percent. However, cotton, which accounts for more than 80 percent of total exports, increased. In Dahomey the maize harvest was adversely affected, and in the Gambia production of all foodgrains including rice declined, but there was little damage to the groundnut crop. Also in Mali cereal production was not up to expectations because of insufficient and badly distributed rain. Both millet and rice output fell sharply, groundnut production was lower, and cattle died because of lack of pasture due to the dry weather, particularly in the northern part of the country where rainfall was far below average. Output of millet and sorghum in Mauritania dropped by 40 percent, and existing livestock numbers are estimated to have fallen sharply. In Niger, where drought has prevailed for the last few years, the millet and sorghum crops were reduced, while in Upper Volta a food shortage developed in the latter part of the year.

Among other west African countries, results fell below earlier expectations. In Ghana the government campaign to expand domestic food production and curtail imports covers foodgrains as well as other basic foods. Production of maize fell, but rice, yams and cassava improved. Cocoa, of which Ghana is the world's largest producer, declined from the relatively high 1971 figure. In Ivory Coast maize dropped by 4 percent, and the rice crop was adversely affected by dry weather, and large imports continue to be required to meet rapidly expanding domestic

consumption. Cotton production, a major resource of the savanna region in the north, increased as a result of improved yields. The production of palm oil, for which Ivory Coast has rapidly become the region's third largest exporter after Nigeria and Zaire, continued its longer term expansion while groundnut production remained about the same in spite of unusually dry weather. However, cocoa output fell below the previous year's record because of adverse weather, and coffee remained unchanged. Large stocks of coffee held by the Caisse de stabilisation have constituted a substantial financial burden. In both Cameroon and Togo production of maize decreased, and cocoa crops were lower because of a prolonged dry spell. In the former country, however, production of coffee, sugar and groundnuts continued to expand.

In Zaire the expansion in rice production continued and the maize crop recovered considerably from the previous year's low level. Output of palm oil, of which Zaire is an important exporter, declined from the particularly high 1971 level. In Congo, agriculture showed little growth and economic expansion was mainly due to increased mineral exploitation. In Burundi and Rwanda, where coffee accounts for 80 and 60 percent respectively of export earnings, there were sharp decreases in output of this commodity. Drought in Rwanda in the latter part of the year gave rise to concern for 1973 prospects.

Development plans and policies

The results of experience gained over the past 10 years, or even longer periods in some cases, are beginning to show in various aspects of national planning in a number of African countries. Most notably, there is much more realism as a result of the contributions to national plans made by the sectoral planning units which have recently been set up in major ministries, particularly ministries responsible for agriculture and rural affairs. The detailed studies prepared by these agricultural planning units, while usually not published with the national plans, do provide the basis for major subsectoral programmes and projects, for instance, the Phase II - Livestock Development Project in Tanzania, costing US$25 million, which has attracted $18 million of financial support from the World Bank.

Human aspects of agricultural development are being given relatively greater attention, in line with the awareness that in most African countries the majority of the population must find employment in and secure a livelihood from farming. Measures to increase employment, raise agricultural productivity and secure a more equitable distribution of income are being planned and put into practice in a growing number of countries. Food and nutrition policies, as elements of agricultural and socioeconomic planning, are being developed by certain countries which have collected the necessary data on food consumption in relation to income distribution, notably Zambia. The success which rural area development "package programmes" are achieving can be seen clearly in the investments they are attracting from the World Bank and bilateral sources. They provide the first real grounds for optimism in tackling the seemingly intractable problem of transforming traditional subsistence agriculture into a viable small farm system.

That effective results call for the full participation of the whole rural population is another lesson from planning experience of the past decade, particularly to bring about the change from subsistence to more productive farming systems. This lesson is being applied through the progressive decentralization of government administration, including planning, to local authorities. However, this has greatly stretched the limited resources of trained national planners and agricultural planning economists, and has shown the need for increased assistance to countries to train their agricultural planners.

Although most development plans[39] put emphasis on rural development and the attainment of near self-sufficiency in food production, the region is far from making any headway in this regard (see Food supplies and adjustment problems). It is becoming more apparent that political awareness of the problem of food production should go beyond plans and exhortations. The mobilization of resources for such programmes as Ghana's "Operation feed yourself" will become increasingly important in making the population more conscious of the difficult nature of the problem and the urgency with which it needs to be tackled. Urgent measures are required not only to meet demand but to build up stocks for emergency situations such as those existing at present in many countries of the region. Improvement of early warning systems relating to crops will continue to deserve priority.

Evaluation of development programmes and plans is also receiving greater emphasis. Systematic reporting and evaluation had hitherto been neglected, although duly recognized as an integral part of economic administration. Progress evaluation is not limited to comparisons of targets with achievements, but tends to include a critical examination of the formulation and methods of target setting, the execution of programmes, reasons for success or failure, and the appropriateness of administration structures.

A mid-term review of the second development plan of Nigeria (1970-74) has highlighted the effects

[39] The main features of current development plans in Africa are given in Annex table 12.

of the increase in petroleum production. The rate of growth in GDP for 1971/72 is estimated at 12 percent, compared with the 6.3 percent projected in the plan. This exceptional rate is attributed, among other things, to high investment in both the public and private sectors; the total volume of investment in the period was N£465 million, compared with N£399 million envisaged in the plan. This situation is mainly due to the high rate of domestic savings, which exceeded the plan target by N£234 million. In sharp contrast to the industrial sector, investment in agriculture was only about 38 percent of the target. Agricultural production showed a modest 1 percent rise in contrast to exceptional growth in other sectors. Exports of groundnuts, palm produce and cocoa fell short of the plan target by N£27 million. Agriculture's share in GDP dropped from an estimated 54 percent in 1966/67 to 42 percent in 1971/72, while the share of petroleum and other extractive industries has risen from 7.2 to 18.5 percent.

The third four-year plan (1969-73) of Senegal, revised in 1971/72, has been badly affected by erratic weather. Harvests of groundnuts and cereals have been very poor. Production of paddy fell from 155 000 to 45 000 tons in the first year of the plan. Only cotton has given satisfactory results. Livestock were seriously affected by the drought and an estimated 25 percent are reported to have died. But fishery production continued its spectacular increase with over 248 000 tons landed in 1972. Only about half the revised targets for planned investment have been reached.

Dahomey's intermediate plan (1971/72) seeks to complete various projects from the previous five-year plan. It allocates more than half of total investments to the secondary sector, including mining, leaving only 13 percent for rural programmes. The second five-year development plan of Upper Volta (1972-76) allocates about one third of total investment to the rural sector and a further 20 percent to agricultural processing industries. GDP is expected to grow at an annual rate of 3 percent, with self-sufficiency in food production and development of cash crops as primary objectives.

Chad's national development plan (1971-80) aims to double the country's per caput income by 1980. This target is expected to be achieved through increased earnings of foreign exchange from greater production and exports of cotton, meat and gum arabic, and higher national savings. Education and vocational training will be given more attention, as also improvement of communications with the outside world and development of technologies more suited to local conditions. In the Central African Republic's first five-year plan (1971-75) priority is given to crop, livestock and forestry production, associated with improvements in marketing, and to education and training. Tourism is also to be developed.

Details of the forthcoming five-year development plan of Somalia (1974-78) are not yet available as the plan is still in preparation. It is possible, however, to anticipate some of the main policy lines in the field of agricultural development planning. Government efforts in the agricultural sector would be directed both at expanding the area under cultivation and at increasing productivity, especially in the traditional sector which so far has been almost completely neglected. A gradual change in the traditional sector would be effected by promoting a wider use of modern agricultural inputs, by improving credit and marketing facilities and by strengthening as much as possible agricultural research and extension. In general, priority would be given to quickly maturing projects rather than to those with long gestation periods, and no effort would be spared to stimulate economic growth throughout the country. The Government would continue the policy of import substitution that has been adopted for many years and in this regard emphasis would be placed on crops such as rice, wheat, cotton, tobacco and oilseeds, for which demand is expanding. Special attention would be directed to the many problems facing the livestock sector, which in recent years has become the most important source of foreign exchange for the country.

Available information on the forthcoming second four-year development plan of Algeria (1974-77) suggests that although industry would continue to receive substantial levels of investment, more attention would be given to agricultural and social improvements. In fact agriculture, where productivity is still very low, is the second priority sector of the new plan after industry. Total investment at 52 000 million dinars would be almost double present plan levels and it is estimated that industry would contribute nearly two thirds of GDP by 1977. The Government is firmly committed to a policy of modernization of agriculture, to improve the standard of living of the rural population, especially of the landless labourers who continue to benefit from the existing programme of land redistribution, and to boost agricultural production to a level which would satisfy a larger share of domestic demand and, at the same time, strengthen the country's capacity to earn foreign exchange through exports of agricultural products. It is planned to increase the output of cereals by 55 percent, of pulses and vegetables by 100 percent and of animal products by a significant amount. To this end, large sums have been earmarked for the improvement of production methods, land reclamation, irrigation and agricultural mechanization. Moreover, special efforts to promote agricultural cooperatives in the private sector are planned.

Under Morocco's various development plans priority has been given to agriculture. During the period 1960-64 public and semipublic investment in agriculture represented 32 percent of total investments; from 1965 to 1967 the figure was 29 percent and under the last development plan (1968-72) it rose to 65 percent of total expenditure (including the construction of reservoirs). The new five-year plan (1973-77) is no exception. Available estimates of investment are 3 000 million dirhams during the first year of the plan, rising gradually to 5 500 million in 1977; about half the total would go to agriculture. One of the main objectives of the new plan is to expand agricultural production as much as possible in order to cut the import bill for several commodities, notably cereals, oilseeds, meat and milk. Since the area under cereals cannot be extended efforts would be concentrated on increasing yields. To this end the Government would promote the diffusion of high-yielding varieties and control the prices of agricultural inputs. The promotion of agricultural processing industries is another feature of the new plan. In this field the Government would be responsible for the preparation of the necessary economic studies and would provide financial help both to private firms and to farmers' cooperatives. A number of measures to strengthen agricultural research and extension and to rationalize existing marketing structures are also planned.

The new four-year development plan of Tunisia (1973-76) represents the first phase of a second ten-year programme (1972-81), the full elaboration of which has not yet been completed. It has been established that the development strategy would in general follow the policies initiated by the Government in 1970. Greater emphasis than in the first ten-year programme (1962-71) would be given to productive investment and expansion of employment and exports. Accordingly, 60 percent of total investment during the period 1972-81 would be in the nonagricultural productive sectors against the 46 percent of the past decade. The main objective will be 5 percent annual growth in GDP, with emphasis on industrial development and expansion of the services sector. Total investment allocations would be 1 000 million dinars, or an annual average of 250 million, which is double that of the first ten-year programme and 48 percent higher than the previous plan. About two thirds of this total would be allocated to projects which would directly contribute to expansion in production, with priority given to sectors regarded as principal sources of growth and job creation: mining (largely phosphates), tourism, manufacturing and petroleum.

Investment in agriculture is estimated to grow by 44 percent over the level of 1969-72 and total volume of agricultural production by the end of the plan period should increase by 28 percent over the previous plan. To achieve this objective the plan allocates about 14 percent of total investment to agriculture, half of which would be in directly productive projects in horticulture, livestock and fisheries. In order to utilize more fully the large investments made in the past, and to improve agricultural productivity, extension services and credit facilities to farmers would receive special attention. In this connexion, registration of land titles, particularly in the irrigated areas, would be accelerated.

The realization of planned investment and the target rate of growth are expected to create some 90 000 new jobs outside agriculture. However, this would provide employment for only half the estimated increase in the labour force entering the market, assuming manpower in agriculture does not exceed its present level. Emigration is consequently expected to remain an important outlet, providing employment for another 90 000 workers during the plan period against 80 000 during the previous plan. For financing the total planned investment more reliance than in the past would be placed on domestic savings. With private consumption estimated to grow by 6 percent per year and public consumption by 5 percent, savings would grow at an average rate of 5 percent per year and would be sufficient to finance 80 percent of total investment; the balance would be financed from various foreign sources.

Food supplies and adjustment problems

Following the adoption of the global international development strategy for the Second United Nations Development Decade by the United Nations General Assembly in 1970, developing countries in Africa agreed to a strategy for the region's economic and social development in the 1970s.[40] For the agricultural sector the aim is to achieve a minimum average annual growth rate of 4 percent during the decade. This implies a considerable acceleration over past rates which were 2.4 percent during the early 1960s, increasing later to about 2.9 percent, with an average growth of 2.7 percent over the decade.

Programmes for accelerating the rate of growth must consider adjustment and diversification in the composition of output. Export crops have historically benefited most from government programmes because of their importance to development as earners of foreign exchange to finance essential capital imports. Over the period 1960-70 the value of just eight major traditional export commodities grew by about 3.7 percent yearly, and amounted to the equivalent of

[40] "Africa's strategy for development in the 1970s," Resolution 212 (X) adopted by the Conference of Ministers of the Economic Commission for Africa. Tunis. February 1971.

US$2 200 million, almost 20 percent of the total trade receipts of the developing countries of the region and about 60 percent of agricultural exports. Export commodities will continue to be important to the economies of these countries; however, even assuming improved access to foreign markets as a result of international adjustment, the longer term demand prospects suggest that if production targets are to be attained and the domestic requirements of growing populations satisfied, new emphasis must also be given to expanding food production.

Over the past decade the population of developing Africa has grown by about 2.6 percent annually to about 300 million, some 15 percent of the developing world. An even faster rate of growth is expected during the coming decade because of the marked decline in mortality due to improved health facilities. On the other hand, food production has failed to grow more rapidly than population in the region as a whole, and a substantial deterioration has taken place in per caput output in certain subregions (Table 2-17).

National average figures do not take account of the effects of income distribution on nutrition levels. Available food consumption data for Africa indicate that at least 20 percent of the population fail to meet their calorie requirements, and medical records suggest that in some countries between 25 and 45 percent of the children suffer from malnutrition. The situation is further aggravated in those countries and among those low-income groups which are largely dependent on root and tuber crops for a large proportion of calorie supplies, as the protein content of starchy roots is far lower than that of cereals. Analyses of the contribution of different foods to total calorie intake in African countries indicate that in central and west Africa starchy roots play a particularly important role in the diet, accounting for about 50 and 30 percent respectively of total calorie supply.

Over the past decade average per caput real income has increased in almost all countries of the region, and therefore the growth of domestic food production has also fallen short of that of effective demand, even though demand itself is restricted by the widespread poverty prevailing in the region. Indeed, 15 of the 25 least developed countries designated by the United Nations General Assembly for special development assistance are located in Africa, while average per caput income for the region as a whole is about US$150. Projections on the basis of past trends in population and income suggest that food supplies would have to increase by 3.5 percent per year to 1980 to meet demand, although in many countries calorie deficiency would still exist. This rate of growth would have to increase to 3.9 percent to meet demand if the targets of more rapid income growth established for the Second Development Decade were achieved.

Unless production meets growing requirements, adjustments will be necessary in the composition of imports, with food increasingly competing for scarce foreign exchange. Since the mid-1960s food imports have been increasing by about 5 percent yearly. Given the foreign exchange constraint in the developing countries, the economic issue essentially concerns the profitability of domestic production of the foods now imported against other agricultural and non-agricultural goods and services.

Programmes are therefore required to raise productivity in agriculture generally and in the fairly labour-intensive production of food crops in particular, also in order to improve income levels and increase the effective demand of the growing rural population. Although the proportion of regional population dependent on agriculture is expected to fall from 77 to 72 percent in 1980, in absolute numbers an additional 50 million people will be living in rural areas in Africa by that year. Unless income levels improve, increases in food production will not ensure consumption by the most vulnerable economic groups. While increased nonagricultural employment is the only long-term solution to the problems of the developing countries, in the shorter term the agricultural and rural sectors play a crucial role.

The large-scale underemployment existing in many rural areas has been accompanied by migration to urban areas where unemployment is often a major problem. Africa is the least urbanized of the world's major regions, and according to United Nations projections the already high rates of urban growth of the 1960s are likely to accelerate over the period 1970-85.[41] The rapid growth of urban population, by some 5 percent annually, will continue to provide an expanding market for food crops, but so far neither production nor the marketing systems have

TABLE 2-17. – AFRICA: GROWTH OF FOOD PRODUCTION

	1961-63 to 1969-71	Per caput production, 1971
	Percent per year	*1961-65 = 100*
Northwest Africa	2.6	107
West Africa	1.2	89
Central Africa	2.7	111
East Africa	2.9	108
Southern Africa	1.1	95
TOTAL AFRICA, DEVELOPING COUNTRIES	2.3	100

[41] Estimates and projections, prepared by the United Nations Population Division, published in United Nations, *Monthly Bulletin of Statistics*, 25(11), November 1971.

been geared to meeting this expansion, and urban food shortages have arisen. Moreover, there are indications that with continued emphasis being placed exclusively on cash crops dietary intake has deteriorated.

In view of the priority which needs to be given to calorie requirements, the production of staples, particularly cereals, will be of particular importance during this decade, and most countries of the region have objectives of self-sufficiency in these commodities. Over the past decade cereal imports have grown by more than 5 percent annually, while production has increased by only about 2.5 percent. In fact, the self-sufficiency ratio for developing Africa fell from about 97 percent in 1960 to 90 percent in 1971. Imports of cereals increased from about 2 million tons in the early 1960s to more than 5 million tons, valued in excess of US$350 million, in 1971. However, in spite of this increase only a slight improvement has taken place in per caput supplies on a regional basis (Table 2-18) while many countries suffer from chronic seasonal food shortages with accompanying high prices.

A slight improvement in the self-sufficiency ratio for the region took place in 1972 as a result of the very large grain harvests in northwest Africa. The fact that exceptionally good weather favoured the crops does not detract from the contribution of improved cultural techniques which are being implemented in these countries. It does, however, point to one of the basic problems affecting agriculture in developing countries generally, namely, the dependence on weather, which if unfavourable can cause extreme hardship because of the precarious supply and demand balance in many countries. This variability of production is indicated in Table 2-19, which gives the annual average percentage deviation around trends during the decade of output of selected cereals in the main African producing countries. An acceleration in food production would help to cushion the impact of crop failures if the opportunity is seized to build up stocks, but these are costly to carry and periodic food shortages seem likely to recur in the developing countries of the region.

TABLE 2-18. – AFRICA (DEVELOPING COUNTRIES): SUPPLY OF CEREALS, 1960-72

	Production	Imports	Exports	Supply	Supply per caput [1]	Self-sufficiency ratio
	Million metric tons				*Kilograms per year*	*Percent*
1960	34.4	2.1	0.9	35.6	160	97
1965	38.3	2.8	0.6	40.5	161	94
1970	41.9	4.3	0.8	45.4	167	92
1971	42.7	5.1	0.6	47.2	169	90
1972	46.2	5.0	0.7	50.5	176	91

[1] Includes waste and amounts used for feed and seed.

TABLE 2-19. – AFRICA: RATES OF GROWTH AND FLUCTUATIONS IN PRODUCTION OF SELECTED CEREALS IN MAIN PRODUCING COUNTRIES, 1961-71

	Volume of production, 1971	Rate of growth, 1961-63 to 1969-71	Average annual fluctuation [1]	Self-sufficiency ratio, 1970
	Million metric tons	*Percent*		
WHEAT				
Africa	5.6	3.9	15.2	71
Algeria	1.6	1.8	19.3	76
Ethiopia	0.8	3.5	1.0	99
Morocco	2.2	5.7	22.0	84
Tunisia	0.6	0.9	22.5	52
MAIZE				
Africa	11.4	3.2	3.4	100
Ethiopia	1.0	2.3	1.7	100
Kenya	1 4	3.5	5.0	99
Malawi	1.1	5.1	12.4	100
Nigeria	1.4	4.1	8.4	99
Rhodesia	0.9	— 0.1	12.0	99
Tanzania	0.5	0.4	19.9	100
Zambia	0.8	4.4	13.8	99
MILLET AND SORGHUM				
Africa	16.0	0.7	2.9	100
Chad	0.7	— 4.9	5.4	100
Ethiopia	1.2	2.9	1.1	100
Mali	0.9	— 0.6	10.9	100
Niger	1.1	0.3	8.4	99
Nigeria	6.3	0.6	7.2	100
Uganda	1.0	4.5	2.6	101
RICE (paddy)				
Africa	5.2	3.7	2.4	83
Guinea	0.4	2.5	4.6	96
Madagascar	1.9	2.6	2.4	102
Nigeria	0.6	13.9	15.3	99
Sierra Leone	0.4	4.2	8.8	76
ALL CEREALS				
Africa	44.4	2.6	3.3	93

[1] Fluctuations at the regional level tend to be smaller than those for individual countries. Changes among countries tend to some extent to offset each other. Annual average percentage fluctuation from trend is calculated according to the following formula:

$$^{1}F = \frac{100}{n} \sum_{i=1}^{n} \frac{[x_i - \bar{x}_i]}{\bar{x}_i}$$

where x_i = volume of production at time i
$\bar{x}_i$ = corresponding trend value
n = number of years

Among the individual cereals, wheat accounts for more than half the volume of African cereal imports and almost two thirds of the value. Production is concentrated in only four countries — Algeria, Ethiopia, Morocco and Tunisia — which account for 90 percent of regional output. These same countries, with the exception of Ethiopia, account for almost 60 percent of regional imports. Most of the remainder of Africa's expenditure on cereal imports is accounted for by rice. Rice is produced in many countries, but just one, Madagascar, accounts for more than 35 percent of the regional output. Among

the other cereals, millet, sorghum and maize are produced and consumed in most countries. These coarse grains are of primary importance as staple foods in a number of subregions, and although imports represent only a small proportion of the total supplies available for domestic consumption nearly all countries have targets for expanding output to meet the needs of growing populations.

A comparison of projections of demand and production for individual cereals [42] indicates that by 1980 the overall imbalance between production and demand would be reduced, with a growing deficit in wheat being partly offset by a larger surplus of coarse grains (Table 2-20). However, the aggregation of implied import balances for individual countries suggests that the import requirements of the region would exceed 5 million tons by 1980. Almost 70 percent of this would be wheat, as a result of rising import demand not only in those countries where little wheat is grown but also in producing countries such as Algeria and Tunisia. However, the implied import deficit cannot be taken as representing likely future effective demand, particularly since a sharp rise in the outflow of foreign exchange would cause governments to impose additional restrictions on cereal consumption or trade with resulting adverse effects on nutritional levels unless adjustments are made in domestic production. Therefore, although on a world basis exportable supplies seem likely to be in surplus, the future imports and consumption levels of the deficit countries of the region will depend at least partly on the availability of cereal imports on special terms.

Growing deficits in most countries of the region suggest the advisability of increased investment in domestic production, accompanied by expansion of research and extension services. The use of high-yielding varieties, as yet very limited in Africa, may help substantially in expanding output and reducing costs, but under certain conditions these varieties may also accentuate year-to-year fluctuations due to their lower resistance to pests and diseases as well as to their dependence on suitable irrigation systems, requiring careful management of water resources.

A strategy to improve incomes and nutrition requires a change in policy, switching concentration from large farmers to those with fewest resources and lowest incomes. At the subsistence level, price incentives have at first only limited effects on production as most of the population in nutritional need do not enter the market with their produce. As a first step, priority should be given to government subsidies of agricultural inputs — fertilizers and pesticides — for the low-income farmer. Distribution of selected seeds and the subsidization of fertilizers are already being undertaken in many countries, but without effective extension work some of the impact of these measures is lost. The experience with cash crops indicates that extension agents may contribute substantially to the improvement and expansion of production. Similar government programmes for food crops, covering research, credit, machinery, education and marketing improvements, are needed. Price incentives are essential, however, to encourage farmers to produce beyond their immediate requirements, to specialize, and to supply increasing amounts to the market. But price policies must build on lower cost structures through increased productivity and improved distribution, if the burden of expanded production is not to be borne excessively by consumers, particularly in urban areas.

In the region's major wheat producing and importing countries — Algeria, Morocco and Tunisia — programmes to aid farmers are actively implemented. Extension services, credit facilities, distribution of improved seed and subsidized fertilizer

[42] *Agricultural commodity projections 1970-1980*, Rome, FAO. 1971. Production projections are based on assumptions of constant price relationships among cereals and a continuation of current policies.

TABLE 2-20. – AFRICA (DEVELOPING COUNTRIES): PRODUCTION, CONSUMPTION AND BALANCES OF SELECTED CEREALS, 1970, AND PROJECTIONS FOR 1980

	1970 [1]				1980			
	Production	Balance [2]	Consumption		Production	Balance [2]	Demand	
			Total	Food			Total	Food
	Thousand metric tons							
ALL CEREALS	43 484	3 130	45 773	37 663	59 791	2 876	62 667	52 283
Wheat	4 515	2 684	7 146	6 210	6 394	3 579	9 973	8 888
Coarse grains	35 720	— 190	34 731	27 868	48 522	— 1 273	47 249	38 337
Rice	3 249	636	3 896	3 585	4 875	570	5 445	5 058

[1] Base period centred around the year 1970 which constituted the starting point for the projections. The 1970 figures, based partly on extrapolation of recent trends to obtain data not available at the time of preparation of the projections, therefore differ from actual estimates of production, consumption and trade for that particular year. – [2] Exports are designated with minus.

are all available, while minimum prices are also guaranteed to provide incentives to expand marketed production. In Morocco, prices for soft wheat, which is normally imported, are fixed while those for durum and barley are free but with a guaranteed minimum. Since the mid-1960s producer prices had remained unchanged, but increases were agreed upon beginning in 1971/72 to compensate for higher costs of production. At the same time flour prices, unchanged since 1952, were increased and brought more in line with wheat prices. The subsidy for bread was estimated to be in excess of US$10 million. The funds now being freed are to be devoted to improving production. In both Algeria and Tunisia prices are fixed, with premiums to orient production toward expanding output of soft wheat. In both countries the governments are seeking to concentrate production on suitable land in order to increase yields while diverting marginal areas to other crops, and the consolidation of smallholdings into cooperatives is encouraged. However, the achievement of plan targets, although reducing or completely eliminating dependence on imports, would result in only slight increases in per caput consumption levels.

The countries facing major constraints in increasing food production are those in Africa south of the Sahara, the least developed, where soils are poor and rainfall scanty. Assistance to farmers in these areas can have only limited success unless high priority is given to better management of water resources, and improvement of water supply through irrigation systems and the construction of wells. In several of these countries the lack of water resources is the main obstacle to productivity, and a simple technology for arid zone farming is of basic importance. The establishment of cereal reserves to offset poor harvests is an integral part of the policies of a number of African countries. However, stocks may be expensive to hold, although some of the difficulties facing individual countries in establishing reserves could possibly be resolved within a framework of subregional cooperation.

Regional economic integration

The signing of the treaty to establish the West African Economic Community in June 1972 was perhaps the highlight of integration efforts in Africa during 1972.[43] This Community is primarily for an " organized zone of exchange " for agricultural goods, but a special preferential system for industrial goods will be established also. Only a month after the signing of the treaty Nigeria and Togo announced that they will form the nucleus of yet another west African economic community, which would eventually admit other countries of the subregion. The proliferation of associations, unions and communities in west Africa would seem to underline that notwithstanding current political will in the subregion greater efforts and compromise are needed for a meaningful organization that would embrace the whole area. Proposals were made in 1972 for an economic community involving Guinea, Liberia and Sierra Leone; subsequently a United Nations interagency team (FAO, GATT and UNIDO) was requested to review the scope for cooperation between Liberia and Sierra Leone. Several summit and ministerial meetings of the smaller economic groupings of the subregion were also held to foster closer cooperation, including the Liptaka-Gourma Development Authority, the Organization for the Development of the Senegal River States, the Cocoa Producers' Alliance, the African Groundnut Council, and the Entente Council.

In September 1972 a summit conference of heads of states from east and central Africa was convened in Tanzania, to discuss ways of strengthening cooperation in trade, agriculture, tourism and communications. In the same month, however, Congo announced its withdrawal from the Joint Afro-Malagasy and Mauritius Organization (OCAMM).

The first All-African Trade Fair was held in Kenya in February 1972, with 37 member states of the Organization of African Unity participating. The objective was to increase the volume of intra-African commerce, at present estimated at 6 percent of the regions's total exports. Trade among African countries has grown by about 11 percent per year, with oil exports being the most important single item. It is expected that the next All-African Trade Fair will be held in 1976.

SOUTH AFRICA

Agricultural production in South Africa in 1972 was about 4 percent above the previous record level of 1971. Field crops showed the greatest increases. The upward trend in wheat production continued, with the 1972 harvest larger by about 4 percent. Supplies exceeded domestic requirements and South Africa became a net exporter of wheat in 1972. The maize harvest was also larger, by 12 percent, and just short of the record level of 1967. The grain sorghum crop, however, was smaller. Sugar production increased to almost 2 million tons, the second record harvest in succession. Production of groundnuts was higher and that of sunflowerseed again rose sharply. Favourable weather contributed to another record deciduous fruit crop and orange production rose by about 20 percent. Widespread

[43] The treaty was signed by Dahomey, Ivory Coast, Mali, Mauritania, Niger, Senegal and Upper Volta.

drought, which commenced in October 1972, reduced 1973 harvests, particularly of maize, grain sorghums, groundnuts and tobacco.

Livestock production was generally higher during 1972. A further increase in cattle numbers is reported and the decline in sheep numbers appears to have been halted. Meat production increased, although slaughterings of sheep and lambs were reduced. Domestic demand grew, however, and imports of meats and meat products rose. Dairy production was also reported to be higher. Butter output declined, however, during the latter part of 1972, as demand dropped following the legalization of yellow margarine. Cheese production is estimated to have been higher by about 10 percent, but demand continued to rise more rapidly than production.

The 1971 wool clip was smaller by about 7 percent, mainly because of the previous decline in sheep numbers. As world demand became stronger in early 1972, prices rose sharply. The stocks of the South African Wool Commission were reduced and exports were larger by more than 40 percent in volume and 50 percent in value. The 1972 clip is estimated to have been 9 percent greater than the previous year. Under the new wool marketing scheme that became effective for the 1972 season, the Wool Board acquires the entire clip at a guaranteed floor price. Partial payment is made to producers on delivery and the balance paid at the end of the season. Each type of wool is sold through a separate pool (of which 43 have been established) and credit left in a pool at the end of the season is distributed to the producers selling through it. Thus, the possibility of returns from one type of wool serving to subsidize production of other types has been eliminated.

Chapter 3. - AGRICULTURAL EMPLOYMENT IN DEVELOPING COUNTRIES

How to provide productive and rewarding employment opportunities for their rapidly growing populations is perhaps the most difficult of all the problems facing the developing countries in the Second United Nations Development Decade. The gravity of employment problems became steadily more apparent during the previous decade of the 1960s, as more and more of those born in the post-war population explosion reached working age. Even those countries that achieved a satisfactory rate of overall economic growth, including a substantial expansion of manufacturing industry, found that employment was not increasing fast enough and unemployment was worsening menacingly. A new emphasis on the social and distributional aspects of development has also led to growing preoccupation with employment problems. The crucial role of agriculture in providing employment opportunities at the present stage of development has been increasingly recognized.

National development plans have given progressively more attention to employment objectives. Already in 1951 the first five-year plan of India gave considerable emphasis to employment, as did the first plans of Pakistan and Sri Lanka, published in 1957. But these were isolated examples, and it was generally not until the early 1960s that many plans began to consider employment problems in any detail and the late 1960s before this became widespread. The new plans prepared in the early 1970s are becoming more and more employment conscious, although there is as yet little sign of any greater success in coping with employment problems.

International preoccupation with employment problems has also grown rapidly. During the 1960s the International Labour Office (ILO) became steadily more involved in questions related to the creation of new employment opportunities in developing countries, culminating in the launching of the World Employment Programme in 1969.[1] A major achievement under this programme has been the mounting, in cooperation with FAO and other agencies, of comprehensive employment missions to Colombia, Sri Lanka, Kenya, Iran, the Dominican Republic, and the Philippines. The reports of the four missions that have so far been published have made notable contributions to the formulation of employment strategies and policies.[2] Among the major international lending institutions, the World Bank Group has in recent years been reviewing its approach in order to take fuller account of employment, income distribution and related considerations in its operations.[3]

The international strategy adopted for the Second Development Decade states that: "Each developing country should formulate its national employment objectives so as to absorb an increasing proportion of its working population in modern-type activities and to reduce significantly unemployment and underemployment." [4] It goes on to specify that they "will scrutinize their fiscal, monetary, trade and other policies with a view to promoting both employment and growth.... Wherever a choice of technology is available, developing countries will seek to raise the level of employment by ensuring that capital-intensive technology is confined to uses in which it is clearly cheaper in real terms and more efficient.... As part of their employment strategy, developing countries will put as much emphasis as possible on rural employment, and will also consider undertaking public works that harness manpower which would otherwise remain unutilized." [5]

These preoccupations have been reflected in a growing amount of research on employment problems, both basic research conducted in academic institutions, and research in national planning secretariats and international organizations more im-

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[1] International Labour Office. *The world employment programme*. Geneva. 1969.

[2] In addition to the reports themselves (so far published for Colombia, Sri Lanka, Kenya and Iran), see: International Labour Office. *Employment policy in the second development decade: a United Nations family approach*. p. 33-44. Geneva. 1973; Erik Thorbecke. The employment problem: a critical evaluation of four ILO comprehensive country reports. *International Labour Review*, 107 (5): 393-423. 1973.

[3] International Bank for Reconstruction and Development. *The employment problem and Bank operations*. Washington. D.C.. 1972.

[4] United Nations. *Resolutions adopted by the General Assembly during its twenty-fifth session, 15 September-17 December 1970. Official records, twenty-fifth session. Supplement No. 28*, p. 41. New York. 1971. (A/8028)

[5] United Nations. *op. cit.*, p. 47.

mediately oriented to the formulation of government policies. The Development Centre of the Organisation for Economic Co-operation and Development (OECD) concentrated its research programme for 1969-72 on employment problems. There has also been an impressive amount of research under the ILO World Employment Programme, including studies of the measurement of unemployment and underemployment, of fiscal measures for employment promotion, of agrarian reform and employment, and of agricultural mechanization and employment.

Significance of employment

The main reason for the present concern with the employment problems of developing countries is obviously that they have become strikingly apparent and have worsened markedly in recent years. But there are other important reasons for regarding the generation of employment opportunities as one of the most fundamental objectives of development at the present time.

Like education, employment has a dual role in development. On the one hand, it is an input, in the sense that labour is a factor of production. On the other hand, it is also a channel through which people derive benefits from the economic system.

The developing countries are short enough of resources for development, and it is tragic even in purely economic terms that they should fail to take fuller advantage of the one abundant resource that they possess. With the exception of the small number of countries producing petroleum and other minerals, they are all short of capital. Even those fortunate enough to have abundant land resources require capital to develop them. Apart from the advantages of using the factors of production in proportions that more closely reflect their relative abundance, the developing countries have a unique opportunity to use their plentiful and thus still cheap labour supply to create the infrastructure that they need for the future.

The purely economic aim of remedying the present underutilization of the one abundant factor of production has lost none of its importance. But it has now been joined by even more pressing social objectives, stemming from a recognition of the justly rising aspirations of the underprivileged masses of mankind. Unemployment and underemployment are not simply economic problems resulting from the misallocation of resources. They are essentially human problems, starkly affecting the day-to-day lives and the lifetime expectations of millions of individuals.

The links between poverty, employment, and the need for a more equitable distribution of income are brought out particularly clearly in the recent report of the United Nations Committee for Development Planning on the attack on mass poverty and unemployment.[6] In countries with weak administrative and fiscal systems, employment creation has special significance as the most effective means of income redistribution.

The demoralizing effects of unemployment or only partial employment need no documentation. Those without work are "marginal people," with little useful role to play in society and no means of benefiting from national development. Under prevailing economic and social systems, work provides the only means for a person without capital to participate in the economy and society, and to have the possibility of improving his living conditions. The unemployed and underemployed, and especially the growing numbers of educated unemployed, constitute a threat of social and political unrest that could jeopardize and even reverse such material progress as is being made.

It is these social considerations above all that have led to the realization that employment can no longer be left on one side as a by-product that will hopefully result from economic growth, conventionally conceived and measured. Even if high rates of economic growth are achieved, recent experience has shown that special measures are still needed if employment is to be increased fast enough. Most of the national development plans that take employment at all seriously now include special measures of this kind, such as the promotion of labour-intensive methods of production, and public works programmes to relieve underemployment and seasonal unemployment. These measures are often conceived as a short-term or emergency component of an overall, longer term employment strategy. A few plans even go so far as to elevate employment to first place in the hierarchy of development objectives.

Employment role of agriculture

There is no doubt that the eventual solution of the employment problems of the developing countries can be achieved only through the movement of large numbers of people out of agriculture into nonagricultural employment in manufacturing industry, construction and services. Agriculture will gradually contribute a smaller and smaller fraction of new jobs, until (as has already occurred in the developed countries and in a very few of the developing ones) agricultural workers finally begin to decline in absolute numbers and not just as a proportion of the total labour force. In the shorter run, however —

[6] United Nations, Committee for Development Planning, *Report on the eighth session (ESCOR, 53rd session, Supplement No. 7)*, New York, 1972. (E/5126)

and this may still represent a very long time in many countries — agriculture has a specially important part to play in the creation of employment.

Agriculture is still the sector in which by far the largest part of the population of the developing countries obtains its livelihood, however precarious that may be. People are born into the agricultural labour force, rather than actively choosing to work in agriculture. Many of them who leave agriculture cannot find nonagricultural work, sometimes because they are not trained for it, but more often simply because the work is not available. However much priority is given to investment in the nonagricultural sectors of the economy, it is clear from recent experience that in the short run nonagricultural jobs cannot be created fast enough to absorb all of those who wish to and indeed should leave agriculture.

Thus there has been a reversal of the traditional employment role of agriculture. This was seen as releasing labour, by means of increased productivity, for work in the nonagricultural sectors of the economy. Agriculture still has to play this traditional role, but it is dwarfed at the present time by the need to provide additional employment opportunities at a rate that will slow down rural-urban migration to the pace at which nonagricultural employment opportunities can be generated and people trained for them. The fact that for a long time to come most of the work force will be in agriculture also means that measures to reduce poverty and improve income distribution will have to be concentrated there, which is in any case where the poorest people are predominantly to be found.

This is not to say that agriculture, as is sometimes suggested by those concerned with industrial development, should take on all the burden of the special measures needed to increase employment, leaving industry free to pursue the most modern methods of production without regard for their employment consequences. The need to use more labour-intensive technology must be taken just as seriously in manufacturing industry as in agriculture. But even if the labour-absorptive capacity of industry could be quite substantially improved, this would probably only slightly diminish the employment role of agriculture at the present time.

The agricultural and industrial sectors are just as interdependent in respect of employment as in all other aspects of development. The agricultural populations of the developing countries, because of their sheer relative size, constitute the biggest potential market for the products of their growing industrial sectors. Increased employment and more equitable income distribution in agriculture can help industry to absorb more labour, not only by increasing the total demand for its products but also by shifting demand toward the simpler products that can more readily be manufactured with labour-intensive techniques.

The main purpose of the present study is to examine the employment situation in agriculture at the beginning of the Second Development Decade, the supply of agricultural labour and the factors affecting the demand for it, and the ways in which the sector can be enabled to play the vital part in employment generation outlined above. It is not, of course, desirable or useful to consider agricultural employment problems in isolation, and they are viewed as far as possible against the background of overall economic and social development. Similarly, the wider context of rural employment is more useful and realistic than agricultural employment alone. A considerable proportion of the additional nonagricultural jobs that are needed must be in rural areas, including decentralized rural towns, if the congestion of the major cities is not to become intolerable and if the rural areas are not to continue to stagnate. The aim is not to slow down the shift into nonagricultural occupations but to reduce premature rural-urban migration in advance of the rate at which nonagricultural jobs become available. Furthermore, if such increased agricultural work opportunities as can be provided are actually to be taken up, it is also necessary to considerably improve rural services and amenities and access to the common benefits of development, in order to reduce the present glaring disparities with urban areas. There is unfortunately even less information on nonagricultural employment in rural areas than on agricultural employment, but as far as possible this study deals with rural and not just agricultural employment.

Mention must also be made at the outset of some aspects deliberately not covered. In many parts of the developing world, in particular the widespread arid and semiarid areas, the main need is for technological breakthroughs that will make it possible to increase agricultural production. These would clearly also have an enormous impact on agricultural employment. While these aspects are not ignored, the main concern of this study is less with such general measures of agricultural development than with ways to get more employment out of a given level of production.

A very important aspect of human resources planning is the training of skilled manpower for government services and other enterprises. Manpower planning and training of this kind are no less important in the agricultural sector than elsewhere, but are not considered here except where they concern the need to train the labour force for more productive employment in agricultural production itself. The emphasis is on the generation of increased employment opportunities in agricultural production and, as far as possible, in the wider rural sector.

The study draws extensively on the vast amount of recent research on employment problems. Indeed one of its principal aims is to present some of the more significant results of this research in a form in which it may be more readily applicable in government policy formulation. But it has also been prepared on the basis of an analysis of the development plans of more than 50 countries. An annex to the study is devoted to a review of the employment situation and prospects as they are perceived in national development plans, and of the measures proposed by governments to increase agricultural and rural employment opportunities. It is therefore hoped that the study will serve as a useful benchmark survey of the situation at the beginning of the Second Development Decade and of the measures proposed to increase agricultural and rural employment, against which progress during the rest of the decade can be appraised.

Employment situation

Statistics relating to employment in developing countries are highly inadequate. This is a major obstacle to effective employment planning, preventing not only the accurate measurement of the amount of employment that has to be created but also the evaluation of the impact of measures to promote employment. A number of national development plans contain global statistical estimates of the employment situation, but many more refer to the lack of adequate data and propose measures to remedy it. The unreliability of the data is demonstrated by the substantial revisions made in these estimates in successive plans. Significantly, while India's second and third plans included such global estimates, they are omitted from the fourth plan pending further studies.

The strategy for the Second Development Decade calls on developing countries to "make vigorous efforts to improve labour force statistics in order to be able to formulate realistic quantitative targets for employment."[7] ILO has been making a major effort to assist in the improvement of such statistics, and FAO has been working on the data problems in the agricultural sector.

The problems are not only concerned with data collection but also with definitions and concepts. Many terms have been used (sometimes rather loosely) to define different types of unemployment and underemployment: open and disguised, voluntary and involuntary, frictional and structural, cyclical, seasonal. There is a substantial literature on the different concepts and ways to measure them.[8] Some aspects will be reviewed in discussing underemployment and seasonal unemployment, which are particularly prevalent in the agricultural sector.

Because of the limitations of the available data, the statistics presented below should be regarded as providing no more than a very approximate indication of the broad magnitude and main characteristics of the current employment problems in developing countries. In particular, the data for individual countries are rarely comparable.

The total labour force of the developing countries rose from 679 million in 1950 to 841 million in 1960 and 1 019 million in 1970 (Table 3-1). It is expected to reach 1 249 million by 1980 and 1 946 million by the year 2000, thus almost trebling in the course of half a century. The annual rate of growth in the developing market economies has risen steadily from 1.6 percent in the 1950s to 2.1 percent in the 1960s, and is expected to rise to as high as 2.6 percent a year in the 1990s, although in China and the other Asian centrally planned economies it has already begun to slow down. The accelerating increase in the labour force of the developing market economies of course mainly reflects the growth of population, which accelerated from 2.3 percent a year in the 1950s to 2.7 percent in the 1960s. The rate of population growth is expected to reach a peak of 2.8 percent a year during the 1970s, but (just as there was a time lag in the effect of the postwar population explosion on the labour force) it will be 15 years or so before this brings any reduction in the rate of growth of the labour force (Figure 3-1).

These rates of growth of population and labour force are about twice as fast as those experienced in the now industrialized countries of Europe in the nineteenth century, although they were matched

[7] United Nations, *op. cit.*, p. 47.

[8] See, for example: P.N. Rosenstein-Rodan, Disguised unemployment and underemployment in agriculture, *Monthly Bulletin of Agricultural Economics and Statistics (FAO)*, 6(7/8): 1-7, 1957; International Labour Office, *Measurement of underemployment: concepts and methods: report prepared for the 11th International Conference of Labour Statisticians, Geneva, 18-28 October 1966*, Geneva, 1966; David Turnham (assisted by Ingelies Jaeger), *The employment problem in less-developed countries: a review of evidence*, p. 41-71, Paris, Organisation for Economic Co-operation and Development, 1971, Development Centre Studies, Employment Series No 1; G.T. Jones, *Basic concepts and definitions for measurement of underutilization of labour in developing countries, with special reference to data required for rural employment policy*, Rome, FAO, 1972. (ESS/MISC/2); United Nations, Committee for Development Planning, *Measuring the adequacy of employment in developing countries*, New York, 1972. (Paper prepared by the International Labour Office) (E/AC.54/L.44); Raj Krishna, Unemployment in India, *Indian Journal of Agricultural Economics*, 28(1): 1-23, 1973.

TABLE 3-1. – ECONOMICALLY ACTIVE POPULATION, RECENT YEARS AND PROJECTIONS TO 2000 [1]

	Economically active population						Average annual increase (compound)				
	1950	1960	1970	1980	1990	2000	1950-60	1960-70	1970-80	1980-90	1990-2000
	Millions						*Percent*				
DEVELOPED MARKET ECONOMIES [2]	247	274	305	337	371	414	1.0	1.1	1.0	1.0	1.1
North America	66	77	90	105	120	141	1.6	1.5	1.5	1.4	1.6
Western Europe	136	141	149	157	168	182	0.4	0.5	0.6	0.7	0.8
Oceania	4	5	6	8	9	11	2.2	1.9	2.9	1.2	2.0
EASTERN EUROPE AND U.S.S.R.	139	160	177	199	214	228	1.4	1.0	1.2	0.7	0.6
Total developed countries	386	434	482	536	585	642	1.2	1.1	1.0	0.9	0.9
DEVELOPING MARKET ECONOMIES [2]	449	524	645	819	1 046	1 351	1.6	2.1	2.3	2.5	2.6
Africa	78	91	111	138	176	229	1.6	2.0	2.2	2.4	2.7
Far East	277	318	389	488	626	800	1.4	2.1	2.3	2.5	2.5
Latin America	56	70	88	114	148	194	2.3	2.3	2.6	2.7	2.8
Near East	37	44	55	70	93	124	1.7	2.3	2.5	2.8	2.9
ASIAN CENTRALLY PLANNED ECONOMIES	230	319	374	437	514	595	3.2	1.6	1.5	1.6	1.5
Total developing countries	679	841	1 019	1 249	1 560	1 946	2.2	1.9	2.1	2.2	2.2
World	1 067	1 277	1 501	1 785	2 146	2 588	1.8	1.6	1.7	1.9	1.9

SOURCE: International Labour Office, *Labour force projections*, Geneva, 1971; the projections shown are those based on the United Nations medium variant for total population.

[1] The base period for the projections is 1960. – [2] Including countries in other regions not specified.

in the countries of migratory settlement in Australasia and North America.[9] The United Kingdom reached the point at which the increase in the labour force could be absorbed in nonagricultural employment with a growth rate in GDP of just over 2 percent a year; in the United States this point was reached with a growth rate of 3 percent a year. The contemporary developing countries were unable to achieve this with the growth rates of 4 to 6.5 percent a year that they realized during the 1960s. In a frequently quoted calculation, it is estimated that it would take a rate of growth in GDP of 9.3 percent a year for a typical Latin American country to reach this point, 10.2 percent for an Asian country, and 11.0 percent for an African country, and that this would still not reduce the backlog of unemployment and underemployment.[10]

The difference in the situation of the developing countries from that of the industrialized countries during their development period is not only in the rate of growth of the population and labour force. Manufacturing production has become much more capital intensive, which means not only that a given volume of industrial output requires less labour than before, but also that a greater investment of scarce capital is required to create an industrial job. Today's developing countries are squeezed at both ends in comparison with those that developed earlier — at one end the labour force is increasing faster, and at the other the capacity of industry to absorb labour is much less. Combined with a number of inappropriate government policies, which will be discussed later, these factors have resulted in rates of unemployment that exceed anything experienced in the now developed countries except during the great depression of the 1930s.

A review of surveys and censuses of open unemployment in urban areas at various dates during the 1960s, covering 39 countries, indicated very wide differences between countries, but in most of them the rate of unemployment was in the range of 10-20 percent of the labour force.[11] For Latin America it has been estimated that the total unused labour (including underemployment converted to a basis of unemployment) rose from 27.4 percent of the labour force in 1960 to 28.2 percent of the much larger labour force at the end of the decade. Open unemployment was estimated at 8.9 percent in the latter period, and underemployment, converted to unemployment equivalent, 19.3 percent.[12]

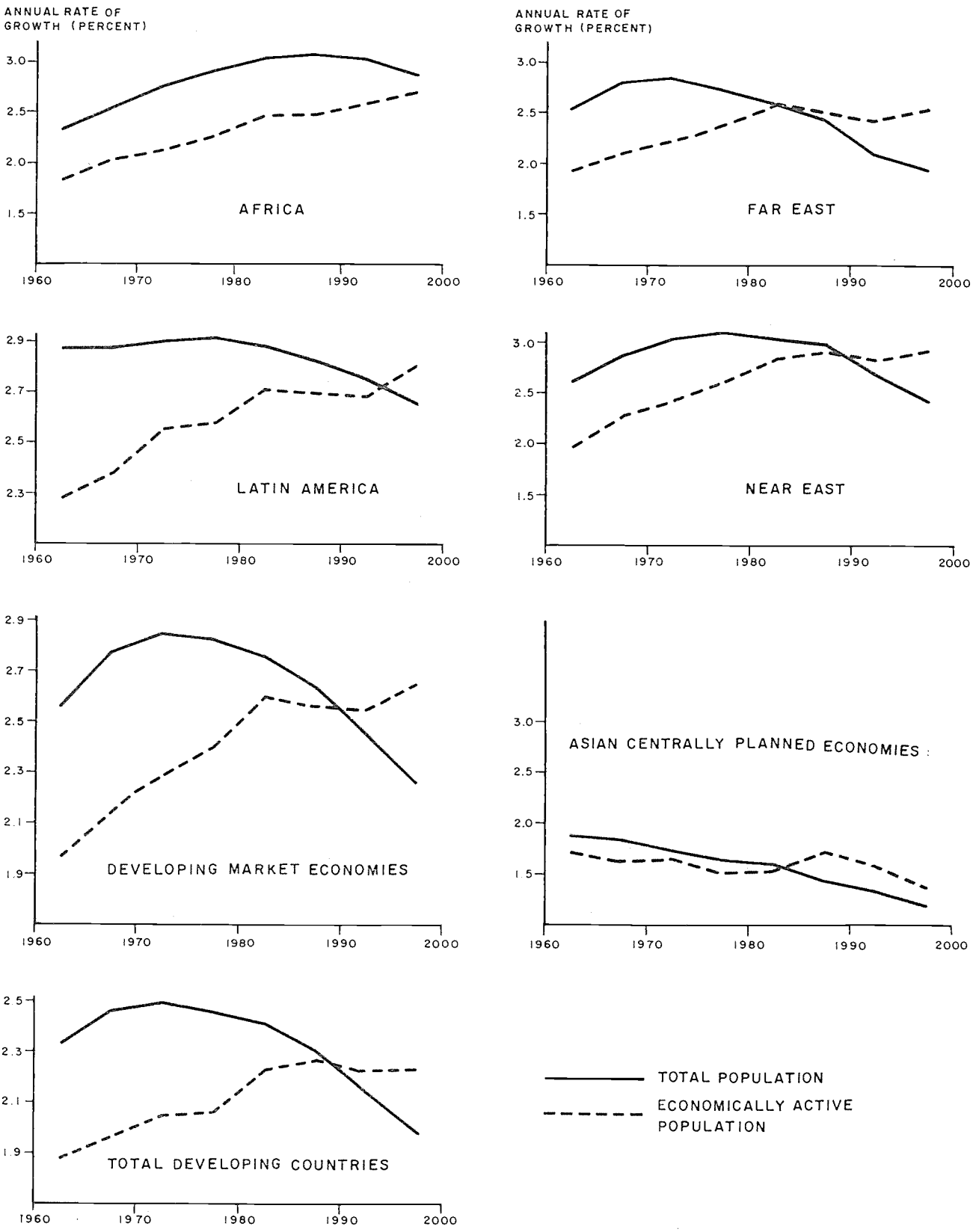
[9] David Turnham, *op. cit.*, p. 122-123.

[10] S.K. Singh, *Aggregate employment function: evaluation of employment prospects for LDCs*, p. 60. Washington, D.C., International Bank for Reconstruction and Development, 1969. (Mimeographed).

[11] David Turnham, *op. cit.*, p. 134-135.

[12] Instituto Latinoamericano de Planificación Económica y Social/Centro Latinoamericano de Demografía. *Elementos para la elaboración de una política de desarrollo con integración para América Latina*, p. 7. 10, Santiago, 1969, INST/S.4/L.2. Add. 2.

FIGURE 3-1. – ANNUAL RATES OF GROWTH[1] OF TOTAL POPULATION AND ECONOMICALLY ACTIVE POPULATION, DEVELOPING COUNTRIES, RECENT YEARS AND PROJECTIONS TO THE YEAR 2000



[1] Annual average rates of growth for five-year periods.

Whether rates of open unemployment have been rising in developing countries in general is uncertain, although it is quite certain that the actual numbers of unemployed have risen substantially in recent years.[13] Data from labour force sample surveys carried out periodically during the 1960s indicate that the trend in the rate of open unemployment has been downward in 5 out of the 13 countries for which such data are available, upward in 1, and unclear in the rest.[14]

Urban unemployment rates tend to be higher for females than for males, and are generally highest among young workers.[15] While the more general problem is still an overabundance of unskilled workers and a shortage of skilled, in a number of countries (especially in the Far East and Latin America) there is now a high proportion of "educated unemployed." They were estimated as more than 25 percent of the total unemployed in Sri Lanka in 1968.[16] It should be noted, however, that this does not result just from a shortage of skilled jobs, but is also because they have been trained in skills which are not actually required in the economy.

Data on rural employment are even less adequate than those for urban areas. Where comparisons are possible, however, it appears that open unemployment is usually considerably less in rural than in urban areas.[17] This is as would be expected, since open unemployment in rural areas is normally either transferred fairly quickly by migration to the urban areas or disguised by work sharing. As discussed below, the principal manifestation of employment problems in rural areas is underemployment.

Agricultural underemployment

Underemployment and low labour productivity are inevitable when on average two thirds of the labour force of the developing countries are in the agricultural sector and only the remaining one third depends on them for purchased food and agricultural products. They are also accentuated by the highly seasonal nature of so much agricultural work.

Underemployment is even more difficult to define and measure than unemployment. The results are bound to be somewhat arbitrary, because of the need to determine some standard of time worked or of productivity and income that can be taken as the dividing line between full employment and underemployment. Moreover, while data on the time worked on strictly agricultural tasks are scarce enough, information is very rarely collected on the time spent on activities such as marketing, processing, and food preparation, and the maintenance and improvement of the farm or the dwelling.[18]

Several different ways of measuring underemployment are in use, but probably no single one of them is completely satisfactory, and it is best to use a combination of them to arrive at a full picture of the situation. In particular, measures that arrive at only an average level of underemployment for the labour force as a whole are of limited usefulness. Most agricultural employment is not divided up, as in manufacturing industry, into distinct jobs held by individuals, but is simply shared out among the labour force, usually very unevenly because of inequities in the agricultural structure. It is therefore necessary to know the distribution of the available employment opportunities.

The simplest and most widely used approach is to measure the number of people who have less than a certain number of days of work per year or hours per week. A more sophisticated measure is the "surplus labour approach," which compares the total man-years available with those that are actually utilized, usually in a static but sometimes in a dynamic sense. A refinement on this approach which is particularly important in agriculture takes account of the substantial difference in monthly labour requirements, and would distinguish between structural and seasonal underemployment.[19] Structural underemployment is that part of the labour force which is truly surplus and could be removed without affecting total output at any time of the year.

None of these approaches takes account either of the intensity of work or of its productivity. Many people in agriculture work very long hours but for very low incomes. Conversely there are cases where the total income of the family is satisfactory, even though its labour resources are not fully employed throughout the year, and they may prefer leisure to additional employment. A further approach therefore measures the number of people whose productivity or incomes are below a certain level.

An additional complication with agricultural underemployment in developing countries is that a very large proportion of the agricultural labour force is in the lowest income groups whose diets are inadequate for full development, health and working

[13] David Turnham, *op. cit.*, p. 135-136.
[14] International Labour Office. *Employment objectives and policies in developing countries*, p. 3, 8. Geneva, 1973. (Paper prepared for ninth session of Committee for Development Planning)
[15] *Ibid.*, p. 3, 6-7.
[16] Sri Lanka. Ministry of Planning and Employment. *The five-year plan 1972-76*, p. 5. Colombo, 1971.
[17] David Turnham, *op. cit.*, p. 57.
[18] Data for India in 1956/57 indicate that in West Bengal adult males in agriculture spent only 49 percent of their working day of eight hours on on-farm activities and the rest on social, family and business affairs, although in the three other areas for which data were available the proportion of on-farm activities was as high as 86-93 percent (M. Paglin, "Surplus" agricultural labour and development, *American Economic Review*, 55(4): 826, 1965.
[19] Erik Thorbecke, *Unemployment and underemployment in the developing world*, Columbia University Conference on International Economic Development, Williamsburg, Va., and New York, 15-21 February 1970, Doc. No. 29, p. 5.

efficiency. Many suffer as well from endemic disease and parasitic infection, which also restrict work performance. Even though very little is known about the quantitative relation between nutrition and working efficiency, it appears likely that underemployment and inadequate diet are closely associated, and that there is a vicious circle in which low productivity is partly the cause and partly the result of low income and low work input.[20] In some areas the diet may be particularly inadequate in the preharvest period, so that if harvesting has to be performed quickly total output may be limited by the low working efficiency at that time. It is possible that some part of the apparent underemployment reflects not a surplus of labour but the inability to undertake sustained work for long periods.[21]

Survey data for 6 countries in various years in the 1960s indicate that the number of employed people in rural areas working less that 40-43 hours a week varied from 18.2 percent for males in Chile to 71.2 percent [22] for females in the Philippines, while in Sri Lanka 10.7 percent of employed rural males and 17.5 percent of females worked less than 20 hours. In each of the countries covered, except Chile and Venezuela, underemployment calculated in this way was much higher in rural than in urban areas.[23]

For Chile it has been estimated that (on the basis of 300 working days a year) only 55 percent of the actual work force of 664 000 were needed to obtain the agricultural output of 1955;[24] this contrasts with the much lower estimate of rural underemployment quoted above. Effective employment in Peru has been estimated as requiring 57 percent of the agricultural labour force actually available on the basis of a year of 200 man-days, and 46 percent based on 250 man-days.[25] Many similar examples could be quoted, but these should suffice to illustrate the broad magnitude of the problem. Some of the national development plans reviewed in the Annex also include estimates of underemployment, but generally without any indication of their basis.

The size of farm has a lot to do with agricultural underemployment. In Latin America, 47 percent of farm families in Colombia in 1960, 54 percent in Ecuador in 1960 and 64 percent in Guatemala in 1950 were estimated to be on "subfamily" farms of less than 5 hectares,[26] which were too small to provide adequate employment or incomes for the family labour force.[27] There is a large seasonal labour movement between these labour-surplus small farms and the medium and large farms, although these subsectors are far from being fully complementary. The surplus of labour on the smaller farms is usually much greater than the deficit on the larger. The seasonal demand peak on the larger farms rarely coincides with the peak supply on the smaller unless widely separated areas are considered, although it should be noted that some of the seasonal migrations in search of work cover great distances, especially in parts of Africa and Latin America, even crossing international frontiers.

The wide seasonal fluctuations that occur in the demand for agricultural labour are a main cause of underemployment, especially in areas where a single crop is predominant. In Chile the total demand in July is estimated as 63 percent of that in March.[28] In the Republic of Korea the hours worked in December are estimated as 40 percent of those worked in June.[29] These national figures, however, usually conceal even wider variations in the different parts of the country. Thus, in Peru at the national level the demand in September is estimated as 27 percent of that in June, but in one province in February it is as little as 0.4 percent of that in May;[30] these figures, however, exclude livestock production, which generally exercises a stabilizing influence on the seasonal demand for labour.

Even apart from seasonal factors, in some cases shortages of agricultural labour exist side by side with severe underemployment and even unemployment. An example is Jamaica, where there is a shortage of labour for coffee and sugarcane harvesting. In a small island with good communications the high wages obtainable in the bauxite industry appear to have led to a high reserve price for agricultural labour.

Rural-urban migration

The main mechanism by which people move from agricultural to nonagricultural employment is rural-urban migration. This migration is extremely difficult to measure with the data at present available.

[20] David Turnham, *op. cit.*, p. 80, 91-92.
[21] Montague Yudelman, Gavan Butler and Ranadev Banerji, *Technological change in agriculture and employment in developing countries*, p. 19. Paris, Organisation for Economic Co-operation and Development, 1971. Development Centre Studies. Employment Series No. 4. For a fuller discussion of this problem, see Harvey Leibenstein, The theory of underemployment in backward economies. *Journal of Political Economy*, 65(2): 94-98, 1957.
[22] Agricultural and nonagricultural industries only.
[23] David Turnham, *op. cit.*, p. 61.
[24] Comité Interamericano de Desarrollo Agrícola, *Chile: tenencia de la tierra y desarrollo socioeconómico del sector agrícola*, p. 27, Santiago, 1966.
[25] E. Thorbecke and E. Stoutjesdijk, *Employment and output: a methodology applied to Peru and Guatemala*, p. 49. Paris, Organisation for Economic Co-operation and Development, 1971. Development Centre Studies. Employment Series No. 2.
[26] The definition of a subfamily farm would of course be even smaller in areas of lower land-man ratios and more intensive agriculture than Latin America.
[27] Solon Barraclough and Juan Carlos Collarte, *El hombre y la tierra en América Latina: resumen de los informes CIDA sobre tenencia de la tierra*, p. 456, Santiago, Editorial Universitario, 1972.
[28] Chile, Ministerio de Agricultura, Oficina de Planificación Agrícola, *Plan de desarrollo agropecuario 1965-1980*. Vol. 2, p. 5-112, Santiago, 1968.
[29] K.S. Kim, Labour force structure in a dual economy: a case study of South Korea. *International Labour Review*, 101(1): 47, 1970.
[30] Convenio para Estudios Económicos Básicos, *Requerimientos mensuales de mano de obra para la agricultura por hectárea, por cultivo, por provincias y para la actividad pecuaria, año base 1967*, Lima, 1970. The overall figure quoted above is from a random sample of 15 of the 143 provinces covered.

A particular problem is that rural-urban migration may take place by stages, from farm to village to small town to large town, over a period of years or even generations. Moreover, in rural areas near urban centres the place of work may be changed without a change in the place of residence.

Even the rate of urbanization (which includes the natural growth of the urban population as well as rural-urban migration) can be only roughly estimated, partly because of differences and changes in the definition of urban areas. The most usual definition is based on population size, so that a locality may suddenly move from the rural to the urban class simply as a result of a small increase in the number of inhabitants.

According to United Nations estimates, the urban population rose from 22 to 26 percent of the total population of the developing countries between 1960 and 1970, and is expected to reach 32 percent by 1980. In the 1960s the urban population increased by 4.6 percent a year, and the rural by only 1.7 percent. The most rapid urbanization has been in tropical Africa, Central America and the Caribbean, and east Asia. Latin America is at present the most urbanized of the developing regions.[31]

If it is assumed that the natural growth of the urban population is roughly the same as that of the total population, it would appear that some 126 million people in the developing countries migrated from rural to urban areas during the 1960s. During the 1970s the total number of migrants might, on the basis of past trends, be of the order of 174 million, or almost 40 percent more than in the 1960s.

Rapid rural-urban migration is, of course, a normal feature of economic development. But in the developing countries it is occurring faster than productive urban employment is being created, and has therefore to some extent resulted in a transfer of unemployment and underemployment from the rural areas to the towns.[32] Because so many of the urban immigrants find only partial employment in the services sector, which is already heavily oversupplied with labour, and because governments have been unable to keep up with the rapidly growing needs for urban infrastructure, squalid shantytowns have grown up around the majority of the main urban centres in the developing countries. In most countries rural-urban migration has been concentrated on a few large, already overcrowded cities, and some of the problems would be alleviated if it could be partly diverted to smaller urban centres in the rural areas.

The nature and motivation of rural-urban migration are complex. They have so far been studied mainly in the receiving areas, after the people concerned have already migrated and are tending to rationalize their reasons for doing so. Much more study is needed of the "push" factors, or the conditions in the rural areas that stimulate people to leave.

Rural-urban migration obviously results from some perception of greater economic, social or cultural opportunities in the urban areas.[33] The most energetic and venturesome elements of both the poorest and the most privileged classes are attracted. The expansion of urban-biased education has swelled the ranks of the young people who are vividly aware of the differences between the countryside and the towns, and have hopes of escaping to the more exciting, modern and rewarding life that has been presented to them in urban terms. The available evidence, however, indicates that migration, with all its risks and uncertainties, is generally not undertaken lightly. There seems to be little to substantiate the "bright lights" theory, which seeks to explain migration primarily by the romantic lure of the city.

A principal cause is the sharp divergence between incomes in agriculture, the predominant source of rural employment, and nonagricultural incomes. Out of 33 developing countries for which data are available for the 1960s, in 9 countries agricultural income per caput was less than half the average level in the other sectors of the economy.[34] Moreover, in the majority of countries for which data are available the relative income position of agriculture deteriorated during the 1960s.

It seems likely, as is postulated in a well-known model of rural-urban migration, that the rate of migration is mainly determined not by prevailing real income differentials but by the expected income differential, i.e. the income differential adjusted for the probability of finding an urban job. Thus an increased rate of urban job creation can, by increasing the probability of finding such a job, actually lead to a rise in the absolute numbers of the urban unemployed and even in the rate of unemployment.[35]

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[31] United Nations. *Monthly Bulletin of Statistics*, 25(11): xxxvi, 1971.

[32] In Kenya the inflow of job seekers to the towns is estimated as roughly three times the rate of growth of job opportunities in the "formal" sector, resulting in a considerable expansion of employment in the "informal" sector to fill the gap (International Labour Office. *Employment, incomes and equality: a strategy for increasing productive employment in Kenya*. p. 49. Geneva. 1972).

[33] In Colombia, for example, "the reasons given by migrants for their move are more often than not economic, i.e. they moved because they believed that their economic position could be bettered, that they were likely to find a job, to get a house, to increase their income, to improve their conditions of living. Better education facilities for their children (and better health care for the whole family) are often subsumed under 'better living conditions'" (International Labour Office. *Towards full employment: a programme for Colombia*. p. 97. Geneva. 1970).

[34] FAO. *The state of food and agriculture 1970*. p. 135-137. Rome. 1970.

[35] Michael P. Todaro, A model of labour migration and urban unemployment in less developed countries. *American Economic Review*, 59(1): 138-148. 1969: John R. Harris and Michael P. Todaro. Migration, unemployment and development. *loc. cit.*, 60(1): 126-142. 1970. A further refinement is that it is the "perceived" income differential that is relevant: "Actual and perceived differentials will differ if there is imperfect information on urban jobs or unduly high aspirations in rural areas as a result of education." (Derek Byerlee and Carl K. Eicher. *Rural employment, migration and economic development: theoretical issues and empirical evidence from Africa*. p. 24. East Lansing. Michigan. Department of Agricultural Economics. Michigan State University. African Rural Employment Study. Rural Employment Paper No. 1. 1972.

Moreover, where (as is often the case) the migrants are better educated, younger and less underemployed than those in the informal urban sector which they enter, they may take employment away from the latter group, thereby increasing total unemployment. Both these points strongly emphasize the need to tackle premature rural-urban migration in the rural areas themselves.

This involves not only the provision of more productive and remunerative employment opportunities, but also a wide range of measures to make rural life more attractive. For rural-urban inequalities are not confined to conventionally measured income differentials. These are accentuated still further by the very different level of access of rural and urban communities to the infrastructure and services provided by the government, as well as to the general amenities of life. It has not so far been possible to measure such things as a component of "income," but with the improvement of mass communications people have become increasingly aware of and impatient with these discrepancies. A number of studies of migrants indicate that, even though they find life difficult in shantytowns, they believe that their children will have better opportunities because of the higher level of social services available, particularly education and health, and the possibility to develop the skills needed in a modern society.

Concrete data on this aspect are extremely limited, but some indications have been assembled for Latin America.[36] The proportion of the population over 15 years old that is literate varies between 65 and 94 percent in urban areas and between 23 and 84 percent in rural areas in the different countries of the region. In Colombia 91 percent of the medical doctors are in cities with more than 20 000 inhabitants, which contain only 36 percent of the total population. Houses with running water range between 42 and 98 percent in urban areas and between less than 1 percent and 51 percent in rural areas in the Latin American countries for which data are obtainable. For electric lighting the proportions are 46 to 94 percent in urban areas and 2 to 32 percent in rural areas.

[36] United Nations. Economic Commission for Latin America. *Economic survey of Latin America 1970*. p. 59-61. New York. 1971.

In many developing countries semifeudal land tenure systems and rural structures, in spite of providing for mutual responsibilities and offering a minimum level of security, still limit the access of the rural worker to productive resources. They also leave him a dependant, with no participation in the decisions that affect his life. Another factor is the sheer drudgery of so much agricultural work under the conditions in which it has to be performed in the developing countries today.

Migration may often be selective, taking away the young, able-bodied, more energetic and better educated adult males, leaving the rural areas with a very high dependency ratio (a large proportion of elderly women and young children). Where this has occurred, as in parts of Kenya, the economic and social consequences may be serious.[37] The areas of origin are left with less production vigour, less stable families and social systems, a more conservative population, and (except where partially compensated by remittances from urban areas)[38] with increasingly less viable economies. Moreover, savings spent on education are transferred from the rural to the urban sector as a result of the migration of educated people.[39]

Thus, in order to see rural-urban migration in proper perspective it is necessary to distinguish between its private and social aspects. "In spite of the struggles that many go through to find work or just to survive, for those who succeed it is clearly worth while, and even for those who do not succeed it is usually worth trying." But it is wrong "to assume that because migration is privately worth while it must be socially desirable... the particularly rapid rates of recent years have been too high, reinforcing the tendency for the centre to absorb even more resources and increasing urban problems, particularly with regard to employment." [40]

[37] International Labour Office. *Employment, incomes and equality* ... p. 45-50. Geneva. 1972.

[38] It has been estimated that 21 percent of the wages received by low- and middle-income groups in Nairobi is remitted in this way, mainly for taxes, school fees and expenditure on the family farm (G.E. Johnson and W.E. Whitelaw, *Urban-rural income transfers in Kenya: an estimated remittances function* (Mimeographed), quoted in International Labour Office, *op. cit.*, p. 48).

[39] Derek Byerlee and Carl K. Eicher, *Rural employment, migration and economic development. op. cit.*, p. 36.

[40] International Labour Office, *op. cit.*, p. 50.

Supply of agricultural labour

Earlier it was indicated that in 1970 about 26 percent of the population of the developing countries was in urban areas. Agriculture's share of the total labour force is of course somewhat lower than the 74 percent of the population in rural areas, since some nonagricultural employment (at present all too little) is to be found in these areas. The working population is also determined by the age and sex structures of the population, and by the rate of participation of the population of working age in the labour force.

TABLE 3-2. – SHARE OF AGRICULTURE IN ECONOMICALLY ACTIVE POPULATION, RECENT YEARS AND PROJECTIONS TO 2000 [1]

	1950	1960	1970	1980	1990	2000
	..... Percent					
DEVELOPED MARKET ECONOMIES [2]	28.5	20.3	14.1	9.3	6.1	4.0
North America	13.0	7.2	4.4	2.7	2.0	1.6
Western Europe	31.0	23.5	17.2	11.9	7.8	4.9
Oceania	15.9	12.0	8.9	6.3	4.1	2.7
EASTERN EUROPE AND U.S.S.R.	54.9	42.6	32.4	22.1	14.0	8.1
Total developed countries	38.2	28.5	20.8	14.0	9.0	5.5
DEVELOPING MARKET ECONOMIES [2]	75.9	71.4	65.4	57.9	49.9	42.3
Africa	84.7	80.5	75.5	69.2	60.5	48.2
Far East	78.1	74.2	68.2	60.6	52.9	46.7
Latin America	53.3	47.9	41.5	34.6	27.7	21.7
Near East	74.9	69.3	62.2	53.8	44.7	35.8
ASIAN CENTRALLY PLANNED ECONOMIES	84.9	75.2	66.7	59.0	51.5	44.4
Total developing countries	79.1	73.0	65.8	58.3	50.4	43.0
World	64.1	57.8	51.4	45.0	39.1	33.7

SOURCE: FAO, based on United Nations medium variant for total population, and ILO estimates and projections of economically active population shown in Table 3-1.

[1] Actual data are generally available up to some year between 1960 and 1965; the base period for the projections is 1965. – [2] Including countries in other regions not specified.

Table 3-2 shows that the share of agriculture [41] in the total labour force of the developing countries fell from about 79 percent in 1950 to 73 percent in 1960 and 66 percent in 1970. For the different developing regions the figures for 1970 ranged from 41 percent in Latin America to 75 percent in Africa. For China and the other Asian centrally planned economies the initial figure was higher than in the developing market economies, but the subsequent fall has been more rapid.

Although agriculture's share of the labour force is thus declining steadily in the developing world, it still remains very much higher than in the developed countries (14 percent in the developed market economies in 1970, and as little as 6.6 percent in the United States in 1960 and 3.1 percent in the United Kingdom in 1966). It is not expected to fall below half of the total labour force of the developing countries until early in the 1990s.

Growth of agricultural labour force

Another very significant difference from the developed countries is that, although declining as a percentage of the total, the agricultural labour force of the developing countries is still increasing in absolute numbers. Table 3-3 indicates that their agricultural labour force grew between 1960 and 1970 by 57 million, or at an average rate of 0.9 percent a year (46 million or 1.1 percent a year in the developing market economies, 11 million or 0.5 percent a year in the Asian centrally planned economies.) These increases are considerably smaller than the growth of 178 million or 1.9 percent a year in their total labour force shown in Table 3-1. Hence the gradual decline in the share of agriculture in the total labour force.

FAO has recently completed projections of the agricultural labour force to the year 2000,[42] and the results are shown in Tables 3-2 and 3-3. These take as their point of departure the United Nations projections of total population and the ILO projections of total labour force for individual countries. They are derived by extrapolating the past trends in the rate of net migration from agricultural to nonagricultural occupations in individual countries, and assuming that both the rate of the natural growth of the population and the overall rate of participation of the population in the labour force are the same in agriculture as in the rest of the economy. They also assume that in the developing countries GDP per caput will grow in line with the United Nations macroeconomic projections for the Second Development Decade, and that the growth rate of agricultural GDP in relation to total GDP in these countries will be as assumed in the FAO Indicative World Plan for Agricultural Development. [43]

These projections indicate that the agricultural labour force of the developing countries would (on the assumptions made) increase during the 1970s by a further 57 million, or by about the same amount as in the 1960s and at the same rate of growth. While in most areas the rate of growth is already slowing down, in the Caribbean and some parts of Africa it would continue to accelerate during the 1970s and in some cases beyond.

The increase in the agricultural labour force of the developing countries in the 1970s would represent about 25 percent of the total growth of their labour force during this period (Figure 3-2). For the 1960s the comparable figure was 32 percent.

Between 1970 and 2000 the agricultural labour force of the developing countries is projected (on

[41] In accordance with the United Nations International Standard Industrial Classification of all Economic Activities (ISIC), the agricultural labour force is defined here to include fishing, forestry and hunting. The general discussion later in the study, however, is confined to crop and livestock production, and fishery and forest production are specifically considered only in the section on integrated rural development.

[42] The projections for 1965-85 and the methodology used were presented in W. Schulte, L. Naiken and A. Bruni, Projections of world agricultural population, *Monthly Bulletin of Agricultural Economics and Statistics* (*FAO*), 21(1): 1-12, 1972. They were extended to the year 2000 in FAO, *Projections of the world agricultural labour force and population 1965-2000*, a provisional study prepared by FAO for the United Nations Symposium on Population and Development, Cairo, 4-14 June 1973. Those shown here include some further minor modifications.

[43] FAO, *Provisional Indicative World Plan for Agricultural Development*, Rome, 1969, Regional Studies 1-4.

TABLE 3-3. – ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE, RECENT YEARS AND PROJECTIONS TO 2000 [1]

	Economically active population in agriculture						Average annual increase (compound) [2]				
	1950	1960	1970	1980	1990	2000	1950-60	1960-70	1970-80	1980-90	1990-2000
	Millions						*Percent*				
DEVELOPED MARKET ECONOMIES [3]	70.4	55.6	43.1	31.3	22.5	16.5	— 2.3	— 2.5	— 3.1	— 3.2	— 3.1
North America	8.6	5.5	3.9	2.9	2.4	2.2	— 4.4	— 3.2	— 3.1	— 1.6	— 0.9
Western Europe	41.9	33.2	25.7	18.7	13.1	9.0	— 2.3	— 2.5	— 3.1	— 3.5	— 3.7
Oceania	0.7	0.6	0.6	0.5	0.4	0.3	— 1.0	— 0.7	— 1.4	— 2.5	— 2.0
EASTERN EUROPE AND U.S.S.R.	76.9	68.1	57.3	44.0	30.0	18.5	— 1.2	— 1.7	— 2.6	— 3.8	— 4.7
Total developed countries	147.3	123.7	100.4	75.3	52.5	35.0	— 1.7	— 2.1	— 2.8	— 3.5	— 4.0
DEVELOPING MARKET ECONOMIES [3]	341.8	375.6	421.2	469.8	522.4	572.7	0.9	1.1	1.1	1.1	0.9
Africa	66.1	73.6	83.8	95.4	106.5	110.4	1.1	1.3	1.3	1.1	0.4
Northwest Africa	4.5	4.6	5.0	5.8	6.6	7.2	0.4	0.8	1.4	1.3	0.9
West Africa	25.0	27.3	31.2	35.7	40.6	41.8	0.9	1.3	1.4	1.3	0.3
Central Africa	10.0	10.9	11.9	12.9	13.9	15.3	0.9	0.9	0.8	0.7	1.0
East Africa	25.8	29.8	34.5	39.8	44.1	44.5	1.5	1.5	1.4	1.0	0.1
Southern Africa	0.9	1.0	1.1	1.2	1.3	1.6	1.0	1.0	0.9	1.1	1.8
Far East	216.7	236.4	265.4	295.9	331.5	373.9	0.9	1.2	1.1	1.1	1.2
South Asia	157.2	168.2	186.8	206.0	229.4	256.9	0.7	1.1	1.0	1.1	1.1
East and southeast Asia	59.5	68.2	78.6	89.9	102.1	117.0	1.4	1.4	1.4	1.3	1.4
Latin America	30.0	33.6	36.6	39.2	41.0	42.3	1.1	0.9	0.7	0.4	0.3
Central America	7.1	8.4	9.6	10.7	11.4	12.4	1.6	1.3	1.1	0.6	0.8
Caribbean	3.8	4.0	4.3	4.6	5.1	5.7	0.6	0.7	0.8	0.9	1.1
South America	19.1	21.2	22.7	23.9	24.6	24.2	1.0	0.7	0.5	0.3	— 0.2
Near East	28.0	30.8	34.1	37.8	41.7	44.3	1.0	1.0	1.0	1.0	0.6
Near East in Africa	6.8	7.9	9.3	11.2	13.7	17.3	1.4	1.7	1.9	2.0	2.4
Near East in Asia	21.2	22.9	24.8	26.6	27.9	27.1	0.8	0.8	0.7	0.5	— 0.3
ASIAN CENTRALLY PLANNED ECONOMIES	195.2	238.5	249.5	258.0	264.5	264.5	2.0	0.5	0.3	0.2	—
Total developing countries	537.0	614.1	670.7	727.8	786.9	837.2	1.4	0.9	0.8	0.8	0.6
World	684.4	737.8	771.1	803.1	839.4	872.2	0.8	0.4	0.4	0.4	0.4

SOURCE: FAO, based on United Nations medium variant for total population, and ILO estimates and projections of economically active population shown in Table 3-1.

[1] Actual data are generally available up to some year between 1960 and 1965; the base period for the projections is 1965. – [2] Minus sign denotes decrease. – [3] Including countries in other regions not specified.

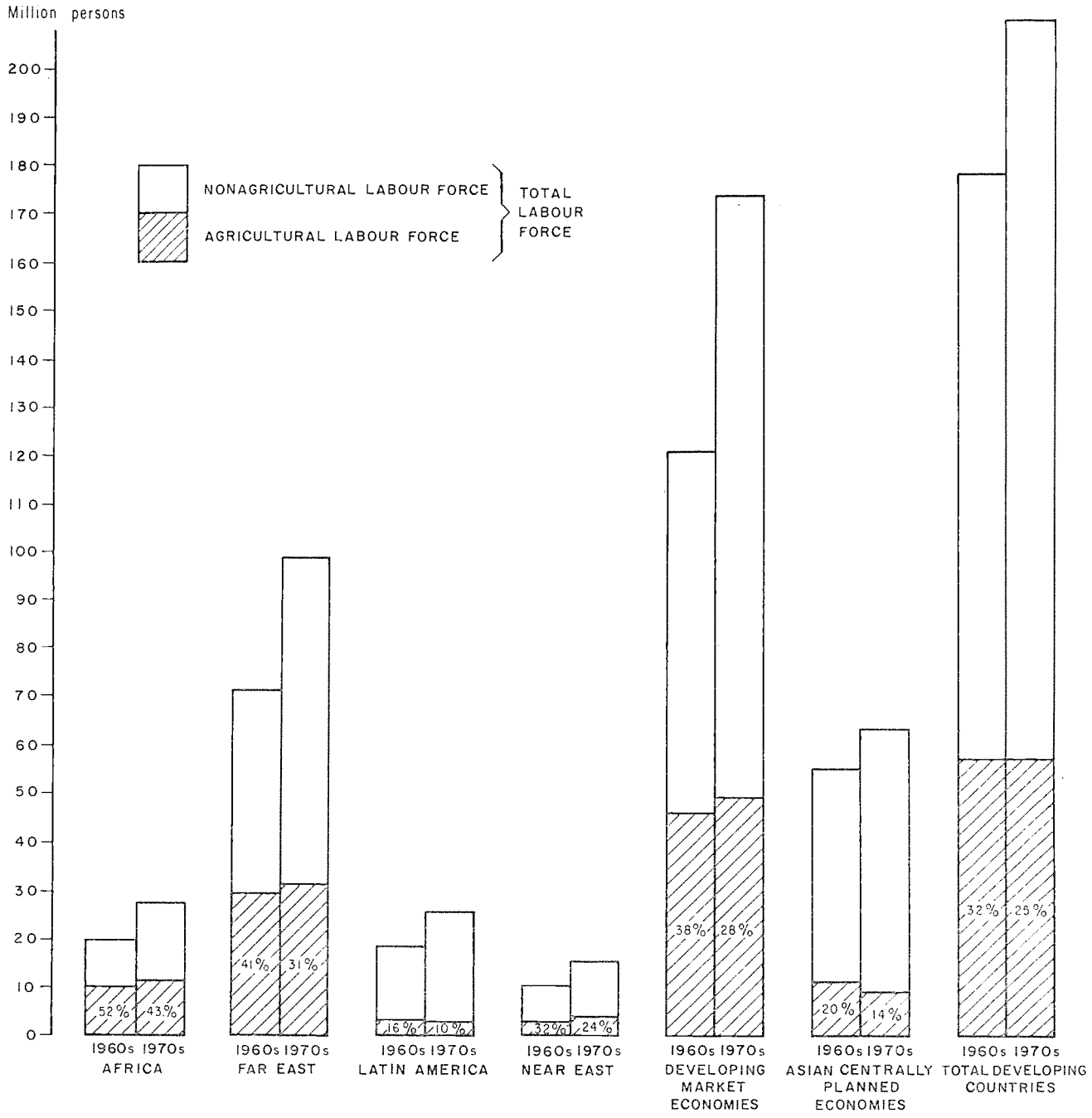
the assumptions explained earlier) to grow by the massive figure of 166 million, with almost all the increase in the developing market economies (reflecting mainly the faster rate of overall population growth expected in these countries than in the centrally planned economies). Toward the end of the century the rate of growth of the agricultural labour force should begin to tail off in the developing market economies, as it is already doing in the centrally planned economies.

MAXIMUM AGRICULTURAL LABOUR FORCE

These long-term projections make it possible to speculate on how much longer it will take for the agricultural labour force of the developing countries to begin finally to decline in absolute numbers. When this point is reached (and the maximum size of the agricultural labour force) will be determined mainly by the overall rate of population growth, the initial share of agriculture in the labour force, and the rate at which nonagricultural employment can be created.[44] It is a very significant turning point for agricultural employment and productivity, since from then on all instead of just a part of the increase in agricultural production has to come from additions to labour productivity. It is only after this point that modernization can aim directly at labour saving, so that a frontal attack can be made on the level of income in the agricultural sector. Moreover, it appears from the experience of the developed countries that once the agricultural labour force begins to fall it does so at an accelerating rate (Table 3-3).

[44] F. Dovring, The share of agriculture in a growing population, *Monthly Bulletin of Agricultural Economics and Statistics (FAO)*, 8(8/9): 1-11, 1959. See also Kazuahi Ohkawa and Bruce F. Johnston, The transferability of the Japanese pattern of modernizing traditional agriculture (and especially the Appendix note by John Cownie), *in* Erik Thorbecke, ed., *The role of agriculture in economic development*, p. 300-303. New York, National Bureau of Economic Research, 1969.

FIGURE 3-2. – INCREASE IN AGRICULTURAL LABOUR FORCE AS PERCENTAGE OF INCREASE IN TOTAL LABOUR FORCE, DEVELOPING COUNTRIES, 1960S AND PROJECTIONS FOR 1970S



This point has already been reached in Argentina and Uruguay (where the rate of population growth is very low), and in a number of island countries with heavy emigration (Cuba, Cyprus, Jamaica, Puerto Rico, and Trinidad and Tobago). For the developing countries as a whole, however, the calculations in Table 3-4 indicate that the turning point would not be reached (under the assumptions made) until the year 2006, when their agricultural labour force would reach a maximum of 846 million, representing 39 percent of their total labour force and an increase of 176 million or 26 percent over 1970.

The date of the turning point would range from 1995 in the Asian centrally planned economies to 2024 in the developing market economies of the Far East. The share of agriculture in the labour force when the maximum was reached would vary from 21 percent in Latin America to 51 percent in

TABLE 3-4. – CONJECTURAL ESTIMATES OF MAXIMUM ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE, DEVELOPING COUNTRIES AND WORLD [1]

	Year	Maximum level	Share of total economically active population
		Millions	*Percent*
DEVELOPING MARKET ECONOMIES [2]	2010	594	34
Africa	1998	110	51
Far East	2024	404	31
Latin America	2002	42	21
Near East	2003	43	33
ASIAN CENTRALLY PLANNED ECONOMIES	1995	265	48
Developing countries	2006	846	39
World	2006	872	30

SOURCE: Based on projections in Table 3-3.

[1] Based on projections for the year 2000. – [2] Including countries in other regions not specified.

TABLE 3-5. – CONJECTURAL ESTIMATES OF MAXIMUM ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE UNDER ALTERNATIVE ASSUMPTIONS, DEVELOPING COUNTRIES [1]

	Population variant (fertility)			
	Low	Medium [2]	High	Constant
	.... *Percent increase per year*			
Total population	1.7	2.1	2.5	3.3
Total economically active population	1.9	2.2	2.6	2.8
Economically active population outside agriculture	3.3 [3]4.1	3.6	4.1 [3]3.3	4.2
Economically active population in agriculture:				
Year of maximum	2002 1992	2006	2009 2050	2013
	..... *Millions*			
Maximum level	796 766	846	937 1563	977
	..... *Percent*			
Share of economically active population	42 49	39	36 21	32

SOURCE: Based on projections in Table 3-3, with additional projections based on other United Nations variants for population growth and the associated ILO projections of economically active population.

[1] Based on projections for the year 2000. – [2] As in Table 3-4. – [3] These are not projected rates, but are included for illustrative purposes.

Africa. The world's agricultural labour force would reach a maximum of 872 million in 2006, at which time it would be 30 percent of the total labour force. The agricultural labour force of the developed countries would be only 26 million at that time.

It must be emphasized that these calculations are highly speculative, and are included here only to illustrate the broad orders of magnitude and time periods likely to be involved. In addition to the assumptions made for the projections up to the year 2000, in taking them beyond this date it has been necessary to assume that the rates of growth of the total and nonagricultural labour forces, and thus the rate of net migration from agriculture, will remain constant at the rates projected for 1995-2000.[45] Such an assumption is hardly justifiable, especially since the results of the calculation are highly sensitive to the relative changes in the rates of growth of the total and nonagricultural labour forces.

These relationships are illustrated in Table 3-5. If population growth were at the United Nations low variant rate instead of the medium variant used in Table 3-4, the turning point would be reached a few years earlier and at a much lower level. Similarly the high variant would delay it by a few years, and would take the maximum agricultural labour force to a much higher level. These variants are associated in the FAO agricultural labour force projections with respectively lower and higher rates of growth of the nonagricultural labour force than those assumed with the medium variant in Table 3-4. At a given rate of population growth, a change in the rate of growth of the nonagricultural labour force substantially alters the time it takes to reach the turning point.

[45] Further work is under way to remove this constraint and thus improve the estimates.

LAND-MAN RATIOS

During the period when their agricultural labour forces are still growing in absolute numbers, land-man ratios will generally decline in the developing countries. A further significant aspect of the turning point discussed above is thus that it approximately indicates when land-man ratios should begin to rise again in those areas where they are now falling or are stable.

Out of 50 countries for which projections of arable land in 1985 are available in the regional studies under FAO's *Provisional Indicative World Plan for Agricultural Development*, it is estimated in Table 3-6 that the arable area per member of the agricultural labour force will fall between 1961-63 and 1985 in 25 countries (50 percent), will remain roughly unchanged in 10 countries (20 percent), and will rise in 15 countries (30 percent.) In the 50 countries taken together, the arable area would rise by 18 percent and the agricultural labour force by 28 percent, and the land-man ratio would fall by 8 percent from 1.7 hectares per person in 1961-63 to 1.6 hectares in 1985.

TABLE 3-6. – LAND-MAN RATIOS IN SELECTED DEVELOPING COUNTRIES,[1] 1961-63 AND PROJECTIONS FOR 1985

	Arable land		Population economically active in agriculture		Arable land per person economically active in agriculture	
	1961-63	1985[2]	1961-63	1985	1961-63	1985
	Million hectares		*Millions*		*Hectares per person*	
AFRICA SOUTH OF SAHARA	151.8	189.3	60.0	81.2	2.5	2.3
Cameroon	6.0	7.8	2.2	2.5	2.8	3.2
Central African Republic	4.2	5.4	0.7	0.8	6.0	6.8
Chad	6.8	7.1	1.0	1.6	6.5	4.5
Congo	0.4	0.6	0.1	0.2	2.7	3.6
Dahomey	3.6	4.8	0.6	0.9	5.9	5.4
Ethiopia	14.0	19.8	8.7	11.3	1.6	1.7
Gabon	0.2	0.2	0.2	0.1	1.0	1.4
Gambia	0.4	0.4	0.1	0.2	2.7	2.1
Ghana	8.0	8.0	1.7	2.4	4.6	3.3
Ivory Coast	5.6	9.2	1.7	2.0	3.2	4.6
Kenya	8.1	9.8	3.0	4.7	2.7	2.1
Madagascar	2.5	3.4	2.8	3.7	0.9	0.9
Malawi	2.6	3.8	1.6	2.3	1.7	1.7
Mali	7.2	10.4	2.3	3.4	3.1	3.1
Mauritania	0.3	0.3	0.3	0.4	1.0	0.8
Niger	8.8	9.6	0.9	1.6	9.3	5.9
Nigeria	31.8	31.8	13.6	18.7	2.3	1.7
Senegal	2.4	2.4	1.2	1.5	1.9	1.6
Tanzania	14.0	17.4	4.4	6.4	3.2	2.7
Togo	1.9	1.9	0.5	0.8	3.5	2.4
Uganda	6.1	7.5	2.8	4.1	2.1	1.8
Upper Volta	4.9	4.9	2.4	3.3	2.0	1.5
Zaire	7.2	14.0	5.8	7.1	1.2	2.0
Zambia	4.8	8.8	1.0	1.3	4.6	6.6
FAR EAST	209.8	222.4	195.5	248.9	1.1	0.9
India	161.5	164.4	141.1	169.3	1.1	1.0
Korea, Republic of	2.1	2.6	5.6	7.1	0.4	0.4
Malaysia, West	2.3	3.1	1.5	2.0	1.5	1.5
Pakistan[3]	25.5	28.7	25.3	39.1	1.0	0.7
Philippines	7.9	10.1	8.3	12.2	0.9	0.8
Sri Lanka	1.9	2.3	1.9	2.6	1.0	0.9
Thailand	8.6	11.1	11.9	16.7	0.7	0.7
NEAR EAST	50.7	59.2	19.3	26.4	2.6	2.2
Afghanistan	9.0	11.1	4.4	6.1	2.1	1.8
Egypt	2.6	3.2	4.5	6.6	0.6	0.5
Iran	16.8	19.6	3.5	4.0	4.8	4.9
Iraq	6.7	6.3	1.0	1.3	6.7	4.7
Jordan	1.1	1.2	0.2	0.2	5.1	5.1
Lebanon	0.3	0.4	0.3	0.4	0.8	0.8
Saudi Arabia	0.3	0.4	1.2	1.2	0.3	0.3
Sudan	7.1	10.1	3.5	5.6	2.0	1.8
Syrian Arab Republic	6.6	6.9	0.7	1.0	9.5	7.0
SOUTH AMERICA	101.0	133.7	21.5	24.2	4.7	5.5
Argentina	25.7	41.3	1.5	1.0	16.8	42.8
Bolivia	3.1	3.4	0.8	1.0	3.8	3.3
Brazil	48.8	58.6	12.0	13.1	4.1	4.5
Chile	4.5	4.7	0.8	0.8	5.9	6.2
Colombia	5.1	7.1	2.5	3.5	2.0	2.0
Ecuador	2.9	3.6	0.9	1.2	3.4	2.9
Paraguay	0.9	1.3	0.3	0.6	2.7	2.3
Peru	2.6	3.7	1.7	2.1	1.5	1.8
Uruguay	2.2	4.4	0.2	0.1	10.8	32.1
Venezuela	5.2	5.6	0.9	0.8	6.1	6.6
TOTAL ABOVE COUNTRIES	513.3	604.6	296.3	380.8	1.7	1.6

SOURCE: FAO estimates and projections of economically active population in agriculture; estimates and projections of arable land from FAO, *Provisional Indicative World Plan for Agricultural Development*. Rome, 1969, Regional Studies 1-4.

[1] Countries covered in regional studies of *Provisional Indicative World Plan for Agricultural Development*. – [2] Based on increases in cultivable land considered technically and economically feasible. – [3] Including Bangladesh.

There are substantial variations between the different countries and regions in both the level and projected trend of the land-man ratio. These differences may be expected to be a major influence on the relative difficulty of increasing agricultural employment fast enough, as well as on the choice of the most appropriate technological and other policies that effect employment. It should be borne in mind, however, that the picture is further complicated in many countries by the very uneven size distribution of farms referred to earlier.

The arable land per member of the agricultural labour force in 1961-63 varied from 0.3 hectare in Saudi Arabia, 0.4 hectare in the Republic of Korea and 0.6 hectare in Egypt to 9.3 hectares in Niger, 10.8 hectares in Uruguay and 16.8 hectares in Argentina. While little change is expected in the ratio in the former three countries, in Niger it is expected to fall by more than a third by 1985, mainly as a result of a 70 percent increase in the agricultural labour force. In both Argentina and Uruguay substantial increases in the arable area are expected together with equally substantial falls in the agricultural labour force, so that the land-man ratio would rise to 42.8 and 32.1 hectares respectively by 1985.

South America is not only the region with the highest land-man ratio but also the only one where it is expected to increase by 1985. This is mainly because of the large increases in arable land expected in Argentina, Brazil and Uruguay, together with the generally low rate of growth of the agricultural labour force in the region. Land-man ratios are expected to fall, however, in Bolivia, Ecuador and Paraguay.

In Africa south of the Sahara, the Near East and, especially, the Far East, the land-man ratio is already much lower than in South America, and it is expected to fall further by 1985. In each of these regions the projected increase in arable land is much slower than in South America and that in the agricultural labour force much faster.

Composition of agricultural labour force

A principal feature of the agricultural labour force in developing countries is that it is mainly composed of family labour. Thus the proportion of women and children in the labour force tends to be higher than in other sectors. Detailed data on the composition of the agricultural labour force are scarce, however, and highly inadequate for planning purposes.

FAMILY AND HIRED LABOUR

The most comprehensive information available is for Latin America. The studies of the Comité Interamericano de Desarrollo Agrícola (CIDA) have been outdated by subsequent agrarian reforms in some of the countries covered, but they remain the most

TABLE 3-7. – COMPOSITION OF ECONOMICALLY ACTIVE POPULATION IN AGRICULTURE, SELECTED COUNTRIES IN LATIN AMERICA

	Argentina	Brazil	Chile	Colombia	Guatemala
	1960	1950	1955	1960	1950
	..... *Thousands*				
Farm operators and their families	934.4	6 021.5	329.2	1 937.5	461.3
Subfamily farms	379.7	1 133.2	70.0	1 179.2	367.3
Administrators and specialized workers	28.2	283.7	46.0	84.9	10.5
Farm labourers [1]	503.3	6 308.1	289.0	627.6	154.5
Sharecroppers	[2]	224.7	26.9	288.3	[5]60.8
Others with cultivation rights	[4]	[5]1 020.9	[6]82.4	161.8	—
Landless labourers	503.3	5 062.5	179.7	177.5	93.7
TOTAL	1 465.9	12 613.3	664.2	2 650.0	626.3

SOURCE: Studies of the Comité Interamericano de Desarrollo Agrícola, summarized in Solon Barraclough and Juan Carlos Collarte. *El hombre y la tierra en América Latina* ... p. 458-460. Santiago. Editorial Universitario. 1972.

[1] The data for the different countries are not strictly comparable, because of differences in definitions and tabulations in the national censuses. – [2] Included with farm operators. – [3] Farm operators who pay rent in kind or in services. – [4] No labourers with cultivation rights are distinguished, since legally they must be paid entirely in cash. – [5] Labourers paid partly by the temporary cession of land. – [6] Tenants and share-tenants.

detailed analyses so far made. They indicate (Table 3-7) that at various dates in the 1950s and 1960s farm operators and their families accounted for 48-50 percent of the agricultural labour force in Brazil and Chile, and 64-74 percent in Argentina, Colombia and Guatemala. As already noted, many of these families are on holdings classified as " subfamily " (the majority in Colombia and Guatemala), and are available as hired labour when they can find work on the larger holdings.

Those classified as farm labourers are particularly numerous in Latin America (as much as 34 percent of the agricultural labour force in Argentina in 1960, 44 percent in Chile in 1955, and 50 percent in Brazil in 1950). While many of them have precarious rights to land as sharecroppers or service tenants, a large proportion are classified as landless (34 and 40 percent of the agricultural labour force respectively in land-abundant Argentina and Brazil, and 27 percent in Chile). In Brazil there were about 5 million landless labourers in 1950. The landless labourers are the most vulnerable of all to technological changes that substitute labour by capital. Within the class of farm labourers there is a further crucial distinction between those with " permanent " (or at least annual) contracts and temporary or casual labour. Of the heads of families who were agricultural workers with precarious tenancy rights or without land, temporary workers were 41 percent in Argentina in 1960 and 15 percent in Chile in 1955.[46] For Brazil no figure is available.

Less detailed data from the ILO *Year book of labour statistics* suggest that this pattern is not repeated in other regions of the developing world except in a few countries. Generally the vast majority of the agricultural labour force are classified as " employers and workers on own account " and " family workers." Countries outside Latin America where " salaried employees and wage earners " form a large part of the agricultural labour force include Mauritius (90 percent in 1962), Réunion (64 percent in 1967), Algeria (61 percent in 1966), Sri Lanka (55 percent in 1963), West Malaysia (44 percent in 1967/68), and Jamaica (41 percent in 1960).[47] Most of these are former colonies with agricultural economies based to a great extent on large plantations.

WOMEN AND CHILDREN

The part played by women in the agricultural labour force is difficult to determine. Many of them participate only seasonally, and in most countries are probably not counted in the economically active population. However, even though the official statistics are therefore likely to underestimate the contribution of women, in many countries they nevertheless figure in these statistics as providing a large part of the unpaid family labour in agriculture. There are wide variations between countries, partly reflecting different cultural attitudes and social systems, but also resulting from different criteria in defining the economically active population.

On the basis of the available official statistics it would seem that women are about a third of the population economically active in agriculture in the developing market economies as a whole.[48] These figures are heavily weighted by the Far East, however, which accounts for about three quarters of the total agricultural labour force for which statistics by sex are available. Estimates based on the official labour force statistics indicate that women are about 4 percent of the agricultural labour force in Central America, 5 percent in northwest Africa, 10 percent in South America, 12 percent in the Near East (excluding the Syrian Arab Republic and Turkey), 24 percent in the Caribbean, 33 percent in the Far East, and 36 percent in Africa south of the Sahara.

It appears that the participation of women in the agricultural labour force is lowest in countries of Muslim culture and in the majority of Latin American countries, although it must be admitted that cultural attitudes may affect the criteria used in defining

[46] Solon Barraclough and Juan Carlos Collarte, *op. cit.*, p. 452-457.
[47] International Labour Office, *Year book of labour statistics 1972*, p. 44-149, Geneva, 1972.
[48] International Labour Office, *op. cit.*, p. 44-149.

the labour force as much as the actual situation. Striking exceptions in the Near East are the Syrian Arab Republic (49 percent of women in the agricultural labour force in 1969) and Turkey (50 percent in 1965), and the inclusion of these two countries would raise the regional average to almost 30 percent. Other exceptions in the Near East are Cyprus (53 percent in 1960) and the Sudan (27 percent in 1956). In Latin America women play a larger role in the agricultural labour force in the Caribbean (47 percent in Haiti in 1950) than in Central and South America, although an exception is Bolivia (59 percent in 1950).

In many countries in Africa south of the Sahara women are responsible for all or most of the production of subsistence crops.[49] They appear in the official statistics as more than half of the agricultural labour force in Gabon (51 percent in 1963), Botswana (52 percent in 1964) and Zaire (60 percent in 1955-57). In Lesotho in 1969, 45 percent of the male labour force were absent working or seeking work in South Africa.[50] In Kenya, where women were estimated to account for 80 percent of the labour force in subsistence agriculture, it is stated that: "The question as to whether the total labour force will increase more or less rapidly than the total population depends mainly on whether the participation of women in the labour force changes." [51]

[49] For a discussion of the role of women in African agriculture, see: Esther Boserup, *Women's role in economic development*, New York, St. Martin's Press, 1970; FAO/United Nations Economic Commission for Africa, *The economic role of women with special emphasis on the implementation of rural development schemes in Africa* (paper prepared for FAO/ECA/SIDA Seminar on Home Economics Development Planning, Addis Ababa, 6-25 March 1972), Addis Ababa, 1972. (ESN:THEP/A/72/8)

[50] Lesotho, Central Planning and Development Office, *First five-year development plan 1970/71-1974/75*, p. 11, Maseru, 1970.

[51] Kenya, *Development plan 1966-1970*, p. 103, Nairobi, 1966.

Women appear to constitute a high proportion of the agricultural labour force in most countries of the Far East. Examples are India (36 percent in 1961), the Republic of Korea (42 percent in 1971), Nepal (42 percent in 1961), Malaysia: Sarawak (43 percent in 1960), the Khmer Republic (46 percent in 1962), and Thailand (51 percent in 1960). Although no figures are available for China, it seems likely that the proportion would be similarly high.

It is even more difficult to determine the part played by young children in the agricultural labour force. The ILO year book shows figures by age group only for the total economically active population.[52] These usually indicate that only a few percent of those under 15 participate in the labour force. Countries for which higher figures are shown, however, include India (8 percent in 1961), Egypt (8 percent in 1960), Ivory Coast (9 percent in 1964), Thailand (9 percent in 1960), Bolivia (12 percent in 1950), Gabon (17 percent in 1963), and the Sudan (21 percent in 1956).[53] Probably most of these children work in agriculture, although it is certain that, as with women, much child labour at times of seasonal peaks in demand escapes the labour force statistics. In Egypt, for example, while the census of 1960 indicated that only 31 percent of the rural population was employed, the inclusion of wives and students working more than one third of normal working time would raise this figure to 42 percent.[54]

[52] International Labour Office, *op. cit.*, p. 9-42.

[53] These figures all refer to the percentage of the total population under 15 that is classified in the economically active population. The proportion of the labour force that is aged less than 15 is of course much smaller.

[54] International Labour Office, *Rural employment problems in the United Arab Republic*, p. 31, Geneva, 1969.

Demand for agricultural labour

The demand for agricultural labour is obviously determined first and foremost by the level of agricultural production. This in turn is decided in an ultimate sense by the level of domestic and foreign demand for agricultural products, and in a more immediate sense by the extent to which governments are able to provide the necessary services and incentives for production to be increased up to the level of demand, and the extent to which farmers are able to respond. But the amount of labour required for a given level of production depends on the composition of that production (the "product mix") and on the technology (the "input mix") used to obtain it. The product mix depends primarily on demand, and both product and input mix again can be influenced by government policies, especially fiscal and structural policies.

Demand for agricultural products

The ceiling on agricultural employment imposed by the level of demand for agricultural products has been somewhat neglected, probably because (except for a few products) developing countries have as yet rarely managed to increase their production up to this ceiling. But the size of the domestic market is severely limited when on average only a

third of the population (and much less in many individual developing countries) is in nonagricultural occupations and thus totally dependent on purchased food. The limitations on export demand are more widely recognized. The limited domestic and export markets have to be shared by a large and still growing agricultural labour force, and this in turn restricts the extent to which labour productivity can be raised without displacing people from the agricultural labour force before they can be employed elsewhere.

Some recent FAO studies have emphasized the importance of the redistribution of income in increasing the domestic demand for agricultural products in countries with a highly skewed income distribution and abundant agricultural resources. Thus it is estimated that in South America a moderate redistribution of income could generate increased demand for agricultural products that would permit an additional 0.8 percent in the annual growth of production.[55]

It may be roughly estimated that exports account for about 15 percent of the agricultural production of the developing world. However, they are of much greater importance in the part of agricultural production that is marketed (i.e., excluding subsistence production for the consumption of the farmer and his family), and hence in the employment that generates cash income. Exports might be as much as 40 percent of marketed agricultural production in Latin America and 50 percent in Africa.[56] Particularly high figures for the share of exports in agricultural employment are found in Central America (38 percent of total employment in crop production in the Central American Common Market as a whole, and as much as 51 percent in Costa Rica), where it is estimated that if the increase in exports could be improved from 3.7 to 4.8 percent a year, this would raise the annual rate of increase in employment in crop production in 1970-90 from 1.9 to 2.5 percent.[57]

While most efforts to increase agricultural employment opportunities must be made in the developing countries themselves, trade liberalization thus represents an area where international measures can also make a substantial contribution. It is estimated that the additional exports from developing countries that would result from the international agricultural adjustment currently being proposed by FAO might give rise to the creation of new employment of the order of from 3 to 4 million man-years at present levels of technology. Because agricultural production is so much less labour intensive in the developed countries, the drop in employment in these countries caused by the suggested increase in imports of competing products would be very much smaller than the new employment opportunities that could result in the developing countries. Employment in developed countries would probably fall by only about half a million man-years, which is equivalent to only about three months of the rate at which their agricultural labour force is at present decreasing[58] (see Table 3-3).

Pattern of production

There is a wide range in the labour requirements per hectare of the different crops, and a change in the pattern of agricultural production can therefore substantially affect the demand for agricultural labour. It is estimated that in Colombia such changes added 8 percent to agricultural employment between 1965 and 1970.[59]

In general it appears that labour requirements per hectare are lowest for the staple cereal crops that occupy the major part of the cultivated area. They are a good deal higher for staple root crops like cassava and potatoes, but are highest of all for a number of specialized crops, such as tobacco, sugar beet, sugarcane and bananas.

Data on the labour requirements of livestock production are extremely scarce but this sector generally employs far fewer people per hectare than crop production. In Uruguay, for example, where two thirds of the agricultural labour force are employed in livestock production, 43.4 persons were employed per 1 000 hectares in crop production in 1970, and only 7.4 in livestock production.[60]

The relation between employment and the pattern of production is not, of course, as simple as might be suggested by merely comparing labour requirements per hectare. The situation is considerably altered if yields and returns per man are also considered. It is clear that, subject always to the overriding need to produce what consumers want, the emphasis must be on products that have not only high labour requirements per hectare but also high yields per hectare and high unit values, if rather large " trade-offs " between employment and production and income objectives are to be avoided.

The position of the livestock sector is greatly improved if yields and prices are considered as

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[55] FAO. *Perspective study of agricultural development for South America* (provisional version). Vol. 1. p. III-18. Rome. 1972; see also: The impact on demand of changes in income distribution: a case study of eleven Latin American countries. *Monthly Bulletin of Agricultural Economics and Statistics* (*FAO*). 21(3): 1-11. 1972.

[56] K.C. Abercrombie. Trade should make more than money: it should also make jobs. *Ceres* (*FAO*). 3(4): 42. 1970.

[57] Grupo Asesor de la FAO para la Integración Económica Centroamericana. *Perspectivas para el desarrollo y la integración de la agricultura en Centroamérica* (preliminary version). Vol. 2. Part J. p. 18-19. 1972. GAFINT 7/72.

[58] FAO. *International agricultural adjustment*. p. 60. 106. Rome. 1973. C/73/15.

[59] FAO. *Perspective study of agricultural development for South America* (provisional version). Vol. 1. p. IV-12. Rome. 1972.

[60] Uruguay. Ministerio de Ganadería y Agricultura. Oficina de Programación y Política Agropecuaria. *Objetivos y metas del sector agropecuario: Plan de desarrollo agropecuario - 1. período 1973-77*. p. 76. Montevideo. 1972.

well as labour requirements per hectare. While six times as many people were employed per hectare in crop production as in livestock production in Uruguay in 1970, the value of production per head was 471 pesos in crop production and 433 pesos in livestock production.[61] In 1963 the GDP per head was actually higher in livestock than in crop production.[62]

The major limitation is that the pattern of production must be largely determined by the pattern of demand and the physical production possibilities, and therefore cannot be radically changed purely in the interests of employment creation. There is nevertheless some scope, especially in diversification programmes, for seeking products that combine high labour requirements per hectare with high physical yields and high unit value.

The different labour requirements of the various products, especially their seasonal requirements, are particularly important at the farm level. Combinations of products whose seasonal labour requirements are to some extent complementary are needed for the fuller utilization of labour resources throughout the year. The much smaller seasonal fluctuations in labour requirements for livestock production are a major consideration. To quote Uruguay again, labour requirements for crop production in June 1963 were little more than a third of the peak requirements in April, but for livestock production they were only 37 percent lower in July than in the peak month of November.[63]

Technological change

The labour required to produce a given volume of output is greatly affected by the level of technology, or the way in which the factors of production (land, labour, capital and entrepreneurship) are combined. Since most of the technological advances in agriculture have so far been made in the developed countries, where agricultural labour is now scarce and costly, they have generally tended to be oriented toward the saving of labour. With the emergence of serious employment problems in the developing countries, the need has been widely felt for technologies more appropriate to their present resource endowment, which will make fuller use of their abundant labour supplies and economize scarce capital.

Because the technological improvements introduced in the developing countries in the past have so often tended to emphasize labour saving, labour intensity is usually much lower in the part of their agriculture that has been modernized than in the traditional, unimproved part. In Colombia, for example, the number of man-days per hectare used for the 10 main crops in 1970 is estimated as 80 in the "rudimentary" subsector and 61 in the "technified" subsector.[64] The crucial question is whether it is inevitable for the modern or technified subsector to absorb so much less labour, and whether it is possible to modernize the predominant traditional subsector and improve its productivity without greatly reducing (perhaps even increasing) its capacity for labour absorption.

In the past much of the increase in agricultural production in the developing countries has come from the expansion of the cultivated area, but its share has been declining steadily.[65] As indicated in Table 3-6, some countries still have substantial unused land resources. Moreover, in some zones the cultivated area can be increased by multiple-cropping or the reduction of fallow. In general, however, the contribution of increased cultivated area may be expected to fall more steeply in the future, as unused land becomes scarcer and that which is still available is increasingly inaccessible and costly to open up. This has important implications for the creation of agricultural employment opportunities, since (other things being equal) labour requirements may be expected to increase in direct proportion to the extension of the cultivated area. The employment effects of the yield-increasing technologies that must increasingly be adopted are thus of crucial importance.

The developments and preoccupations outlined above have coincided with the emergence of new technological possibilities based on the high-yielding varieties of wheat and rice. These varieties, especially of wheat, have brought spectacular yield increases in areas of controlled water supply in India, Pakistan and other countries, when combined with high applications of fertilizers and pesticides. The associated "green revolution" or "seed-fertilizer revolution," as it has come to be called, has been intensively studied in order to determine whether it is occurring or can occur in such a way as to materially increase the labour absorption capacity of agriculture in the developing countries as well as rapidly raising production and productivity.

It is not possible to deal adequately here with the numerous surveys and studies that have been made of the effects of these technological changes on agricultural employment in different circumstances and areas. They have, however, recently been analysed in detail in a major research study of the OECD

[61] Uruguay, Ministerio de Ganaderia y Agricultura, *op. cit.*, p. 76.
[62] Uruguay, Ministerio de Ganaderia y Agricultura, *4 Plan de desarrollo agropecuario*, Vol. 1, p. 116, Montevideo, 1966.
[63] Uruguay, Ministerio de Ganaderia y Agricultura, *ibid.*, 1966, Vol. 1, p. 244.

[64] FAO, *Perspective study of agricultural development for South America* (provisional version), Vol. 1, p. IV-13, Rome, 1972.
[65] FAO, *The state of food and agriculture 1970*, p. 142, Rome, 1970.

Development Centre,[66] and it should therefore be sufficient to discuss them mainly by summarizing its relevant conclusions.

The study concludes that yield-increasing technological changes, such as the use of improved seeds and chemical fertilizers, are highly appropriate to the typical situation of declining land-man ratios found in most of the developing countries today. They increase the demand for agricultural labour, because of the larger crops that have to be harvested and threshed and because of the greater care needed in general cultivation practices and in water control. An exception in the "package" of improvements is the use of herbicides, which requires much less labour than traditional hand-weeding. Although the micro-level surveys are highly location-specific and usually refer to very small samples, so that it is dangerous to generalize from their results, they all indicate increases (of the order of 30 percent on the average) in labour requirements on farms adopting the new technology. While labour requirements per unit of land are always increased, requirements per unit of yield usually fall. Thus, once self-sufficiency has been reached, production (and hence demand) must increase faster than labour productivity if total labour requirements are to continue to rise.

The technological changes themselves are generally neutral as to the scale of operation, although there are indivisibilities in such production factors as irrigation water. Many small farmers have been able to adopt them in such countries as India, Pakistan and the Philippines. However, the farmers most aware of the possibilities of innovation and most able to bear its risks are generally those with the larger holdings. The system is also biased in their favour since, either deliberately or simply because of the impossibility of distributing inadequate services widely enough, government credit and extension services tend to be concentrated on them. The smaller farmers, who through no fault of their own are the slowest innovators, can also be considerably disadvantaged by lower prices caused by the increased volume of production, and either put out of business or virtually condemned to subsistence production.

The yield-increasing technological changes have often been accompanied by large-scale mechanization, designed to replace human or animal energy. They have themselves increased the pressure for mechanization by causing or accentuating acute labour shortages in several weeks of the year, especially at the harvest period, and thus also pushing up wages. When large-scale mechanization has accompanied the yield-increasing technological changes, it has decreased labour requirements — again the surveys cited are location-specific and based on small samples, but they indicate reductions of 17-27 percent in Sri Lanka and various parts of India. Such labour-saving technological changes combined with yield-increasing changes are clearly appropriate in developed countries with rising land-man ratios (witness their increasing use in Japan in recent years once it became a labour-scarce economy). In many developing countries, however, there is a danger that they may lead to the displacement of labour from agriculture before it can be absorbed elsewhere in the economy.

While the above account of the general effects of technological change on agricultural employment is based mainly on a summary of the findings of the OECD study, it is necessary to discuss in more detail the complex question of agricultural mechanization and employment, in particular because a number of additional studies have become available more recently. ILO, for example, has published six studies of the relationships between agricultural mechanization and employment in different countries and regions.[67]

The principal effect of mechanization on output is that it makes possible greater increases in the cultivated area than would otherwise be feasible. An obvious example is heavy land clearance which can be accomplished only with power equipment. But it is probably in more timely land preparation and planting that mechanization has its biggest and most widespread effect on output. In semiarid areas with a short and uncertain rainy season, the size of the cultivated area depends on the amount of land that can be prepared quickly when the rains come. Here there is also a yield effect — it has been estimated that in India each day's delay in planting after the optimum period brings a reduction of 1 percent in the yield of wheat.[68] Yields are also increased through the more thorough land preparation made possible by mechanization (in particular deep ploughing and subsoiling), and through the mechanization of tube wells with electric or diesel-powered pumps.

In tropical areas where multiple-cropping is possible, it is necessary to get the old crop out of the ground and the new one in with great speed, and in many cases this is possible only by mechanizing both land preparation and harvesting.[69] In some parts of Africa with abundant land the cultivated area is restricted because only the most primitive implements are used for land preparation, and improved manual

[66] Montague Yudelman *et al.*, *op. cit.*

[67] International Labour Office. *Mechanization and employment in agriculture: case studies from four continents*, Geneva, 1973. (The studies previously appeared separately in the *International Labour Review*, from which source they are quoted here.)

[68] FAO. *Indicative World Plan for Agricultural Development*. Provisional Regional Study No. 4. Vol. 1. p. 285. Rome, 1968.

[69] In some cases, where a crop has to be harvested during the wet season, the mechanization of grain drying has also proved necessary.

and animal-drawn implements (not necessarily tractors) could substantially increase the cultivated land.

In most of these cases it may be expected that not only the cultivated area, production and labour productivity will be increased by mechanization, but also employment (or at any rate it should not be reduced). The labour that is replaced in one operation (in the cases cited, mostly land preparation) will be used in tending and harvesting the larger crops resulting from the increased area and other improvements. Thus in the Philippines the use of tractors has reduced labour requirements for land preparation for rice from 13.5 to 6.6 man-days per hectare but, largely because of the more intensive weeding made profitable and necessary by the new varieties, the total labour requirements per hectare have remained much the same, although per ton of rice they fell from 33 man-days in 1966 to 25 in 1970. In the longer run, however, once self-sufficiency has been achieved, the demand for rice is likely to rise more slowly than the increase in labour productivity made possible by mechanization, so that diversification into more labour-intensive crops would be needed to absorb the redundant labour.[70]

Other uses of mechanization, as in postplanting operations and especially harvesting and threshing, would appear to be socially justifiable only when they relieve a seasonal labour bottleneck and do not directly displace labour. Even the mechanization of land preparation can displace labour, except in the special circumstances described above where timely cultivation is essential to maximize the land area and the labour replaced in land preparation is compensated by the increased area.

The effects of mechanization also depend on the circumstances in which it is introduced. There are obviously many cases where, rather than taking away employment from anyone, it simply relieves the drudgery and saves the time of the farmer or members of his family, thus increasing their leisure.

Figures of the labour requirements of different crops with and without mechanization, which are available for a number of countries, indicate the extent to which labour can be replaced by mechanization. They do not show the extent to which it is actually displaced, since (just as the labour replaced in one operation can be absorbed in others) it may be used on other crops.

The survey data cited earlier indicated substantial reductions in labour requirements as a result of mechanization in various parts of India and Sri Lanka. In Pakistan, in addition to displacing hired labour, mechanization has enabled landlords to evict tenants and carry out with their own family labour or with hired labour the work previously undertaken by the tenants.[71] There are other examples in Latin America.[72] That similar examples do not yet appear to have been recorded in Africa probably reflects the predominantly small-farm systems of land tenure in that region, together with the fact that mechanization has gone much less far than in Latin America, where there was already a rapid increase in the 1960s, or the Far East, where mechanization has accelerated sharply as a result of the green revolution.

On the one hand, the effects of mechanization are influenced by the institutional structure, especially concerning land tenure, into which it is introduced. On the other hand, mechanization can itself affect this structure. Even more than the yield-increasing technological changes discussed earlier, it is biased in favour of the larger farmers. There is a minimum area for the economical use of tractors, which depends on the intensity of cropping and the price level. Although the multifarm use of tractors is also economical, it is not yet widely developed. In general, only the larger farmers can afford or obtain credit for the substantial investment involved in the purchase of a tractor. Even if mechanization could be introduced in such a way as actually to increase labour requirements on the large farms using it, the situation must be envisaged where price falls would force smaller farmers out of business, thus decreasing total agricultural employment opportunities.

Agricultural technology is generally much more labour-intensive on small farms than on large. This is partly because they mainly employ their own family labour, to which they attribute an opportunity cost much lower than the market price of hired labour, but it is also because labour is the only factor of production which is abundant for them. The studies of the Comité Interamericano de Desarrollo Agrícola (CIDA) for seven Latin American countries have brought out very clearly that, while labour productivity is highest on the larger farms, the input of labour per hectare and the productivity of land are much higher on the smaller farms.[73] It has been estimated that if the land-man ratios prevailing on family-size farms were to hold on multifamily farms (estates), it would be possible to employ five times more workers in agriculture in these countries.[74] The other side of the coin

[70] Randolph Barker, William H. Meyers, Cristina M. Crisostomo and Bart Duff, Employment and technological change in Philippine agriculture, *International Labour Review*, 106(2-3): 129-130, 132-133, 1972.

[71] C.H. Gotsch, Tractor use and rural development in Pakistan, *International Labour Review*, 107(2): 148, 1973.

[72] K.C. Abercrombie, Agricultural mechanization and employment in Latin America, *International Labour Review*, 106(1): 24-29, 1972.

[73] Solon Barraclough and Juan Carlos Collarte, *op. cit.*, p. 62-63, 464-466.

[74] Estimates made by Ernest Feder (quoted by Arthur L. Domike, Industrial and agricultural employment prospects in Latin America, *in* Arthur J. Field, ed., *City and country in the third world*, p. 148-149, Cambridge, Mass., Schenkman, 1970.

is that if the Mexican *ejidos* (common land farms) achieved their present level of output with the techniques used on the larger farms, almost a million workers would be redundant, while if all the country's present agricultural output were accounted for by large farms with their current techniques, 2.3 million workers would be redundant.[75] Another striking instance, out of many more, is Egypt, where annual working hours per feddan are from one and a half to more than three times as great on holdings of less than 2 feddans as on those of more than 5 feddans.[76]

Technological change may also affect the pattern of production, discussed earlier. Where it makes multiple-cropping possible, this may favour the introduction of highly labour-intensive crops such as vegetables. On the other hand, where improved technology is available only for certain crops, such as wheat and rice, these may displace others which are more labour intensive.

This discussion of the effects of technological change on agricultural employment has had to be confined to crop production, because once again the information on livestock production is much more limited. In general, however, it seems that since most livestock production in developing countries is at present so extensive, its intensification as a result of technological improvements should usually lead to increased employment opportunities. Exceptions, of course, are the most modern, virtually automated battery and "zero-grazing" systems of livestock production that are now being increasingly introduced in developing countries. However, here there is scope for retaining manual operations for some processes, such as feeding and egg collection.

Overall demand for agricultural labour

In contrast to the largely quantitative discussion of the supply of agricultural labour, the demand side has had to be discussed mainly in terms of the factors influencing it. Data are not available for a similar quantitative analysis of the likely trends in the demand for agricultural labour, but a few illustrative examples may be mentioned.

FAO's perspective study for South America contains a brief case study of agricultural employment possibilities in Colombia.[77] Data are available on the labour requirements per crop for each of the main regions of the country by month. Little information is available for livestock products, but they are estimated as accounting for only 19 percent of the total agricultural labour requirements in 1970. The figures of labour requirements distinguish "rudimentary" and "technified" subsectors, and for ten of the main crops the contribution of these subsectors to the total area and production is known. The analysis of employment possibilities is based on this sample of ten crops (which accounted for 77 percent of the crop area and 62 percent of the total employment in crop production in 1970), and the results are summarized in Table 3-8.

Judging by the changes in average yields, the technified subsector expanded from 24 percent of the total area under the sample crops in 1965 to 29 percent in 1970. During this period the employment provided by these crops increased by 10 percent, in comparison with a rise of 7.7 percent in the agricultural labour force, so that underemployment may

TABLE 3-8. – COLOMBIA: ESTIMATED EVOLUTION OF EMPLOYMENT PROVIDED BY TEN MAJOR CROPS,[1] 1965-70 AND PROJECTIONS FOR 1970-80

	1970	1980	
		Production alternatives	
		Low	High
	Indices. 1965 = 100	*Indices. 1970 = 100*	
Production	117.2	133.8	157.1
Cultivated area	104.5	115.8	128.7
Yields per hectare	112.2	117.5	126.2
Labour force	107.7	112.0	112.0
Labour requirements	110.1	117.5	126.2
Effects on labour requirements of:			
cultivated area [2]	104.5	115.8	128.7
pattern of production	108.4	95.8	89.8
yields per hectare	97.2	105.9	109.2
of which A [3]	105.2	106.6	131.4
B [4]	92.4	99.3	83.1
Labour requirements per hectare	105.4	101.5	98.1
		Ratio	
Elasticity of employment to production	0.59	0.52	0.46
		Percent	
Underemployment	18	14	10

SOURCE: FAO. *Perspective study of agricultural development for South America. op. cit.*. Vol. 1. p. IV-15.

[1] Barley. coffee. cotton. maize. potatoes. pulses. rice. sorghum. sugarcane. wheat. representing 77 percent of the crop area and 62 percent of the total employment in crop production in 1970. – [2] Assuming an elasticity of unity for employment to cultivated area. – [3] Increase in labour requirements per hectare with no change in shares of rudimentary and technified subsectors: assuming elasticity of employment to yields of 0.5 in the former and 0.2 in the latter subsector. – [4] Effect of change in shares of the two subsectors.

[75] Centro de Investigaciones Agrarias/Comité Interamericano de Desarrollo Agrícola. *Estructura agraria y desarrollo agrícola en México*. Vol. 1. p. 632. Mexico. 1970.

[76] International Labour Office. *Rural employment problems in the United Arab Republic. op. cit.*. p. 54-55.

[77] FAO. *Perspective study of agricultural development for South America. op. cit.*. Vol. 1. p. IV-11 to IV-15.

be presumed to have been somewhat reduced. Of the 10 percent increase in employment (associated with a 17 percent rise in production), the extension of the cultivated area contributed 4.5 percent and changes in the pattern of production 8.4 percent; higher yields reduced employment by 2.8 percent (the net effect of + 5.2 percent from the increased work per hectare, and —7.6 percent from the displacement of the rudimentary by the technified subsector).

The projections for 1970-80 are on the basis of two alternative production assumptions. The effect on employment of a faster increase in production is smaller than might be expected, because of the greater increase in the share of the technified subsector implied in reaching the higher production assumption. While production would increase by 34 percent under the low assumption and 57 percent under the high, employment would increase by 17 and 26 percent respectively. In both cases the expansion of the cultivated area would explain the bulk of the increase in employment. The average number of man-days required per hectare would rise by only 1.5 percent with the low production assumption and would fall by 2.0 percent with the high assumption, since the achievement of these production levels implies rapid technological change, with labour productivity rising by 14 and 25 percent respectively. In contrast to 1965-70, under both assumptions changes in the pattern of production would have a negative effect (—4 and —10 percent) on employment in 1970-80. More encouraging, and again in contrast to 1965-70, is the positive effect of yield increases (+6 and +9 percent), in spite of the negative effect (—0.7 and —16.9 percent) of the displacement of the rudimentary by the technified subsector.

The projected increases of 17.5 or 26.2 percent in labour requirements may be compared with an expected increase of 12 percent in the agricultural labour force between 1970 and 1980. Thus, underemployment could be reduced from an estimated 18 percent in 1970 (on the basis of 280 working days a year) to 10 or 14 percent in 1980. It must be emphasized, however, that even this slight reduction in agricultural underemployment over the ten-year period is heavily dependent on policies and measures to maximize the contribution of the rudimentary subsector to the total increase in production. Moreover, the estimate of underemployment in Colombia in 1970 is much lower than those for similar countries quoted earlier, and may therefore be an underestimate.

Colombia's development plan for 1970-73 expects to reduce unemployment, although there is no quantitative target for agricultural underemployment. It is aimed to increase agricultural employment by 2.4 percent a year in 1970-73.[78] This seems somewhat optimistic in comparison with the above estimates, which are equivalent to rates of 1.6 or 2.4 percent a year for the much longer period of 1970-80.

Of the recent or current national development plans reviewed in the Annex to this study, some 30 or so include quantitative estimates of the expected increases in the labour force and in employment. These, of course, cover the economy as a whole, although there is normally some sectoral breakdown on the employment side. Those that include quantitative targets for agricultural employment are summarized in Table 3-9.

There is a very wide range in the contribution expected from the agricultural sector in the creation of additional employment opportunities. At one extreme, employment in agriculture is expected to decline further in Argentina, and to remain stable in Cyprus. At the other, agriculture is still planned to furnish more than half the new employment opportunities in 10 of the 27 countries covered.

Almost all the national development plans expect, like Colombia, to be able to keep up with the new entrants to the labour force and to make some inroads into the backlog of unemployment (and often agricultural underemployment as well). There are, however, a few exceptions. Algeria's plan for 1970-73 does not expect that the creation of new jobs will match the new entrants to the labour force until 1980.[79] India's third plan (1961-66) estimated that it would not be possible to provide as many new jobs as the expected growth in the labour force, but it was proposed to cover part of the gap by a massive programme of rural public works.[80] The plan of the Sudan for 1970/71-1974/75 expects a similar gap between new employment and new entrants to the labour force,[81] as did the plan of Trinidad and Tobago for 1964-68.[82]

In some cases the plans note a shortfall in the creation of agricultural employment in relation to the targets for the previous plan period. Thus in Malaysia employment on rubber estates declined sharply in 1966-70, and land development programmes did not meet planned targets.[83] In Turkey, agricultural employment increased by only 213 000 jobs in 1963-67, in comparison with the target of 700 000, since agricultural production did not expand as rapidly as planned.[84]

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[78] Colombia. Departamento Nacional de Planeación. *Plan de desarrollo económico y social 1970-73*. p. III-4. Bogotá. 1970.
[79] Algeria. *Plan quadriennal 1970-73. rapport général*. p. 133. Algiers. 1970.
[80] India. Planning Commission. *Third five-year plan*, p. 156. 159-161. Delhi. 1961.
[81] Sudan. Ministry of Planning. *The five-year plan of economic and social development of the Democratic Republic of the Sudan for the period 1970-71 to 1974-75*. Vol. 1. p. 92. Khartoum. 1970.
[82] Trinidad and Tobago. National Planning Commission. *Draft second five-year plan 1964-1968*. p. 73. Port of Spain. 1963.
[83] *Second Malaysia Plan 1971-1975*. p. 96-97. Kuala Lumpur. 1971.
[84] Turkey. State Planning Organization. *Second five-year development plan 1968-1972*. p. 142. Ankara. 1969.

TABLE 3-9. – TARGETS FOR ADDITIONAL EMPLOYMENT IN SELECTED NATIONAL DEVELOPMENT PLANS

	Plan period	Employment in base year	Target for total additional employment		Planned sectoral distribution of total additional employment	
			Number	Average annual increase	Agricultural	Non-agricultural
		Thousand persons		*Percent*		
AFRICA						
Ivory Coast	1971–75	567	166	6.0	45	55
Kenya	1970–74	4 300	850	3.1	75	25
Mauritius	1971–75	195	53	6.8	32	68
Morocco	1968–72	...	615	...	60	40
Nigeria	1970–74	24 050	3 260	2.7	33	67
Togo	1971–75	667	103	3.7	78	22
Zambia	1966–70	299	108	6.3	12	88
FAR EAST						
India	1961–66	...	14 200	...	30	70
Malaysia	1971–75	3 493	596	3.2	[1]25	[1]75
Pakistan [2]	1970–75	41 800	6 400	3.0	55	45
Philippines	1971–74	12 200	2 050	4.3	55	45
Sri Lanka	1972–76	3 950	810	4.2	37	63
Thailand	1972–76	16 902	2 562	3.0	60	40
Viet-Nam, Rep. of	1972–75	7 160	1 860	6.5	80	20
LATIN AMERICA						
Argentina	1971–75	9 010	1 020	2.2	— 2	102
Colombia	1970–73	5 938	812	4.4	24	76
Dominican Republic	1970–74	991	212	4.0	51	49
Ecuador	1973–77	1 975	409	4.1	27	73
Peru	1971–75	3 945	988	3.8	31	69
Trinidad and Tobago	1969–73	315	48	2.9	14	86
Uruguay	1965–74	909	233	0.9	12	88
Venezuela	1970–74	2 750	597	4.3	7	93
NEAR EAST						
Cyprus	1967–71	229	26	2.2	—	100
Egypt	1960–65	3 245	555	3.2	54	46
Iran	1968–72	6 932	966	2.8	23	77
Iraq	1970–74	2 546	620	4.9	52	48
Turkey	1968–72	12 972	2 312	2.1	37	63

[1] West Malaysia only. – [2] Including Bangladesh.

Even in those countries where it is hoped during the current plan period to make substantial inroads into the backlog of unemployment and underemployment, it is expected in most cases that agricultural underemployment will remain at high levels. This emphasizes the urgent need to increase nonagricultural employment opportunities in rural areas. Some of the policies and measures required for the promotion of nonagricultural rural employment, as well as strictly agricultural employment, are discussed below.

Policies and measures for rural employment promotion

The policies and measures that are needed to increase agricultural and rural employment opportunities cover a very wide field. In general they should aim at ensuring that the demand for agricultural labour increases faster than the supply, and that employment opportunities are distributed as widely as possible among the labour force.

In many developing countries the domestic demand for agricultural products could be substantially increased by measures to redistribute income. Similarly, measures are needed to expand export demand. Measures to increase demand are, of course, of no use in increasing employment unless production can be raised to the level of demand. In the past many developing countries have failed to increase production in line with demand, and in a large number of them agricultural production has not even kept up with population growth. Many have become chronically dependent on food imports (including food aid), and have thus in effect allowed potential employment opportunities for their own labour forces to be used in the developed exporting countries. The

responsibility of governments to provide appropriate agricultural investment, adequate services to farmers and an economic and social climate conducive to a rapid increase in agricultural production is therefore particularly important in the context of employment promotion.

The need for these general policies and measures to increase production and demand is fundamental in expanding employment opportunities. However, they will not be discussed further at this point, since the main emphasis here is on how to obtain as much employment as possible from a given level of production. In this more restricted field, there are four principal areas of policy that require examination.

First, technological policies are needed that are more in line with the factor endowments of the developing countries, and in particular a more selective approach to mechanization. Since at present most of the technology is introduced from abroad, this has international as well as national aspects. Second, various fiscal and related policies require adjustment in many countries in order to remove distortions in the relative prices of capital and labour. Third, changes in the agricultural structure are still needed in many countries, especially in respect of land tenure, if potential agricultural employment opportunities are to be fully realized. Fourth, integrated policies for rural development are required, which take account, among other things, of rural nonagricultural as well as agricultural employment, rural amenities, the development of towns in rural areas, and public works programmes. Employment in fisheries and forestry will be discussed in this connexion.

While these policy areas will be discussed separately, it should be borne in mind that each must be part of overall agricultural employment policy, which in turn must be part of rural employment policy, national employment policy, and national economic and social policy as a whole.

Moreover, while the policies and measures will be discussed in general terms, the degree to which they are applicable in different countries obviously depends on the particular circumstances of these countries. In discussing the supply of agricultural labour, the likely trends in the land-man ratio and the time it will take before the agricultural labour force begins to decline in absolute terms, together with the factors affecting them, have already been identified as important influences on the relative difficulty of increasing agricultural employment fast enough and on the appropriateness of particular policies, especially the appropriate level of labour intensity to be encouraged. Other major factors include the level of underemployment and of labour productivity and the extent to which they are caused by the seasonality of production, the distribution of the available employment opportunities among the labour force, and the rate at which it has been possible to increase agricultural production. Some of the different approaches taken by governments to the expansion of agricultural and rural employment opportunities, within the framework of their overall development strategies, will be apparent from the review of national development plans in the Annex.

Before embarking on the discussion of specific policy areas, it is necessary to look briefly at the "trade-offs" or conflicts that may arise between employment and other development objectives, especially the key objective of obtaining a rapid increase in the output of food and other agricultural products.

Possible trade-offs between employment and other development objectives

When rapid economic growth, as conventionally measured, was virtually the only objective of development, the problem of trade-offs hardly arose, but it has to be faced once it is accepted (as so generally now) that there are multiple development objectives and that social progress is no less important than economic. However, it also has to be recognized that previous policies aiming at all-out economic growth themselves implicitly involved trade-offs, even though they went unrecognized at the time, in terms of employment, income distribution, and social and political stability.

There would appear to be five major areas where trade-offs could arise from policies aimed at generating increased agricultural and rural employment, especially if it is assumed that the small-farm subsector has a principal role in employment creation. These concern foregone current production and income, slower growth of production, higher production costs, lower returns to public funds, and future production, income and employment.

Concentration on the mass of small farmers will probably involve a trade-off with current production and income, simply because they are more inhibited than large farmers by constraints regarding entrepreneurship and managerial ability, and access to land, water, credit, etc. However, these constraints should be progressively removed as government credit, extension and other services to small farmers were improved. A trade-off with current production and income would obviously arise if (as discussed earlier) labour-intensive crops were emphasized without regard to their yields per hectare and unit value.

The growth of production might be slower, because savings and capital formation in the rural sector would tend to be smaller as a result of the change in income distribution. This assumes, however, that the savings of large farmers are productively invested, which

has not always occurred in the past. This particular trade-off might perhaps be offset to some extent by more vigorous measures to mobilize rural savings for development. A slower growth of production might also result from the slower adoption of innovations by small farmers, but (as already noted) this would hopefully be only a temporary phenomenon. Also the marketed surplus would grow more slowly in the short run, since small farmers would tend to consume more of their own produce as their incomes increased.

The use of more labour-intensive technologies will limit the increase in labour productivity and incomes, and may raise unit costs and thus the prices of agricultural products for domestic consumption and export. The development plans reviewed in the Annex suggest that this is the trade-off that has most preoccupied governments so far. Many advocate the use of labour-intensive methods so long as they do not raise costs. But the introduction of labour-intensive crops and farm systems should not generally involve higher costs, especially if (as discussed below) these are assessed in terms of opportunity costs to society as a whole. Trade-offs in the form of higher production costs seem more likely to arise from other policies to increase employment and reduce income inequalities, such as the settlement of new land and the development of semiarid and other backward regions. As regards labour productivity, it must be recognized that this cannot for the present be increased too much without adverse effects on the distribution of employment opportunities.

Public funds used, for example, for subsidized credit to small farmers could possibly be used more productively for other purposes. Likewise the funds needed to meet the substantially higher costs of extension, credit and education programmes for the mass of small farmers might be more productive, in the strictly economic sense, if used elsewhere — say, for larger farmers or in the nonagricultural sectors. Against this, however, must be set the strong likelihood that in many countries past expenditure of public funds in the agricultural sector has tended to subsidize capital-intensive methods, leading to a misallocation of resources.

Even if policies can be devised that lead to simultaneous increases in current production, income and employment, the possibility cannot be ruled out that they might result at some future date in reductions in production, income and even employment. This is a complex problem mainly related, like the trade-off with current production and income, to the behaviour of savings and investment. It is likely that, unless this trade-off were expected to be very large indeed, most governments would place a higher value on present than on future employment. If population growth can be slowed down, the pressure to expand employment will be lessened in the future. Nevertheless, in evaluating policies it is necessary to decide on the relative weights to be assigned to future as against present benefits.

The above brief discussion of the possible trade-offs between employment and other development objectives is not only oversimplified but also of necessity largely hypothetical. There is very little empirical information on trade-offs, especially in the agricultural sector. It is significant, however, that a study of Guatemala and Peru concludes that there is no need, at least within agriculture, for a conflict between output and employment. An analysis of three alternative strategies indicates that the path involving land expansion and yield increase without mechanization is the most attractive one from the point of view of both employment and production growth. Even though this strategy could be relatively expensive, especially for irrigation facilities, it appears likely that it is also the most desirable from the point of view of private and social profitability. Furthermore, it is not evident that there is any conflict with the growth of employment and output in the economy as a whole.[85]

Technological policy and selective mechanization

Turning now to specific policy areas, it should be clear from the earlier discussion that a major need is for technological policies that are more appropriate to the present factor endowments of the developing countries. With agricultural labour forces steadily rising and cultivated land increasing more slowly (if at all), so that land-man ratios are generally declining, while capital usually remains scarce, the appropriate technology is obviously one that emphasizes yield-increasing improvements, and eschews as far as possible technological developments that are purely labour-saving.

The major issue here is the very complex one of mechanization. There is no doubt that in the long run the developing countries, like those that are already developed, will require a considerable substitution of mechanical for human and animal power, for without this the achievement of a sustained increase in income per head would hardly be possible. This will, however, be at a time when the agricultural labour force is smaller than at present (or will at least have begun to decline) and the land-man ratio has begun to rise again. In the meantime there is a considerable dilemma, for mechanization is a principal means of raising labour productivity and the income per head of those involved in it, and also of reducing the drudgery of agricultural work. It

[85] E. Thorbecke and E. Stoutjesdijk, *op. cit.*, p. 11-12.

thus might seem that it could reduce rural-urban migration. This would not be so, however, because when an average of only a third or less of the population is nonagricultural and completely dependent on purchased food, only a few of the agricultural labour force would be able to increase their productivity in this way. The rest, far more numerous, would be condemned to a virtually subsistence existence, and thus under even greater pressure to migrate in search of nonagricultural employment.

Most governments now appear to have recognized the need to give higher priority to the many in this particular equation than to the few who could benefit from labour-saving mechanization. However, this choice seems as yet to be very far from fully reflected in their more detailed policies affecting mechanization, although a number of development plans state that mechanization must be more selective, and labour-intensive methods deliberately encouraged.

The question of the back-breaking and inhuman toil involved in so much agricultural work is a very serious one. Making it the overriding consideration would, however, again only benefit the few. There is much scope, as yet relatively unexplored, for reducing the drudgery involved in agricultural work by means of improved hand and animal-drawn implements and more rational farm planning (including cooperative farming of units that are at present fragmented over vast distances), instead of large-scale mechanization. One of the areas where a reduction in drudgery is most needed is in women's work in such activities as water-carrying, fuel collection, and the pounding of grain for food preparation, which could be greatly eased by the provision of water points, rural electrification, and relatively simple technological improvements.

Furthermore, the drudgery of work is to some extent related to the social and political environment in which it is performed, and to the possibilities of obtaining personal gain or of contributing to the common good. Measures to increase the participation of rural people in the development decisions that concern their lives (and their understanding of these decisions) could therefore greatly alter attitudes to the drudgery involved in agricultural work. Nevertheless, there may be situations where the question of relieving physical toil is overriding. Moreover, where mechanization relieves the drudgery of work for farmers and their families and gives them more leisure, rather than displacing hired labour, it is obviously desirable.

The need is for what has come to be known as "selective" mechanization. But, while there is already considerable agreement, among engineers as well as social scientists, on the need for selective mechanization, very little work has yet been done on what this means in practice in particular circumstances. In addition, selective mechanization policies are likely to be difficult to implement, as is discussed below in connexion with fiscal and structural policies.

In broad terms selective mechanization means that large-scale mechanization would only be introduced at the present time in most developing countries where it contributes to increasing employment or is necessary to break a seasonal labour bottleneck. The earlier discussion of the effects of mechanization identified a number of activities which might be considered under such criteria: the pumping of water from tube wells, heavy land clearance, land preparation in circumstances where speedy operations are essential (semiarid areas with a short uncertain rainy season, and multiple-cropping), harvesting (and possibly threshing and drying) in multiple-cropping.

Of the few attempts that have been made so far to define selective mechanization in specific conditions, most are much more restrictive than this. One study, based on conditions in south and southeast Asia, advocates the mechanization of only irrigation, threshing, and straw-chopping for feeding draught animals.[86] The mechanization of land preparation for multiple-cropping is left out, mainly on the grounds that mechanical threshing and straw-chopping should release enough labour and animal power for seed-bed preparation to be carried out sufficiently quickly with improved animal-drawn implements.

The OECD study already frequently quoted examines the output and employment implications of mechanizing only wheat-threshing and pump sets in the Indian Punjab, and concludes that it is a viable alternative to large-scale mechanization.[87] Similarly, another study emphasizes small stationary threshers and reapers, rather than the mechanization of land preparation, for the speeding up of operations in multiple-cropping.[88]

Colombia appears to be the only country so far where specific proposals for selective mechanization have originated within the Ministry of Agriculture itself, although these are not yet government policy.[89] They involve mainly the mechanization of soil preparation and planting, and of the harvesting of rice under double-cropping in the tropical irrigated areas. It is concluded that the present tractor park should be sufficient for these purposes, and the study proposes that future imports should be limited to replenishment needs.

FAO's Provisional Indicative World Plan includes proposed objectives for mechanization in each of

[86] Robert d'A. Shaw. *Jobs and agricultural development: a study of the effects of a new agricultural technology on employment in poor nations*. p. 31-40, Washington, Overseas Development Council, 1970. Monograph Series No. 3.
[87] Montague Yudelman *et al.*, *op. cit.*, p. 97.
[88] E.M. Schebeck. Fiscal intervention and employment in agriculture. *in* International Labour Office. *Fiscal measures for employment promotion in developing countries*. p. 286. Geneva. 1972.
[89] Colombia. Ministerio de Agricultura. *Consideraciones sobre el papel de la maquinaria en la agricultura colombiana*. p. 31-35. Bogotá. 1971. MIN. AGR.-OSPA-051 (preliminary).

the main regions of the world for 1975 and 1985 which are based on the need to "provide the increased power necessary whilst at the same time reducing labour displacement to the absolute minimum.[90] The degree of mechanization involved is much greater than in the proposals quoted above, and covers land clearance and preparation, including levelling; ploughing and seedbed preparation; cultivation work such as subsoiling, chisel ploughing and stubble mulching; threshing; transport; pumping water for irrigation; spraying of certain crops such as fruit trees; drying, partial processing, grading, etc.

A substantial amount of work is urgently needed to identify the appropriate type and level of selective mechanization in specific conditions. There is no questioning the need for a considerable increase in mechanization of the right kind, but the current employment problems of the developing countries pose a tremendous challenge for the farm mechanization specialists, farm management specialists and agricultural economists alike. It is very dangerous to generalize about mechanization, and the appropriate type and level must be studied in relation to the particular circumstances not only of each country but also of the different zones within countries and of the different farming systems.

Apart from selective mechanization, much more research is also needed on yield-increasing technologies of the kind which have given such successful results with the high-yielding varieties of wheat and rice. The range of available technologies is still largely based on the needs of the developed countries. In the context of employment creation, particularly high priority should be given to the development of technologies for the nonirrigated dryland farming areas where most of the farmers in developing countries are working. In areas with better water supplies, the development of crop varieties with shorter growing seasons would greatly help to spread labour requirements more evenly throughout the year. Much more research is needed on farming systems appropriate to particular regions as well as single crops, and on the technological options available.

Aid-giving agencies and foreign technicians should give much more careful consideration to the appropriateness of the technologies they are helping to introduce in the developing countries. The agencies should give a heavy weight to employment and income distribution aspects in appraising projects. In the past the relatively easy availability of foreign loans and other assistance for tractorization has been one of the factors that has led to indiscriminate and sometimes ill-judged mechanization, in contrast to the carefully selective mechanization that it is now generally agreed is desirable. Some other factors that have led to a bias toward capital-intensive techniques are discussed below.

Fiscal and related policy

It is obvious that if the market prices of the different factors of production do not adequately reflect their relative scarcity in the economy, resources will be misallocated. In many developing countries a combination of overvalued exchange rates, inflation, subsidized credit at low interest rates and tariff and tax exemptions tends to make the private cost of capital and foreign exchange lower than their social opportunity cost. At the same time, the gradual introduction of minimum wage and social security provisions is pushing the market price of hired labour above its social opportunity cost. Thus capital is artificially cheap and labour artificially expensive, and there is a bias in favour of capital intensity. This can be taken care of in planning public investment projects by the use of shadow prices, but the behaviour of private entrepreneurs can only be brought in line with the needs of society as a whole by means of modifications in at least some of the relevant policies.

In the agricultural sector these policies have resulted in an artificial, and in many cases unintended, additional stimulus for mechanization. It is therefore privately profitable for farmers to replace labour by machinery even in labour-surplus economies where the needs of society are quite different. In many cases there is not only a bias in favour of capital equipment in general, but also a bias in favour of imported equipment and against the locally produced equipment that may be simpler and more suitable for use in labour-intensive systems.[91] Domestically produced capital equipment is often overpriced as a result of protectionist policies.

Pakistan provides an outstanding example of factor price distortions, combined with commodity price distortions, giving an artificial stimulus to mechanization.[92] In the 1960s the Agricultural Development Bank's interest rate on medium-term credit was 7-8 percent, compared with 12-15 percent charged by commercial banks. There were no import duties on tractors until 1969/70, when a 5 percent duty was imposed together with a 15 percent sales tax. But even this did not wipe out the windfall profits obtained from being able to purchase foreign exchange at the official rate, and licensed recipients still paid only Rs.16 000-18 000 for a tractor in 1971, compared with a free market price of Rs.25 000-30 000.

[90] FAO, *Provisional Indicative World Plan for Agricultural Development*, Vol. 1, p. 225-236.

[91] E.M. Schebeck, *op. cit.*, p. 288-289.
[92] C.M. Gotsch, *op. cit.*, p. 139.

At the same time the risks of investing in capital equipment were substantially reduced by very high support prices, well above world market rates, for some major crops.

Similar policies have been followed in India, where the bias against labour-intensive methods was further increased when a tax on fertilizers was introduced in 1969 while maintaining subsidies on machinery. A World Bank appraisal of mechanization projects in India indicated that the private profitability of tractors in parts of Gujerat was two or three times their social profitability, if allowance was made for distortions in factor and output prices.[93] In the Philippines sales of tractors soared when cheap credit became available in 1966 as a result of a World Bank mechanization loan, while a further stimulus was that the peso was becoming progressively overvalued at the official rate.[94] The introduction of a floating exchange rate in 1970 made capital imports much more expensive, and tractor imports fell sharply in spite of a second World Bank loan.

In Latin America farm machinery is exempt from import tariffs in most countries, except for items of which there is a large domestic production, and domestic production enjoys considerable tax exemptions. Surprisingly, however, in view of the need to make the best use of capital equipment, spare parts are sometimes subject to a heavy import duty. Credit for the purchase of farm machinery is available from government institutions for 70-100 percent of the purchase price at much less than the commercial rate of interest. Because of the rapid inflation prevailing in many countries, the average rate of interest effectively charged by public institutions in recent years for an agricultural machinery loan has frequently been negligible or even negative. It may be roughly estimated that the rates charged have ranged from —6 to —13 percent in Argentina, Brazil and Venezuela, so that farmers have had to pay back only 50-80 percent of their loans in these countries. As a result of such situations, both Chile and Uruguay now adjust some machinery loans to the rate of inflation, and Brazil was contemplating similar steps.[95]

The tendency for capital to be underpriced has been accompanied in many countries by a number of developments which have raised the cost of hired labour well above its opportunity cost in a labour-surplus economy. A growing number of countries now have minimum wage regulations and social security systems which greatly increase the cost of employing labour. Although these measures are still much less effective in agriculture than in manufacturing industry (partly because of the isolation of so many rural areas and the fact that a portion of the agricultural wage is often paid in kind), they are gradually becoming more effective, especially on the large farms that employ much hired labour. Examples of the magnitude of their effect are that social security payments nominally add about 20 percent to the wage bill in Peru, 40 percent in Chile, and about 50 percent in Argentina. In the Philippines it has been projected that the higher minimum wage adopted in 1970 could reduce the increase in agricultural employment in the first half of the 1970s from 4 percent a year to 2.6 percent.[96]

It is not, of course, suggested that such basic measures of social justice as minimum wages and social security should be abandoned. It is possible, however, for social security measures to be administered in such a way that they do not function as a tax on the employment of labour. In Brazil, for example, social security payments for agricultural workers come out of a special fund derived from production and sales taxes, and in Uruguay they are now assessed per hectare instead of per worker. It is much more difficult to change the incidence of minimum wages. Wage subsidies have sometimes been suggested, but they would involve massive financial transfers and would certainly be even more difficult to administer in agriculture than in industry.

In any case, although the increase in effective wage rates has undoubtedly encouraged farmers to reduce their hired labour forces, it is far from certain that measures to lower these rates would induce them to take on more labour. Social unrest has spread rapidly in the countryside, as rural workers have become more aware of their rights and of their disadvantaged position in relation to urban workers. Large farmers are therefore increasingly unwilling to face the problems involved in organizing and managing a substantial labour force.

A large number of other fiscal and related policies also affect agricultural employment. Indeed, it has been suggested that in Africa, out of 24 types of policies and planning approaches that limit agricultural employment and cause excessive rural-urban migration, at least 9 are in the fiscal and related fields.[97]

Agricultural credit policy can be a principal instrument in promoting a particular type of technological change. Selective credit policies will be needed for the implementation of selective mechanization policies. At the same time it is necessary to channel increased amounts of credit for the purchase of

[93] E.M. Schebeck, *op. cit.*, p. 289.
[94] Randolph Barker *et al.*, *op. cit.*, p. 123.
[95] K.C. Abercrombie, Agricultural mechanization and employment in Latin America, *op. cit.*, p. 31-33.

[96] Mahar Mangahas, William H. Meyers and Randolph Barker, *The effect of the new seed-fertilizer technology on present and future trends in labour use in Philippine agriculture*, to be published by the Organisation for Economic Co-operation and Development (quoted in Randolph Barker *et al.*, *op. cit.*, p. 138).
[97] Carl Eicher, Thomas Zaller, James Kocher and Fred Winch, *Employment generation in African agriculture*, p. 19, East Lansing, Michigan State University, Institute of International Agriculture, College of Agriculture and Natural Resources, 1970, Research Report No. 9.

improved seeds, fertilizers, pesticides and implements to the small farmers who are most likely to use labour-intensive techniques. Up to now public credit systems in most developing countries have tended to be heavily biased toward the larger farmers, partly because they call for collateral for loans, and partly also on grounds of administrative convenience, lower cost and easier recovery of loans.

Agricultural taxation requires reexamination in many countries in the light of its effect on employment as well as other development objectives. In India and Pakistan, for example, agricultural incomes (as opposed to agricultural land) are exempt from taxation. Thus the substantial profits made by large farmers out of the green revolution went untaxed, making it easier for them to invest in expensive capital equipment.[98] Especially in Latin America, where there are many large underutilized holdings, progressive land taxation (at increasing rates per hectare as the size of holding increases, and based on potential rather than actual production) has often been seen as a means of stimulating more intensive cultivation or the sale of part of the holding, both of which should increase employment. However, such systems have a very poor record of implementation in developing countries so far. Without at least some degree of land reform, the large landowners are likely to remain powerful enough to avoid payment with impunity.[99]

Price policies both for inputs and outputs can also affect agricultural employment. Subsidies on inputs such as fertilizers have been effectively used in many developing countries, although a number of them are now increasingly seeing fertilizers as something that is attractively simple to tax. If marketing systems can be suitably improved, minimum support prices can be used to encourage the diversification of production toward more labour-intensive products.

On the other hand, artificially low prices for agricultural products, designed to provide cheap food for the towns, have probably tended not only to inhibit production but also to reduce agricultural employment and stimulate rural-urban migration. Export duties, including the duties implicit in the price policies of the west African marketing boards and other export monopolies, can also affect agricultural employment. Their exact effect depends on a number of complex factors and is difficult to assess, but it is probable that in some cases they have had an adverse effect on agricultural employment opportunities.

[98] W.P. Falcon. The green revolution, generation of problems, *American Journal of Agricultural Economics*, 52(5): 706, 1970.

[99] K.C. Abercrombie. Fiscal policy and agricultural employment in developing countries. *in* International Labour Office. *Fiscal measures for employment promotion in developing countries*, *op. cit.*, p. 272.

Structural policy and agrarian reform

Structural policy, especially regarding land tenure, can profoundly affect agricultural employment. As discussed earlier, the effects of technological change are greatly influenced by and themselves influence the agricultural structure. Thus, technological policy cannot be discussed in isolation, but must be seen in relation to the whole system of agricultural institutions, including the services and infrastructure provided by the government.

Whether the agricultural structure is "unimodal" or "bimodal" has a major influence on agricultural employment.[100] With a unimodal structure it is possible to apply labour-intensive technology in the whole of the agricultural sector. The classic example is Japan during the earlier phases of its development, but there are other examples such as the Republic of Korea. Countries where agricultural production is collectivized or cooperatively organized are also unimodal, although there is sometimes a new dualism within the cooperatives, between private plots and cooperatively managed land.

Many developing countries have a bimodal or dualistic agricultural structure. These countries have encouraged the development of a modern, commercial, relatively capital-intensive subsector, which provides the bulk of marketed output, while the rest of the agricultural population is confined to a traditional subsistence subsector with virtually no claim on public resources. This structure has often evolved historically as a heritage of the colonial period, but it has also been actively promoted in some cases in order to obtain rapid increases in output. Examples of this structure can be found in many countries, including Brazil, Colombia, Indonesia, Ivory Coast, Mexico, Morocco and Sri Lanka.

Where the agricultural structure is strongly bimodal or dualistic, with a backward small-farm subsector and a modern, commercial subsector of large farms, and especially where this is reinforced by the structure of government services to farmers, it is difficult to avoid most of the benefits of technological change going to the large farmers. But it is usually the smaller farms that use most labour per hectare and have the highest production per hectare, even with their present primitive technology.

In most developing countries, even those that are already very short of land, there is still considerable potential for increasing the labour input and the level of productivity per hectare on small farms.

[100] Bruce F. Johnston (with the assistance of John M. Page, Jr. and Peter Warr). Criteria for the design of agricultural development strategies. *Food Research Institute Studies*, 11(1): 27-58, 1972. The basic classification of unimodal and bimodal has been further refined, on the basis of 10 case studies, in FAO. *Comparative analysis of agricultural development and employment performance and planning*, prepared by Erik Thorbecke and Gunars Dambe (in press).

Thus in Japan in 1965 the land-man ratio was half that in India, but fertilizer use per hectare was almost 40 times as great, and the GDP almost 6 times as great per worker and 12 times as great per hectare.[101] Even allowing for the fact that 55 percent of the arable land is irrigated in Japan, compared with only 16 percent in India, these figures are very striking.

A number of countries that still have unused land resources that can be opened up are planning to expand the small-farm subsector by means of colonization and settlement, as a major part of their programmes to expand agricultural employment. These include Bolivia, Brazil, the Dominican Republic, Kenya, Indonesia, Malaysia and Tanzania. But where accessible unused land is hardly available, virtually the only way to expand the labour-intensive subsector is by breaking up the large farms through agrarian reform.

Several of the countries that have undertaken agrarian reforms of different kinds in recent years see them as an important part of employment policy as outlined in their development plans. The effects of agrarian reform on employment have been very thoroughly studied,[102] so that it is necessary here only to mention a few of the salient points.

Agrarian reform may lead either to the distribution of family farms or to the establishment of various forms of cooperative or collective farms. The choice between the two is largely political, but both seem suitable vehicles for increasing employment opportunities in agriculture. Since the labour supply is predominantly family or cooperative members, it can be regarded as a more or less fixed resource to be utilized as fully as possible, rather than a variable cost like hired labour. It has been observed, however, that the demand for hired labour has also increased after agrarian reform.[103]

Cooperative farms are easier to supply with extension, credit, marketing and other services than scattered family farms. This to some extent offsets the problem that, being large-scale units, they require skilled managers, who are a scarce resource in developing countries. They have the further advantage that they are adaptable both to the present labour-surplus situation and to the situation which will eventually come about when the agricultural labour force is declining, and large farming units are required to accommodate large-scale labour-saving machinery. They also make possible the larger scale production units that may be needed for certain commodities.

A large part of the burden of finding employment for their members is shifted on to the cooperatives themselves. Since they constitute a pool of labour under some kind of central management, they provide a favourable environment for the organization of nonagricultural activities to relieve seasonal unemployment. As discussed later, China in particular has taken full advantage of this aspect. Similarly they are a good focus for the introduction of improved health, education and family planning facilities, although the same could probably be said of associations of family farmers.

There is, however, one important proviso concerning the employment effects of agrarian reforms. This concerns those who are left out either of the distribution of family farms or of the cooperatives, and who depended previously for their livelihood partly or wholly on work as hired labourers on the expropriated large holdings. Where landless workers cannot be provided with family farms or included in the cooperatives, they should at least be given small plots of land on which they can grow some labour-intensive crops for family use or for sale.[104]

Integrated rural development

The agricultural sector by itself is, of course, a very narrow context within which to view employment problems. The discussion of agrarian reform already widens the focus considerably, for this consists of far more than changes in land tenure and completely alters the structure of rural life. The present section is concerned with the need for the integrated development of the whole rural sector of a country or of specific rural regions within a country.

Nonagricultural rural employment

Although nonagricultural activities are mainly concentrated in urban areas, they are also quite substantial in rural areas. In Egypt, for example, it is estimated that in 1965 21 percent of the rural labour force were engaged in nonagricultural work.[105] Partly this reflects a tendency, with economic development and increasing specialization, for many activities such as processing and the production and maintenance of certain inputs to be transferred off the farm. Thus the labour force actually responsible for the output of the agricultural sector is much larger than what

[101] S. Reutlinger *et al.*, *Agricultural development in relation to the employment problem*. p. 6. Washington, D.C., International Bank for Reconstruction and Development, 1971 (mimeographed).

[102] See especially: Marvin J. Sternberg. Agrarian reform and employment: potential and problems. *International Labour Review*. 103(5): 453-476. 1971. This article rounds up the conclusions of seven other articles on agrarian reform and employment in specific countries and regions that appeared in the same journal between 1967 and 1971, and have been reprinted in International Labour Office. *Agrarian reform and employment*. Geneva. 1971.

[103] Eric S. Clayton, Agrarian reform, agricultural planning and employment in Kenya. *International Labour Review*. 102(5): 453. 1970.

[104] United Nations. Committee for Development Planning, *Report on the eighth session*, *op. cit.*, 1972. p. 13.

[105] International Labour Office. *Rural employment in the United Arab Republic*, *op. cit.*, p. 40.

is defined as the agricultural labour force, although by no means all of it is rural.

Nonagricultural activities in rural areas have an important role in helping to modernize these areas and bridging the gap with the urban sector, and in diffusing organizational abilities and technical skills more widely. They are likely to be of crucial importance since, at least during the 1970s, agriculture alone is unlikely to be able to make any very large inroads into rural underemployment.

Such nonagricultural activities can provide either full-time or part-time employment. Part-time employment may be in the sense of farm family members continuing to live on the farm (and thus being available for the seasonal peaks in labour requirements) and working full-time in nonagricultural activities, or working partly in agricultural and partly in nonagricultural activities. Part-time farming has developed very substantially in the industrialized countries. It is not often realized that on about 95 percent of the farms in the United States the farmer and his family still supply the majority of the labour, and that off-farm sources of income are now about half the net farm income of the agricultural labour force.[106] In Japan, part-time farming, in the broad sense defined above, has long been the means whereby families with subsistence-sized holdings have been able to enjoy much more than subsistence levels of living, and in 1960 two thirds of all farm households were classified as part-time farms.[107]

Only limited data are available on the extent of part-time farming in developing countries, although it is undoubtedly growing. In Egypt 8 percent of the total working time of members of farm households and 16 percent of that of farm labourers' households is spent on nonagricultural work, while members of nonagricultural households spend 26 percent of their working time on agricultural work.[108] In India the agricultural labour inquiry of 1956-57 showed that agricultural labourers derived about a fifth of their income from nonagricultural work.[109] In the Republic of Korea nonfarm income has accounted in recent years for 17-20 percent of farm household income.[110]

Part of rural nonagricultural employment is in primary activities other than crop and livestock production. Strictly speaking (and according to the International Standard Industrial Classification of all Economic Activities) fisheries and forestry are part of the agricultural sector, and they were included as such in the discussion of the agricultural labour force. They have not been covered in the rest of the study, however, partly because of their special characteristics and partly because of their frequent complementarity with employment in crop and livestock production, and they are therefore considered separately here.

Fishing generally employs 1 percent or less of the total labour force in developing countries, although there are some notable exceptions. The proportion is as high as 14 percent in Chad, 6 percent in Western Samoa, 5 percent in the Philippines and Mauritania, and 4 percent in the Republic of Korea and the People's Democratic Republic of Yemen.[111] The percentage of part-time fishermen (defined as 30 percent or less of time worked or of total earnings) varies considerably, but is generally quite high. Part-time work is particularly a feature of fishing in river waters, where the activity varies with the seasonal flow of water, but it is also common in sea fisheries based on migratory species. Most of the employment is generated in freshwater and coastal fisheries, and the employment derived from distant-water operations, which are much more capital intensive, is very small.

Traditional fishing operations are an important source of employment for the populations of coastal areas where there is a dearth of other resources for development. In such situations a main problem is how to improve the technical and economic efficiency of operations without changing their labour-intensive character. Major changes such as the centralization of landings and the establishment of fish terminals and wholesale markets can only be introduced gradually, if adverse effects on employment are to be avoided. The introduction of modern methods and equipment may often help only a minority, leaving the rest worse off than before. On the other hand, improvements such as boat mechanization with outboard engines can make the life of the individual fisherman easier (for example, by reducing the time and effort required to reach the fishing grounds) and increase his catch and income without reducing employment. In some situations a reduction of labour requirements in fishing itself may be compensated by additional employment in related operations such as processing and marketing. The establishment of small-scale fish-preserving activities can also increase employment in traditional fisheries.

The development of modern, industrialized deep-sea fisheries will not generally reduce employment in traditional fisheries, since they rely on a different resource base and since the market for fish is growing

[106] Don Paarlberg. *Farm policy implications and alternatives*. National Agricultural Outlook Conference. Washington, D.C., United States Department of Agriculture, 1973.
[107] FAO. *Agricultural development in modern Japan*. p. 10. Rome, 1966. Agricultural Planning Studies No. 6.
[108] International Labour Office. *Rural employment in the United Arab Republic, op. cit.*, p. 39.
[109] *Agricultural situation in India*. 15(10): 1248. 1961.
[110] Republic of Korea. Economic Planning Board. *Korea statistical yearbook 1965*. p. 96. Seoul. 1965.
[111] FAO. *The economic and social effects of the fishing industry: a comparative study*. p. 10-13, Rome, 1973. FAO Fisheries Circular No. 314. FIE/C/314.

rapidly. However, there may be serious competition for resources at times when the large vessels may prefer, because of resource or weather conditions, to fish the same coastal waters as the traditional fleets.[112]

The most dynamic employment-creating part of the fishery industry is fish culture. The cultivation of molluscs in marine waters is particularly labour intensive.

Forestry and forest industries are an important source of employment in many rural areas, often offering employment in the off-season for crop production. It has been estimated that, including the indirect effect on employment in wood-based secondary and tertiary industries, such as furniture, paper converting, containers and construction, and in service industries, the forestry sector could generate additional employment opportunities of the order of 30 to 40 million in the developing market economies between 1961-63 and 1985.[113] Forestry has particularly strong links with various branches of the industrial sector, and these calculations are based on a multiplier of 7 to 10 for the indirect employment effects of the expansion of production in forestry and primary forest industries.

Employment in the establishment of forest plantations varies from about 150 man-days per hectare with mechanized methods in Argentina to 300 in India and 450 in east Africa with manual methods. A main need with such plantations is to phase them so as to provide continuity of employment, with the labour force moving smoothly from planting to tending and logging, once the initial intensive establishment phase is passed.[114] In logging, which is a major source of forest employment in many developing countries, an intermediate technology is needed which removes the more arduous and dangerous elements of the work while retaining labour-intensive methods.

The choice of technology in forest operations has been studied by the International Labour Office. The preliminary results of a number of case studies indicate that, in the prevailing conditions in the developing countries, a combination of mechanized techniques at an intermediate level with improved labour-intensive operations would generally be more economic than the use of highly mechanized techniques.[115]

Among forest industries, sawnwood and plywood industries can be highly labour intensive. Labour requirements in saw-milling, for instance, which is generally carried out in rural areas, are as much as 100 or more man-hours per cubic metre of sawnwood in small mills in some African countries, compared with only 2-3 man-hours in Finland and Sweden. Mill labour requirements are small, however, for fibreboard, particle board and pulp and paper.[116]

Many of the wide range of industries processing agricultural products can also add substantially to rural employment opportunities. Very little information is available, however, on the employment situation and potential of these industries, or on the extent to which they are sited in rural areas.

As with agricultural production, in many processing industries a considerable range of technologies is available that employ more or less labour, and these industries appear in general to be more labour intensive than the rest of the manufacturing sector.[117] Examples where there is considerable flexibility in the level of technology and labour intensity include the milling of cereals, the canning of fruit and vegetables, cotton ginning and the initial processing of other natural fibres, and the curing of hides and skins (to a great extent a wasted resource in the developing countries at present) and leather production.

A recent study of rice processing in Indonesia analyses the employment implications of five different levels of technology, ranging from hand-pounding and small hullers at the village level to large bulk storage and drying and milling units.[118] Employment per 1 000 tons of rough rice varies from 1.8 workers in the large bulk units to 12.3 with hullers and 40 with hand-pounding. If all the 1970 crop had been processed by a single technique, total employment in rice milling would have been 31 000 with large bulk units, 213 000 with hullers, and 690 000 with hand-pounding; the actual figure was probably about 542 000 with the mixture of techniques in use (70 percent hand-pounding, 25 percent hullers, and 5 percent Japanese rice mills). The study concludes that small huller units are the optimal milling technique for Indonesian economic and social conditions. If they were introduced gradually, in line with the expansion of paddy production, declining employment in hand-pounding could be offset by the new employment in huller units generated by the increased production.

A large part of agricultural processing activities is carried out in rural areas. However, the factors determining their location are quite complex.[119] A good deal of the processing of the agricultural production of the developing countries (particularly

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[112] R. Hamlisch, *Manpower planning in fisheries development programs*, p. 23. Rome, 1967. FAO Fisheries Technical Paper No. 65.

[113] FAO, *Provisional Indicative World Plan for Agricultural Development*, *op. cit.*, Vol. 1, p. 325.

[114] FAO, *Report of the third session of the African Forestry Commission, Nairobi, 7-12 February 1972*, p. 4, Rome, 1972.

[115] FAO, *Report of the Ad Hoc Committee on Forestry*, p. 13, Rome, 1971. CL 56/8.

[116] FAO, *Forestry for rural employment in Africa*, secretariat note for third session of African Forestry Commission, Rome, 1971. FO: AFC-72/3.

[117] FAO, *The state of food and agriculture 1966*, p. 83-84, Rome, 1966.

[118] C. Peter Timmer, Employment aspects of investment in rice marketing in Indonesia, *Food Research Institute Studies*, 11(1): 59-88. 1972.

[119] FAO, *The state of food and agriculture 1966*, *op. cit.*, p. 82, 102.

of vegetable oils and oilseeds and also of forest products) is still carried out in the developed importing countries, as a result of tariff and nontariff barriers that discriminate against processed products. In most cases, however, the raw material represents a large proportion of total costs, so that its ready availability at reasonable cost can often offset any disadvantages such as the lack of infrastructure or skilled labour in the developing countries.

Most agricultural products either lose weight or bulk in processing, so that they can be transported more cheaply after processing, or are perishable and can be transported more easily in processed form. Generally, therefore, industries based on these products are "raw-material oriented" and can most economically be set up in the area where the raw material is produced. For most grains, however, shipment of the raw material in bulk is frequently easier, and they are therefore "market-oriented." Most oilseeds can be transported equally easily and cheaply in raw or processed form. Where there is technical freedom of choice, industries have normally tended to be market-oriented, because of the more efficient labour supply, better infrastructure and lower distribution costs in the large market centres. The location of abattoirs in livestock-producing areas is only economic or indeed feasible if there are adequate cold chain facilities between the producing and consuming areas.

Where agricultural processing industries are located in rural areas, this may itself provide a new stimulus for production. Even if the processing itself is not very labour intensive, it can often give rise to a large amount of additional employment in the production of the raw material.

Among the industries producing agricultural inputs, machinery, fertilizer and pesticides are mainly manufactured in the developed countries. When they are manufactured in developing countries, this is usually in the large towns with an established industrial infrastructure. However, such industries as the manufacture and maintenance of simpler machinery and implements, and the mixing of fertilizers or animal feeds, can provide additional employment opportunities in rural areas. The more labour-intensive methods of agricultural production are likely to have greater indirect effects than large-scale mechanization on rural employment creation.[120]

The marketing and distribution of both agricultural products and inputs are also a major resource of employment, of which a large part is bound to be in rural areas. On the output side, an important consideration is that the larger part of future increases in production is likely to be for sale. For example, in the states of Haryana and Punjab in India 3.5 million tons of wheat were produced in 1966/67, of which 1 million tons were marketed, but 3.6 million tons were marketed of the increased production of 7 million tons in 1969/70.[121] On the input side, of about 140 000 workers estimated to be engaged in agricultural machinery manufacture, distribution, maintenance and repair in the 11 countries of the Latin American Free Trade Association, about half are probably in domestic manufacture (including intermediate products), and half in the distribution, maintenance and repair of domestically produced and imported machinery.[122]

In many rural areas cottage and handicraft industries have traditionally afforded substantial employment opportunities, especially in the off-season for agricultural work. Measures are required, however, to prevent the displacement of workers from these industries by competition from modern factories, often in urban areas.

The industries that can be established in rural areas are not, of course, confined to those processing agricultural products or supplying inputs for agricultural production. Tourism, including that based on wildlife resources, is an important example. But in suitable circumstances many other industries totally unconnected with agriculture can be set up in rural areas.

China is perhaps the outstanding example of the establishment of not only light but also heavy non-agricultural industries in rural areas. It also provides a striking demonstration of a strategy aimed at "integrated rural development" in the broadest sense which has proved a successful approach to rural employment problems, and thus merits some more detailed attention.

The rural life of China is organized around the people's communes, which are multipurpose units for the management not only of agricultural but also industrial, commercial, cultural and military affairs. These are subdivided into production brigades, which in turn are subdivided into production teams. The teams consist of 30-50 neighbouring households, roughly corresponding to a traditional village, while a large village of over 200 households would correspond to a production brigade. In many communes private sources of income (from private plots of land, ownership of small livestock, and sideline enterprises such as basket-making, sewing and knitting) constitute up to a quarter of household

[120] John Cownie, Bruce F. Johnston and Bart Duff, The quantitative impact of the seed-fertilizer revolution in West Pakistan: an exploratory study, *Food Research Institute Studies*, 9(1): 78-80, 1970.

[121] From a study by K.S. Gill, Punjab Agricultural University, quoted by S.S. Johl, *An analysis of shifting relative prices and marketing facility investments in the context of change in developing countries*, p. 3, Columbus, Ohio, Ohio State University, 1971, Economics and Sociology Occasional Paper No. 37.

[122] K.C. Abercrombie, Agricultural mechanization and employment in Latin America, *op. cit.*, p. 29-30.

income. During the slack season for agriculture, commune members are employed on a vast range of infrastructure projects, including land levelling, land reclamation, erosion control, irrigation and drainage works, reforestation, and road and bridge building.

There appears to be no rural unemployment. The communes find jobs for the new entrants to their work forces, while some new entrants from the towns are sent to the rural communes. Any labour not required for agriculture is employed in construction or factory work. Underemployment has been immensely reduced. While it probably still exists, it is at least evenly distributed among the work force, except for regional differences. It may well prove that China's success in providing nonagricultural employment in decentralized industry and in labour-intensive infrastructure projects may make possible a fairly rapid mechanization of agriculture, thus increasing labour productivity and reducing the drudgery of work, without causing unemployment or serious underemployment.

Some 3-5 percent of commune income is allocated to a welfare fund for health services and education. Generally there is a small hospital at the commune level, a clinic in each production brigade, and a health worker or " barefoot doctor " in each production team. Brigades have primary schools and many communes have secondary schools. There are adult education facilities in every commune, and the emphasis has now shifted from basic literacy to agricultural training.

The policy of " walking on two legs " combines traditional and modern methods, but initially the main emphasis was on traditional techniques and the intensive use of labour. From 1962 there has been increasing emphasis on modern inputs such as machinery, chemical fertilizer, pesticides, tube wells and electrification, the use of which has been concentrated in areas of high yield potential. Small fertilizer plants have been established throughout the country. Tractor production has been rapidly built up since the opening of the first factory in 1958, and machinery assembly and repair shops (190 000 in 1971) are widespread. Many communes have brick and tile works, and every brigade has a building team.

Other industries that are being encouraged in rural areas, either as part of the communes or as separate collective enterprises, include coal and other mining, hydroelectric stations, cement works, and iron and steel works, but there are also many others. Industrial capacity has been deliberately shifted from the coastal areas to the hinterland, partly in order to relieve overstrained transport facilities, but also to reduce regional and rural-urban disparities. It is reported that in 1970 more than 60 percent of fertilizers, more than 65 percent of building materials, and more than 70 percent of processed foodstuffs came from the commune sector. The contribution of such industrial enterprises to commune budgets was more than 50 percent in many cases, and sometimes more than 75 percent.

To obtain any comparable level of decentralization of industry in the developing market economies would probably entail fiscal incentives to reinforce the attractions of cheaper labour and cheaper factory sites in rural areas, as well as measures to provide the necessary infrastructure. The rural areas could also be made more attractive to industry by deliberate policies to encourage the establishment of strategically sited decentralized rural towns, either by the construction of new towns or by the upgrading of existing villages and towns.

Decentralized urban development has many other advantages as well. It can help to relieve the congestion in the few overcrowded large cities to which rural-urban migration is at present mainly directed. It can inject a new and much needed dynamism in rural areas, and promote economic growth centred on new poles of development, diffusing urban demand for agricultural products more widely in the country. It can provide substantial employment in the construction industry, and also ensures that additional labour supplies are available near at hand to meet the seasonal peaks in agricultural labour requirements. Rural towns can function as centres for the necessary extension, credit, marketing and other services to farmers, as well as for the provision of improved health and education services and general amenities. They would make it easier to induce the skilled manpower needed for these services to work in rural areas.

The settlement of newly opened land provides a special opportunity for the establishment of such decentralized rural towns. Thus in Brazil's new Amazonian settlements it is planned to set up a hierarchy of interdependent rural communities. The smallest unit is the *agrovila*, which groups about 50 families living within a range of about 50 kilometres, with a primary school, medical assistance, trading facilities, and a recreation area. For every 20 or so agrovilas there is to be an *agropolis*, with various government services, a cooperative, a welfare and medical assistance centre, a primary school, and eventually a secondary school, rural industries and other basic services. Every 140 kilometres there will be a *ruropolis* (based on existing towns or selected agropolis), which will include industrial activities as well as rendering services to the rural community.

Colombia's development plan for 1970-73 [123] calls for the stimulation of intermediate cities and local

[123] Colombia, Departamento Nacional de Planeación, *Plan de Desarrollo Económico y Social 1970-1973*, *op. cit.*, p. III-13.

centres. Medium and small-scale industries will be developed in the intermediate cities, as well as education and health services. The local centres (less than 30 000 inhabitants, and situated principally in areas of high agricultural potential) will be service centres for education, health, marketing etc., mainly for the agricultural population but also including the development of agricultural processing industries and handicrafts. In Kenya also, nonagricultural development is to be decentralized in designated growth centres.

Another important component of integrated rural development policies is a drastic reorientation of rural education systems. These at present have a pronounced urban bias, contributing to the general dissatisfaction with rural life and providing a further stimulus to rural-urban migration. Where there are vocational or craft schools, they are generally outside the main system and thus looked down on. Combined with improvements in rural employment opportunities, services and amenities of the types outlined above, and with measures to ensure the fuller participation of rural people in the decisions affecting them, rural schools must instil a new attitude to rural life, as well as providing training of practical usefulness for people who will be spending their lives in agriculture.

Integrated rural development must also pay much more attention to women. Conventional agricultural and rural development projects seldom have much impact on them. Much more must be done (apart from statistical efforts to distinguish their contribution more accurately) to increase their employment opportunities in the agricultural activities with which they are concerned in particular areas, and to reduce the drudgery of their household duties, for example by rural electrification.

Because of the seasonality of so many rural employment opportunities, and because this seasonality differs between regions, it is also necessary to promote the mobility of labour within rural areas. This involves the dissemination of information on the labour market to potential job-seekers and potential employers, and the provision of transport and housing.

Rural public works

Finally, a major role in integrated rural development strategies in which employment creation is a principal element must clearly be played by labour-intensive public works programmes. The impressive achievements of China in organizing its rural labour force for massive programmes of capital formation and for the development of infrastructure and amenities deserve careful study in this regard.

Many developing countries have had such programmes for a long time. They were the main plank in the Ardant plan for full employment[124] that was much publicized in the early 1960s. Since then, because of their generally poor implementation and limited impact, they have fallen into some disrepute, although a considerable number of current national development plans give them renewed emphasis.

There are undoubtedly substantial administrative and also financial difficulties in implementing such schemes in widely scattered rural areas. However, a main reason for their relative failure in many countries in the past may well be that they were not conceived on a sufficiently large scale or with enough imagination. With few exceptions, they have been relegated to minor ministries or government departments, and not regarded with much enthusiasm by the government or people as a whole. They have tended to be conceived as special or even emergency measures for the relief of seasonal unemployment.

Instead they should be seen as a key part of national development strategy. The aim should not be the rather negative one of "relief," but the highly positive one of deliberately taking advantage of the existence of vast underutilized labour resources and using them, as far as possible in substitution for capital, to create the modern infrastructure that will be needed for the future (and the creation of which will be much more expensive if left to the future), to construct decentralized rural towns and feeder roads, to maintain and improve the environment, and to establish directly productive resources such as irrigation works and forest plantations that lead to increased employment in production.

Training schemes will be needed for the necessary supervisors and technicians. The appropriate blend must be sought of large-scale and small self-help projects at the community level. Changes will also be required in project design and in contracting procedures.

If such schemes are conceived as an integral part of the national development plan, it will be easier to counteract any inflationary tendencies that would result from the consequent increase in demand for food and other consumer goods. Countries where the green revolution has taken hold are now in a better position to increase food production in line with demand. Moreover, such schemes are one of the most productive uses to which food aid can be put. Of the total of 12.3 million beneficiaries of the United Nations/FAO World Food Programme (WFP) up to 30 June 1972, about 3.4 million were workers engaged in social and economic infrastructure works and directly productive projects, who received food either as part-payment of wages or

[124] Gabriel Ardant, A plan for full employment in the developing countries, *International Labour Review*, 88(1): 15-51, 1963.

as an incentive to encourage voluntary self-help work.[125] About 270 million man-days of employment were being provided with WFP aid in such projects in 1972, corresponding (at 300 man-days to the year) to 900 000 full-time jobs.[126]

Even commercial food imports could represent a judicious use of scarce foreign exchange in support of such programmes. It appears that food imports may have been an important factor in enabling China to follow an employment-oriented strategy.[127]

In general it seems that there is a strong case for the governments of the developing countries to go into long-term public indebtedness to pay present-day workers for work that will yield long-term benefits to the community. This could provide a dynamic new focus for international financial as well as food aid.

[125] World Food Programme, *Annual statement of the Executive Director on the development of the Programme, 23rd session of Intergovernmental Committee, 25 April-4 May 1973*. p. 14, Rome. 1973. WFP/IGC: 23/5.

[126] *Ibid.*, p. 65. See also: E. Costa. Ten years of multilateral food aid for development: the World Food Programme and employment. *International Labour Review*. 107(3): 209-221. 1973.

[127] Uma J. Lele and John W. Mellor. Jobs, poverty and the "green revolution." *International Affairs*. 48(1): 30, 1972.

Conclusions

This survey has covered a very wide field. Rather than concentrate on a detailed analysis of a few specific aspects, it has attempted to indicate the large number of different factors that are involved if the agricultural and rural sectors are to be able to play the crucial role in employment creation that is required of them at the present time and for the foreseeable future. The dimensions of the problem are immense, and have already been set for at least the next 15-20 years by the rapid population growth of earlier years. It is not possible at this stage to quantify what might be the contribution of agriculture to the creation of new employment in the coming years with various alternative policies in both the developing and the developed countries. But the sheer size of the expected increases in the agricultural labour forces of the developing countries strongly suggests that it will be difficult to provide productive employment for all the new entrants, let alone materially reduce the substantial backlog of underemployment by making existing jobs more productive and remunerative. Much will therefore depend on the inherent resilience and absorptive capacity of rural social systems, and on the extent to which these can be backed up by measures to improve rural living conditions.

It is clear from past experience that rapid increases in agricultural production, essential as they are, are unlikely to generate sufficient employment by themselves, without special measures to maximize the employment associated with them. These measures cover a whole host of different policy fields — technological, structural, fiscal, and many others — and a main need is for them to be seen as a concerted whole, where one measure does not counteract another, where intersectoral relationships are taken fully into account, and where any trade-offs between employment and other development objectives are clearly recognized and, if necessary, accepted. There is a great diversity both of problems and of possible solutions, and the appropriate policy mix will, of course, vary according to the particular conditions of each country. The annexed review of agricultural and rural employment in national development plans indicates that many governments are undertaking various of the measures covered in the study. But one is left with the strong impression that the approach is usually piecemeal, and there are few cases where a concerted employment policy is identifiable which would justify all the fine words about employment as a major development objective.

Admittedly, far more and far better data are needed if the employment aspects of development planning are to be tackled with any real degree of confidence in the outcome. The nature of unemployment, and especially the underemployment that is so rife in agriculture, still needs to be defined with more precision in relation to the social systems in which it occurs. Data are particularly required on the rural employment situation in all its seasonal and regional dimensions for all the different components of the labour force. The same is true of farm-level information on farm systems, on the ways in which the factors of production are and can be combined in these systems, and on the effects of technological changes. Unfortunately, however, the labour force is growing every day, and policy decisions profoundly affecting people's lives cannot wait indefinitely for better information.

It is desirable that every country should formulate a technological policy for its agricultural sector. This policy should include both short- and long-term elements: it should in the first place be closely adapted to present economic and social and, particularly, employment conditions, but it should also look forward to the future. The place of

mechanization in yield-increasing technology needs careful examination in all the relevant specific conditions. While all seem to be agreed that more selective mechanization is what is needed in the developing countries today, there is very little information on what this means in particular circumstances. The few suggestions that have been made so far seem either unduly restrictive or unduly wide. Perhaps this has depended mainly on whether they have been formulated by social scientists or engineers, and this is certainly an area where much more interdisciplinary work is needed.

The agricultural structure is of special importance in determining the effects of technological changes on employment and income distribution, and it can itself be substantially affected by such changes. Technological and structural policy are thus interdependent. Countries with strongly dualistic or bimodal agricultural structures have generally had little success in widespread employment generation in the agricultural and rural sectors. Important policy alternatives need to be decided by many governments in this and related areas. In many countries agrarian reforms, leading either to an expansion of the family farm subsector and the enhancement of its economic viability, or to some form of cooperative or collective farming, are still needed if there is to be any wider diffusion of employment and income-earning opportunities. Even in the absence of agrarian reform, it is necessary to find ways of directing a far greater proportion of the work of government extension, credit and other services to the small-farm subsector that is usually more labour intensive than the large-farm subsector.

Policies relating to such things as exchange rates and interest rates may seem remote from the question of agricultural employment. But in many countries they have encouraged a bias toward the increased use of capital, and especially imported capital, instead of labour in the agricultural as well as the other sectors of the economy. These biases may be removed in public investment projects by the use of shadow prices, and this is indeed essential, but the policies themselves must also be changed if the decisions of large farmers are to be brought into line with the national interest.

What is perhaps needed most of all is a new integrated approach to rural development. Employment creation could provide the necessary integrating factor for imaginative regional development schemes in rural areas. Integrated rural development would be based on decentralized rural towns as development poles, on the complementary development of agricultural and nonagricultural sources of employment, and on improvements in rural services and amenities that, combined with the removal of the urban bias in educational systems, would eventually turn the rural areas into places people actually wanted to live in rather than escape from. An essential element would be public works schemes of a positive character, designed to utilize today's abundant labour supplies to create the infrastructure needed for tomorrow and to preserve the environment.

All this may seem a somewhat idealized picture. But unless deliberate steps are taken now by governments to face the policy issues involved and to move at least some way toward it, the great potential offered to mankind by technological advances may well be dissipated in social unrest and violence.

Looking further ahead, some respite in the pressure to create new employment may be expected if birth rates can be adjusted to the lower death rates now permitted by medical science. The rate of population growth can substantially affect the level at which the agricultural labour force reaches a maximum before it finally begins to decline. Employment problems perhaps provide an even stronger argument for population control than food and nutritional problems, although the two are very closely linked. It is probably easier to provide a person with an adequate diet than to create a productive job for him, but the latter not only makes life worth living for him but also enables society to benefit from his work.

The aspects of agricultural and rural employment problems mentioned above are all in the hands of the governments of the developing countries themselves to remedy. But the policies of the developing countries could still be vitiated without changed policies in the developed countries and the international community as well. The developed countries are still the main source of technological advance, and they must therefore face up to their responsibilities by ensuring that their role in the transfer of technology no longer encourages the introduction of inappropriate technology in the developing countries. In spite of notably accelerated progress in devising suitable technologies for certain areas of the developing countries, much more research work is needed on the areas, crops and farming systems that have so far been left out. Technological research would greatly reduce employment problems if it could find ways of mitigating the sharp seasonal pattern of agricultural production.

Agricultural and rural employment opportunities in developing countries would be considerably increased by international agricultural adjustment measures, which would result in the expansion of imports by developed countries of primary and processed agricultural products from developing countries. Employment creation in developing countries, especially through the establishment of rural towns and through imaginative public works programmes, could provide a much-needed new focus for international financial assistance.

Annex

AGRICULTURAL AND RURAL EMPLOYMENT IN NATIONAL DEVELOPMENT PLANS

The expansion of employment opportunities is now a prominent objective in the national development plans of most developing countries. A total of 90 development plans in 54 developing countries is reviewed below. A further 24 plans in 19 countries (almost all in Africa) were also examined, but are not included in the review since they cover employment only perfunctorily or vaguely, or deal solely with wage employment or with manpower planning and training aspects. The review is not complete, particularly in respect of some of the most recent plans that at the time of writing are not yet available to FAO, but the coverage should be wide enough to form a general picture.

In spite of some exceptions, it was not generally until the early 1960s that many plans began to consider employment problems in any detail, and it was the late 1960s before this became very widespread. Perhaps the most completely employment-oriented of all national development plans so far is the four-year plan of Mauritius for 1971-75, which is even subtitled "Toward full employment." But there are several others where the emphasis on employment is hardly less, such as the latest plans of Ecuador, Malaysia, Pakistan, Sri Lanka, Trinidad and Tobago, Turkey, and Venezuela. The main exceptions are a number of countries in Africa, where the plans of 16 out of the 32 countries examined still make little or no mention of employment. The most recent plans of Colombia, Iran, Kenya and Sri Lanka have been prepared following comprehensive interagency employment missions organized by ILO.

Many of the plans refer to the scarcity of reliable data on the labour force and the employment situation, particularly agricultural underemployment. But, notwithstanding the difficulty of obtaining reliable information, a large number now include targets for employment by sector in relation to the projected increase in the labour force.

Partly because in many cases only the most recent plans take up employment problems in any detail, few contain an evaluation of the success achieved in reaching the targets and carrying out the measures proposed in previous plans. A particularly noteworthy exception is Sri Lanka, where the current plan stresses the neglect of measures proposed in earlier plans for the use of labour-intensive technology. A number, however, have greatly scaled down employment objectives in relation to those of previous plans, as the true magnitude and difficulty of the employment problems have come to be better realized. In several of the earlier plans it was hoped to provide employment for the new entrants to the labour force and to reduce the backlog of unemployment and underemployment, but in later plans it has been found that it was not even possible in the short term to give employment to all the new entrants. In a number of cases the expected employment contribution of the agricultural sector has had to be raised.

Although it is fashionable nowadays to talk of employment as a specific development objective, rather than one of the by-products of economic growth, very few national development plans yet reflect this change in approach to any great extent. A number of plans, while continuing to stress the role of rapid economic growth, at the same time recognize the need for special measures if employment is to be increased faster than otherwise would be the case, in particular to alleviate immediate, pressing problems and hardships. These measures normally concern the promotion of labour-intensive techniques and public works programmes.

The review of national development plans that follows does not attempt to analyse the employment situation and problems of the countries concerned. As far as possible, data on the situation and prospects and on the measures proposed are presented in the words of the plans themselves.[1] While they often represent aspirations more than reality, they do provide a valuable indication of how employment problems are viewed in different countries, and of the targets against which progress in the Second Development Decade should be appraised. The review aims to show what is expected of the agricultural and rural sectors in generating employment, together with some of the principal measures contemplated for this purpose.

Africa

Algeria's four-year plan for 1970-73 is the first phase of a long-term perspective plan that aims at the elimination of unemployment and underemployment by means of industrialization. It is expected that from 1980 the number of new jobs will match the increase in the labour force. Rural living conditions are to be improved during the 1970s in order to slow down rural-urban migration. During the period of the four-year plan the improvement of cultivation techniques and the intensification of production are expected to lead to a reduction in agricultural underemployment. Specific labour-intensive programmes, including reforestation and irrigation, are to be undertaken.

Botswana's development plan for 1970-75 recognizes that there is substantial underemployment in the rural labour force. With the recent discovery of important mineral deposits, wages in the mines and in the public sector (the other major employer) must be restrained and the resources thus freed used for rural development, in order to avoid too great disparities between urban and rural incomes.

The second five-year development plan of *Ethiopia* (1963-67) stressed the need to utilize agricultural manpower more fully. This was to be accomplished by intensifying production on the small farms, local and regional public works (roads, schools, hospitals, local water supply, soil amelioration, afforestation, etc.), and developing large-scale commercial farms. The third plan (1968-73) deals more with manpower planning and training than with employment creation. It is reported, however, that the fourth plan now in preparation is likely to put considerable stress on the expansion of agricultural employment opportunities.

Whereas *Ghana's* second development plan (1959-64) was mainly oriented to production and training, the essential aim of the seven-year development plan for 1963/64-1969/70 was to provide for all people able and willing to work the opportunity for employment at a high level of productivity. Although the objective of assured full employment could not be reached for many years, the aim was to achieve substantial progress by the end of the plan period. New employment opportunities had to be created at the rate of about 3 percent per year. The two-year plan for mid-1968 to mid-1970 stressed the seriousness of unemployment, and stated that underemployment in rural areas was probably of greater importance than visible unemployment in the towns. Development policies should be

[1] The definitions of labour force, unemployment, etc., are those used (and often not clearly defined) in the plans.

carefully appraised in the light of the balance between capital and labour availability, not only to speed up economic growth but also because of the effect of employment on income distribution.

Kenya's development plan for 1964-70 (revised to cover the period 1966-70) stressed the need to increase employment opportunities, not only by increasing output but also through wage and tax policies designed to slow down the substitution of capital for labour. For the duration of the plan, agricultural development would be the principal means for creating employment opportunities and raising incomes. The basic approach to reducing agricultural underemployment was to provide more capital and better organization, and to create adequate transport and marketing facilities. Whether employment opportunities in agriculture in fact increased, however, depended on how capital was applied, and it was necessary to have a bias in favour of labour-using techniques, and a wage policy designed to increase rural employment. To ensure that the employment opportunities in agriculture did not go to waste, the Government was to strengthen its back-to-the-land movement in four ways — increasing the attractiveness of living conditions in rural areas by establishing markets, transport facilities, schools, health centres, water and power supplies, and assisting self-help housing schemes; ensuring that rural wages did not get out of line with those in urban areas; facilitating migration from overpopulated to underpopulated areas; and encouraging the establishment of industries in rural areas. The rapid development of unoccupied and unused land by reclamation and irrigation would increase employment opportunities, particularly if labour-intensive crops were encouraged. Some additional employment opportunities might also be created through the more intensive use of fertile land now occupied but underutilized.

The principal strategy underlying Kenya's current plan for 1970-74 is that a major share of development resources will be directed toward the rural areas. Some 33 000 more families will be settled on unused or mismanaged land, and land adjudication work will cover nearly 19 000 acres (7 700 hectares). Urban growth will be carefully controlled, with new factories and enterprises grouped in designated growth centres in different parts of the country, thus decentralizing nonagricultural development and making farming more attractive by improving rural living conditions. Three quarters of the new jobs to be created during the plan period will be in agriculture.

The plan of *Ivory Coast* for 1971-75 recognizes the need to modernize agriculture in order to stem the rural exodus. In some areas a lack of labour already constitutes a bottleneck, and mechanization is to be promoted. Employment in agriculture is planned to increase by 4 percent a year, compared with 6 percent in the economy as a whole.

The first five-year development plan of *Lesotho*, for 1970/71-1974/75, aims at the development of all potential sources of income and employment in the country. Deliberate action is considered necessary if the country is not to continue to be a source of unskilled cheap labour for South Africa, with little hope of creating an indigenous base for economic development. The highest priority is given to achieving a marked increase in agricultural productivity, both by raising yields and shifting toward more profitable crops.

In *Malawi's* statement of development policies for 1971-80 it is expected that total new wage employment during this period will only be sufficient for about a third of the net additions to the working-age male population, so that the majority will become smallholder farmers. Incentives will be provided for the more enterprising members of the rural labour force to stay in agriculture.

The four-year plan of *Mauritius* for 1971-75 states that the major social, economic and political problem of the country is unemployment. In order to achieve the target of full employment by 1980, employment will need to increase at a rate of 4.7 percent a year. Jobs cannot be created at this rate through a development strategy aimed at the highest rate of growth of the economy, and employment will therefore have to be a specific objective. The employment expected to be generated by 1975 will cover only 90 percent of the labour force, and the remainder will be employed full time in the *Travail pour tous* programme of public works. In order to reach full employment by 1980, the main increase in economic activity must come from manufacturing, principally for the export market. Most of the increase in crop production will come from the more intensive use of land already under cultivation, mainly through increased and more efficient irrigation in the drier areas, land improvement, and improved cultivation practices on the smaller holdings. Since the increases in crop production that are feasible are necessarily rather labour-intensive, the expansion of employment in this sector might be almost proportional to the planned increase in output of 40 percent during the decade. Allowing for an increase in labour productivity of only 1 percent a year, this would provide 20 000 of the additional employment opportunities required. A further 15 000 would come from the expansion of livestock production.

The cornerstone of *Morocco*'s employment policy is the programme of *promotion nationale* or national development. This programme was instituted in 1961 with the object of mobilizing the rural underemployed for productive projects, ensuring popular participation in the drawing up and implementation of development projects, slowing down the drift from the land, and developing marginal areas. During the three-year plan (1965-67) the programme provided employment opportunities amounting to 53.9 million working days. It is estimated that the 20 million working days provided in 1967 equalled the employment of 100 000 persons for 200 days of the year, and that this absorbed approximately a quarter of the rural underemployed. Under the five-year plan for 1968-72 it was proposed to expand the programme to provide a total of some 123 million working days (an average of 24.6 million a year), of which 73 million in agricultural development, 33 million in road infrastructure, and 17 million in municipal and community equipment. It was also planned to widen the programme's range of action, to improve its management, and to incorporate its activities within the framework of an integrated development programme.

In addition to these measures under the *promotion nationale*, the five-year plan stressed the need for labour-intensive methods of production, and that animal traction should not for the present be replaced by mechanical traction. The planned increase in employment (of which 60 percent was to be in agriculture) was expected only to absorb the new entrants to the labour force, without reducing unemployment and underemployment.

The full employment of resources, especially of the labour force, is a basic objective of *Nigeria's* second national development plan, for 1970-74. It is estimated that in 1967 8 percent of the labour force in urban areas and 0.5 percent in rural areas were unemployed, but this does not include the widespread incidence of underemployment. About 70 percent of the unemployed were young people aged 15-23, and 59 percent had attended primary school. A main objective is to contain youth unemployment by the provision of more training and employment opportunities. A national youth corps is to be established, initially with four pilot project camps for 500 people each. High employment potential is one of the main criteria for the selection of programmes and projects under the plan. It is intended to increase employment by 3.26 million jobs between 1970 and 1974, in comparison with an expected increase of 2.48 million in the labour force, thus reducing unem-

ployment from 7.8 to 4.4 percent. Of the total new jobs, agriculture would be responsible for 1.09 million.

A major aim of *Senegal's* third four-year plan, for 1969-73, is to reduce agricultural underemployment. Productivity is to be increased by the introduction of fertilizers and other improved techniques. It is planned to extend the duration of agricultural employment by the development of irrigation, fruit and vegetable production, fishing, livestock production, and the promotion of mixed farming. It is also intended to develop employment in handicrafts, and the direct participation of the rural population in the execution of certain projects.

The five-year plan of *Tanzania* for 1964-69 contained long-term employment targets for 1980. It was planned to settle about 1 million people in newly opened areas of high productivity between 1964 and 1980, thereby creating some 200 000 remunerative employment opportunities. It was estimated that by 1980 approximately 800 000 households (4 million people) would have paid employment, divided equally between those in nonagricultural activities and those in modern agriculture (three quarters money income and one quarter subsistence). About 2 million households (10 million people) would be employed in traditional agriculture (half money income and half subsistence). Thus employment in the modern sector would increase by about 100 percent, compared with an increase of only about 25 percent in the traditional sector. At the same time incomes in the modern sector would increase very substantially, and the traditional agricultural sector would move quite a long way into the market economy. In addition to higher income, those in the latter sector would enjoy a healthier, fuller and more productive way of life as a result of community development, literacy and health programmes. Details of the employment provisions of the second five-year plan (1969-74) are not available at the time of writing.

The development plan of *Tunisia* for 1973-76 estimates that the achievement of the planned investment and growth targets would create some 90 000 new jobs outside agriculture. This would provide employment for only half of the expected new entrants to the labour market, assuming that the manpower in agriculture would not exceed its present level. Emigration is therefore expected to remain an important outlet. In order to reduce agricultural underemployment and contain the rural exodus, it is planned to improve rural social and infrastructure facilities, and to encourage the growing of crops that offer more permanent employment (such as vegetables) and livestock production.

One of the main targets of *Uganda*'s second five-year plan, for 1966-71, was to increase employment in the monetary sector by 85 000 paid jobs (of which 23 000 in agriculture and 4 000 in crop processing), and by 15 000 additional employment opportunities as associated growers in tea and sugar schemes. In recent years, in spite of a substantial increase in GDP, there had been little change in paid employment, mainly because rising minimum wages had made redundant many workers who were only marginally useful. It was therefore necessary that, whenever there was a choice of production methods and the more capital-intensive method offered no advantage in lower costs or easier financing, the more labour-intensive method should be used.

The third five-year plan (Plan III), for 1971/72-1975/76, recognizes that underemployment is attaining alarming proportions, and that because of the magnitude of the task the elimination of involuntary unemployment can be meaningfully viewed only as a long-term objective. The plan aims to ensure that there is no deterioration in the overall employment situation, and to contribute toward the elimination of the existing backlog of unemployment. The broad strategy is to rely on a rapid growth of production to generate increasing employment opportunities, but with specific action to ensure that growth results in more new employment. The use of labour-intensive techniques is to be promoted by appropriate fiscal and income policies, and by a bias in favour of employment generation in public sector projects, especially in construction. The external tariff policy is to be reconsidered, in view of indications that it militates against the use of labour. The Government will attempt to identify specific public sector projects, especially minor feeder roads, which can be carried out by labour-intensive methods. The special emphasis that the plan places on rural development is expected to have a significant impact on the employment situation, not only through the expansion of opportunities for paid employment and self-employment, but also because rural development work will entail a large element of labour-intensive civil construction activities.

Important objectives of *Zambia's* first national development plan for 1966-70 were to diversify the economy so that the copper industry was no longer the only major employer, and to provide at least an additional 100 000 wage-earning jobs (11 000 in agriculture, forestry and fisheries) and more and better opportunities for a productive life on the land. It was emphasized that these increases in employment would not follow automatically from the plan, but could be achieved only if labour-intensive methods were used wherever possible, and if tax and tariff policy avoided giving preference to capital-intensive methods. The new jobs it was planned to create would cover little more than half the school-leavers during the course of the plan. The rest must be encouraged to take up the opportunities provided under the rural development plan.

Far East

The creation of additional employment is considered a pressing need in the first five-year plan of *Bangladesh* (1973/74-1977/78). The labour force is estimated to be increasing by more than 3 percent a year. With the widespread use of labour-intensive techniques in crop production and through rural works programmes, it is hoped to reduce unemployment and underemployment in agriculture from the present level of about 30 percent to 15 percent by the end of the plan period.

Employment was already a major objective in *India's* first five-year plan, for 1951-56. There was much emphasis on the reduction of rural unemployment and especially underemployment by the rapid extension of irrigation, the intensification of agricultural production, the revival of cottage and small-scale industries, and the adoption of labour-intensive production methods wherever technically feasible. The second and third plans contained global statistical estimates of the current and future employment situation. The third plan (1961-66) estimated that the backlog of unemployment had risen to 9 million, and that the employment potential of the plan was only 14 million new jobs in comparison with the expected growth of 17 million in the labour force. The realization that the plan could not even provide jobs for all the new entrants to the labour force, quite apart from reducing existing unemployment and underemployment, lent a new urgency to the employment objective in the third plan, and it was proposed to cover part of the gap by a massive programme of rural public works. Only 3.5 million new jobs were expected in the agricultural sector, of which 1.5 million were to come from additional irrigation, 1.2 million from soil conservation and land reclamation, 300 000 from flood control and drainage, and about 500 000 from the settlement of landless workers. The plan stressed the need for employment problems to be examined and tackled at the local level.

The fourth five-year plan (1969-74) presents no global estimates of employment, because of the paucity of reliable

information and discrepancies among the different sources, and calls for new studies to obtain the necessary information. It emphasizes labour-intensive programmes in such fields as roads, rural electrification, minor irrigation, soil conservation, and village and small-scale industries. Large-scale capital-intensive investments are to be limited to projects where technological considerations and economies of scale do not permit the adoption of labour-intensive techniques. Central ministries and state governments are urged to give an employment orientation to their programmes, and to emphasize the promotion of medium- and small-scale industries and the adoption of appropriate labour-intensive technologies. Efforts are to be made to deal with the problems of submarginal farmers and agricultural labourers (including landless labourers) by means of land reform and the provision of supplementary employment. Family planning has been stressed in India from the first plan onward, but has not been specifically linked with employment problems.

The first five-year development plan of *Indonesia* (1969/70-1973/74) gives priority to employment creation, in spite of the fact that this entailed the adjustment of some targets. As a long-term measure, family planning is seen as essential to reduce the rate of increase of the labour force. Shorter term measures to increase employment opportunities include the more intensive use of land and labour in agriculture, emphasis on labour-intensive methods, reclamation of land in Java and the opening up of new land elsewhere, the expansion of fishing, forestry, small industry and handicrafts, and labour-intensive construction work. Transport and communications are to be improved in order to accelerate migration from labour-surplus Java, where there is serious underemployment in rural areas, to other regions with a shortage of labour.

In the second five-year plan of the *Khmer Republic* (1968-72) it was expected that the secondary and tertiary sectors would be able to meet only 22 percent of the increase in the labour force. A major objective was therefore to create employment by the colonization of new land.

The *Republic of Korea's* first five-year economic plan, for 1962-66, expected that the number of new jobs created during the plan period would exceed the new entrants to the labour force; thus reducing unemployment. The second plan (1967-71) laid considerable stress on the acceleration of family planning programmes. The task of absorbing the unemployed as well as the additions to the labour force during this plan period was regarded as urgent and formidable. Notwithstanding increases in labour productivity, it was expected that employment in agriculture, fisheries and forestry would rise by 2 percent a year. Rural underemployment was to be absorbed by expanding reclamation, flood control and road construction projects. Mainly because of the growth of exports, the current plan for 1972-76 expects employment to increase from 9.9 million in 1970 to 11.8 million in 1976, and the number of "fully unemployed" to be reduced from 4.6 to 4.0 percent. Vocational and technical training programmes will be intensified in order to reduce underemployment (estimated as 3 percent in 1970).

The outline economic and social development plan of *Laos* for 1969-74 recognizes the growing problem of unemployment, including severe underemployment in agriculture during the dry season, which lasts two to three months. No overall employment policy is elaborated, however, partly because of the lack of adequate data, and the plan calls for the necessary studies to be prepared for the second five-year plan.

The first *Malaysia* plan for 1966-70 aimed to provide productive work for the new entrants to the labour force and to lower unemployment. The creation of about 2.4 million jobs by 1985 was required in order to achieve the target of full employment by that date. A family planning programme was launched. The plan emphasized the role of agriculture in employment creation and aimed, particularly through massive land clearance schemes, to ensure favourable opportunities for 70 percent of the farm youth reaching working age. However, while job creation in most sectors met or exceeded planned targets, the contribution of agriculture fell short, and unemployment in West Malaysia was estimated to have risen from 6.4 percent in 1965 to 8 percent in 1970. Employment on rubber estates declined sharply because of a reduction in area, and also because of efforts to lower costs that reduced the number of workers per 100 acres (40 hectares) from 21.7 to 18.1. There was also a shortfall in land development. Underemployment remained serious, especially in rural occupations, such as fishing and single-crop rice cultivation, and in the services sector, but there was likely to have been some alleviation as a result of the expanded double-cropping, land development and other agricultural investment under the first plan.

The first component of the employment strategy in the second Malaysia plan (1971-75) is the promotion of rapid economic growth. Land development is again given considerable emphasis, and employment opportunities in the newly opened land areas are seen as important means for diversifying rural work and making it both attractive and remunerative. The organized transfer of workers from West Malaysia to Sabah, where there is a shortage of labour especially in the rubber and timber industries, is an important part of the employment strategy. Agriculture is expected to provide only 125 000 jobs, or about a quarter of the new employment during the plan period, in spite of a planned increase in agricultural ouput of 8 percent a year. The bulk of the rise in output is to be in perennial export crops, where increases can now be obtained with little additional labour. Employment on these crops is estimated to grow by about 1 percent annually, largely because of increased area. Land settlement and other new land development will probably contribute almost 70 percent of the new jobs in agriculture. The development foreseen in such areas as fishing, rubber replanting and rice farming is likely to reduce underemployment rather than provide new jobs.

Nepal's three-year plan for 1962-65 noted that the vast majority of the population were in agriculture, where they were fully employed for only a few months of the year, and advocated labour-intensive projects wherever possible. The third plan (1965-70) stressed the need for the expansion of employment opportunities outside agriculture, and for positive steps in family planning. The current (fourth) plan, for 1970-75, states that the provision of employment opportunities should be the main objective of economic planning, but does not propose any particular strategy.

The first five-year plan of *Pakistan*, for 1955-60, included the expansion of employment opportunities among its objectives, and contained some estimates of underemployment. The agricultural programme of the second plan (1960-65) aimed at increasing employment opportunities and reducing underemployment. Mechanization was not advocated for general cultivation purposes, and tractors, bulldozers and power equipment were to be used chiefly for the rapid development of areas opened up by irrigation projects, for land reclamation, and for erosion and flood control. The plan clearly recognized the need for the implementation of a conscious population policy. The third plan (1965-70) estimated that, while unemployment and underemployment together had increased from 5.6 million man-years in 1950 to 7.5 million in 1960, this trend had been reversed during the second plan and sufficient employment created to absorb the additions to the labour force. The Rural Works Programme had made a substantial contribution.

The third plan nevertheless recognized that unemployment was the gravest problem facing Pakistan. It aimed to provide at least 5.5 million new jobs, in order to absorb the entire

increase in the labour force during the plan period and reduce unemployment by more than a sixth. Only about 35 percent of the increase in agricultural production would require additional inputs of labour, the remainder coming from higher labour productivity. An increase of about 2.5 million acres (1 million hectares) in the cultivated area in East Pakistan (now Bangladesh) would add 0.44 million man-years to labour requirements. An increase of 15 percent in livestock numbers would provide 0.27 million man-years of additional employment. In activities involving large-scale construction and earth works, more labour-intensive techniques could be used without sacrificing overall efficiency.

The fourth plan for 1970-75 aims to provide 7.5 million new jobs, compared to the 6.5 million new entrants to the labour force, and thus reduce the backlog of unemployment by at least a million. Employment will be given equal importance with production, rather than regarded as secondary to the objective of economic growth, with emphasis on employment-creating sectors and labour-intensive technology. A major part of the planned increase in employment is likely to be in agriculture, as a result of the bigger labour inputs required by the high-yielding varieties. The agricultural labour force is expected to continue to increase until the end of the perspective plan period in 1985, and agricultural underemployment is likely to grow with it during this time. The expansion of the mechanization programme should be conditional on the study of its impact on employment, and mechanization should be introduced when it is complementary to the use of labour or for specific operations in the peak season of labour demand. There is to be a rapid increase in expenditure on the Rural Development and Urban Works Programme.

The four-year economic programme of the *Philippines* for 1967-70 recognized rapid population growth and substantial and growing unemployment as basic problems facing the economy. It was expected to generate enough employment opportunities to absorb the new entrants to the labour force and reduce unemployment (including underemployment, converted to the equivalent number of fully unemployed) from 13 percent in 1967 to 7.2 percent in 1970. A public works programme was to be initiated. The current four-year development plan for 1971-74 expects at best to reduce unemployment to 5 percent by 1974. Employment generation is regarded not just as a by-product of general growth but as a definite major objective.

The ten-year plan of *Sri Lanka* for 1959-68 presented a discussion of development strategy largely in terms of employment, although recognizing that this was not determined by employment considerations alone. While the maximum emphasis was given to industrialization, this could not by itself absorb even a major part of the increase in the labour force, and much use should therefore be made of the opportunities for expanding agricultural employment. Employment in the tea industry was expected to make the largest contribution, increasing from 539 000 in 1957 to 677 500 in 1968, mainly as a result of increased fertilizer use. Employment in rubber production was estimated to increase only marginally from 194 000 to about 200 000, because increased yields could be obtained with less labour than in the case of tea. Coconut production is also less labour intensive than tea, and employment was expected to increase only from 82 000 to 95 000. The rehabilitation of tea and rubber smallholdings was expected to result in reduced underemployment rather than additional jobs.

When Sri Lanka's five-year plan for 1972-76 was presented in 1971, unemployment had reached crisis proportions. There were about 550 000 persons unemployed (over 25 percent of them "educated unemployed"), or more than 12 percent of the labour force of 4.5 million. The economy had been providing only about 100 000 new jobs each year, while 120 000 persons were added annually to the labour force. This situation was a direct reflection of past investment policies, which had almost totally ignored the need to create employment. There had been no attempt to use labour-intensive methods in industry, where several large-scale capital-intensive projects in the private and public sectors had been permitted to stifle existing small-scale production units, or even in building construction and irrigation works. Agriculture is to provide the largest portion (300 000) of the 810 000 jobs to be created during the plan period. Since there will still be a residue of 290 000 unemployed, special public works programmes will be organized in the urban, rural and estate sectors. The expansion of the programme for the cultivation of labour-intensive crops such as chillies and onions in the dry zone, and the better use of land by intercropping and the cultivation of high land in colonization schemes will provide additional employment in these areas. Although the main crops (tea, rubber and rice) will not contribute much to employment, land development and increased replanting of tea, rubber and coconuts will result in new work opportunities. Additional employment will also be created by the expansion of animal husbandry, fisheries and forestry.

In contrast to the first plan, *Thailand's* second economic and social development plan (1967-71) included the development of manpower as one of the most important policy objectives. It was planned to generate employment opportunities at least equivalent to the increase in the labour force, to promote rural employment in order to relieve underemployment, and to improve the quality of manpower for the requirements of present and future development programmes. The plan was to provide new jobs for about 2.2 million people, almost equal to the expected increase in the labour force. Labour productivity in agriculture was expected to rise by 2.5 percent a year. Three quarters of the agricultural workers are primarily engaged in highly seasonal rice production, and the Rural Manpower Development Plan therefore included the provision of irrigation works to allow cultivation during the dry season, and the generation of supplementary work through the development of cottage industries, handicrafts and other gainful activities. Employment in rural construction projects was to be promoted.

Thailand's third plan (1972-76) notes that employment did not expand sufficiently during the second plan, and urban and rural unemployment increased. More labour-intensive techniques are to be used in the construction of irrigation dams, ditches, canals and tanks, and in land development and road maintenance. In agriculture the use of labour as opposed to machinery is to be promoted in both irrigated and rain-fed areas. Small and medium-scale agro-based industries and cottage industries will be promoted in rural areas and encouraged to use as much labour as possible. Employment bureaus are to be established. Out of the 2.5 million new jobs to be created by 1976, about 1.5 million will be in agriculture.

The second five-year plan of the *Republic of Viet-Nam* (1962-1966) stressed the importance of employment problems. Most of the increased employment needed would have to be in the agricultural sector. Increases in productivity should not be sought at the expense of displacing labour. Information on the labour market should be further developed, and technical and professional training more closely linked to manpower needs. The current four-year plan (1972-75) recognizes that while defence needs have reduced employment pressures, these will be a major problem in the longer run. Labour mobility is to be encouraged in order to relieve population pressure in certain areas, to recultivate abandoned lands, and to settle fertile, uncultivated land. Labour-intensive industries are to be encouraged, especially those supporting agriculture and contributing to regional development, but labour-intensive techniques must be carried out in such a way as to avoid inter-

ference with the efficiency of production. In comparison with the projected increase in the labour force from 7.5 million in 1971 to 9.7 million in 1975, the demand for labour is expected to rise from 7.2 to 9.0 million. Agriculture's share of the labour force is expected to grow from 67 to 69 percent during this period.

Latin America

Argentina is one of the few developing countries where the agricultural labour force has already been declining for many years in absolute numbers. Nevertheless the national development and security plan for 1971-75 considers the unemployment and underemployment of available human resources one of the most serious problems of the economy. The plan aims to achieve "full employment" (1.9 percent unemployment in 1975 compared with 5.6 percent in 1970) through the creation of 200 000 new jobs a year. These will be in the manufacturing and service sectors, and the labour force in agriculture and mining is expected to fall by a further 2 percent during the plan period.

The development plan of *Barbados* for 1969-72 estimated that unemployment had dropped from 16 percent in 1955 to 13 percent in 1966. Although unemployment thus remained serious, there had been a considerable decrease in such low-productivity work as domestic service, home dressmaking and petty trading, and a corresponding increase in jobs of higher productivity. Because agriculture was already labour intensive, it could not play a major role in creating new employment. Employment in sugar production, the main agricultural activity, was expected to fall by nearly 20 percent during the plan period, with a marginal increase in the rest of the agricultural sector. But the plan noted that agriculture is playing a crucial role by maintaining the stability of rural employment, so that the other sectors do not have to contend with displaced labour as well as the normal rural exodus. Details of the employment provisions of the current plan (1972-76) are not available at the time of writing.

Bolivia's plan for 1962-71 aimed to provide productive employment for not less than 500 000 additional people. Of the planned increase of 411 000 hectares in the cultivated area between 1958 and 1971, 272 000 hectares were to be in the underpopulated Llanos (lowland) region, and the main expansion in livestock numbers would also take place there. The 165 000 additional work opportunities thus created in the Llanos would permit the settlement of about 90 000 families: 50 000 people from the densely populated Altiplano (highlands) and 404 000 from the Valles (valleys) region.

The absorption of the new entrants into the labour force by productive employment was among the major objectives of *Brazil's* programme of government economic action for 1964-66. The manufacturing sector had failed to provide employment opportunities sufficiently rapidly, since the more labour-intensive industries had expanded at a slower rate than the capital-intensive industries, and in the latter capital had continued to be substituted for labour, largely as a result of fiscal policies and social security legislation. It was planned to promote labour-intensive industries such as construction, to expand agricultural activities through agrarian reform, to provide export incentives, particularly for products with a high labour content, and to introduce a more realistic wage policy.

The first national development plan (1972-74) estimates that the annual new entrants to the labour force will rise from 850 000 in 1970 to 920 000 in 1974. With a GDP growth of 8-10 percent a year, employment should increase by 3.1 percent a year, compared with the 2.9 percent expected annual growth in the labour force. For agricultural employment the target is an annual increase of 1.2 percent. It is hoped to reduce rural-urban migration, but "rural-rural" migration is to be encouraged, especially from the densely populated northeast to the newly opened areas in the Amazonian region, where it is planned to settle 70 000 families by 1974. Other measures designed to increase rural employment include the promotion of agricultural processing industries in the northeast, and land redistribution in the same region. In the centre-south the productivity of land and labour are expected to rise considerably, so that the number of new agricultural jobs will be modest, but the rural areas should become more attractive for industry.

The agricultural development plan of *Chile* for 1965-80 gave high priority to greater and more regular employment. It was expected that underemployment would be reduced, since the agricultural labour force would increase by only 6 percent between 1965 and 1971 and labour productivity would rise by about a third. Employment would be increased by the expansion of the cultivated area, a shift to more labour-intensive crops, more intensive livestock production, additional irrigation, and the increased use of fertilizers and pesticides. As regards mechanization, the plan proposed the better use of existing machinery. It was estimated that agricultural employment would increase by about 14 percent between 1965 and 1971, with two thirds of the increase in the livestock sector. The expansion of livestock production and the increasing importance of more intensive crops would help to even out seasonal fluctuations in employment. As a result of all these measures, together with the removal of structural objectives, it would be possible to increase the population employed in agriculture from 730 000 in 1965 to 770 000 in 1971, the ratio of days worked to labour days available from 81 to 86 percent, the proportion of workers with employment throughout the year from 68 to 75 percent, and the proportion employed for at least six months from 81 to 86 percent.

The general economic and social development plan of *Colombia*, published in 1962, contained a detailed diagnosis of employment problems, including some projections to 1971. It estimated that about half the country's farms were smaller than 5 hectares, and that most of these were insufficient to provide full employment for the cultivator and his family, unless production was very intensive or labour-intensive crops were grown. Very intensive production was not frequent, however, while crops that required much labour (such as sugarcane, vegetables, potatoes and cassava) generally had a low cash yield per hectare. During the next 10 years the agricultural labour force was expected to increase by 1.6 percent a year and the productivity of agricultural labour by 3 percent a year. However, without substantial changes in rural development, it could not be expected that agriculture would absorb more than an additional 24 000 people a year.

The economic and social development plan for 1970-73 was prepared in the light of the report of the comprehensive interagency employment mission organized by ILO that visited Colombia in 1970. Unemployment was estimated to have risen from 4.9 percent in 1964 to 9.5 percent in 1967 and 1968, and to have improved only slightly to 8.4 percent in 1970. The National Council on Economic and Social Policy had declared in August 1970 that growing unemployment constituted the most serious problem of the country, and that full employment, directed particularly toward higher levels of living for the working class, would be the major objective of development plans and programmes.

The plan aims to increase employment by 4.4 percent a year (2.4 percent in agriculture) from 1970 to 1973, and to reduce unemployment from 8.4 to 6.4 percent. These objectives could not be reached solely as a result of the planned rate of increase of 7.5 percent a year in GDP, but require complementary

policies as well. Agrarian reform is considered the best instrument for obtaining a redistribution of property and income in the rural sector, and thus an increase in employment. The development of small-scale industries processing agricultural products would also increase rural employment and incomes, and better access to credit and extension are necessary for this purpose. Excessive migration to the big cities is to be moderated by the development of intermediate cities and local centres. Programmes of community development will also be established, in order to train for productive work people who are outside the orbit of the process of production and of the health and education services.

The first national development plan of the *Dominican Republic*, for 1970-74, includes among its major objectives an increase of 22 percent in employment. Unemployment was estimated at about 15 percent in 1966, but there had probably been some decrease by 1970. While total employment increased by 3.5 percent a year from 1962 to 1969, agricultural employment had risen by only 2.9 percent a year and had actually stagnated in 1967 and 1968. It is planned to increase total employment by 4.0 percent a year from 1969 to 1974, and agricultural employment by 3.8 percent a year. The most important strategic factor for reducing unemployment will be the settlement of 30 000 farmers under an agrarian reform programme. The agricultural frontier will be expanded by 346 000 hectares, of which three quarters will be under irrigation.

Ecuador's integral plan for transformation and development (1973-77) puts major emphasis on employment problems. It stresses the need for a strict control and selectivity in the introduction and use of production technologies, compatible with general and sectoral priorities concerning both employment and competitiveness in external markets. Technological change must be carefully analysed in those sectors, such as agriculture, handicrafts and services, which at present account for a large share of employment. The fundamental role of agrarian reform in relation to employment objectives is that it will permit the increasing incorporation, at acceptable levels of productivity, of the masses hitherto outside the orbit of development, thus avoiding the transfer of rural structural employment to the cities. In the industrial sector measures will be taken to reserve the internal market for the time being for small-scale industry, and new regional development poles will be established. Construction and services have an important role in labour absorption, and the high proportion of public sector investment in construction will facilitate the immediate adoption of labour-intensive techniques. Merely absorbing the new entrants to the labour force will necessitate 400 000 new jobs during the five-year period, but it is also intended to provide employment for a further 143 000 persons in order to reduce the " marginally " employed from 52 to 36 percent of the labour force. Thus it is planned to expand employment opportunities by 4.1 percent a year, while increasing GDP at market prices by 9.9 percent a year. Labour productivity in agriculture is expected to rise by 3.3 percent a year, in comparison with a rate of 4.2 percent in the economy as a whole (excluding petroleum).

The development plan of *Guatemala* for 1971-75 aims to generate sufficient productive jobs to absorb the 45 000 new entrants to the labour force expected annually. Because of the incapacity of the nonagricultural sectors to provide employment fast enough, more jobs must be created, at least in the short run, in agriculture. One of the criteria in selecting agricultural projects will be their direct or indirect impact on employment. Specific development programmes in handicrafts and small-scale industry, encouraged by government credit and fiscal policy, will lead to the more intensive use of labour. Agricultural production is to be intensified by stimulating the use of improved inputs, with low priority for mechanization. The plan stresses the need for the elaboration of an appropriate population policy, including a family planning programme.

Guyana's development programme for 1966-72 noted that unemployment, which reached 20.9 percent in 1964, was the country's most malignant social evil. The plan aimed at a rate of growth that would reduce unemployment steadily and substantially, initially to a level of not more than 10 percent. Mechanization had been a major contributor to the deteriorating employment situation, especially in the production of bauxite, sugar and rice, and in the construction industry. Excessive mechanization of rice cultivation had substantially reduced the farmer's working year without resulting in the necessary lowering of production costs. Employment in the sugar industry fell from 27 000 in 1954 to 17 800 in 1963. The number of field workers per 100 acres (40 hectares) of cane fell from 30 in 1950 to 17 in 1960, and the factory workers required to process 1 000 tons of sugar from 34 to 13, although these figures also reflected efforts to stabilize the number of workers and reduce seasonal fluctuations. Investment in access roads and flood control would expand the cultivable area and increase employment. A youth corps was to be formed to carry out public works. Details of the employment provisions of the current plan for 1972-76 are not available at the time of writing.

The five-year independence plan of *Jamaica* for 1963-68 stated that unemployment, in part the result of rapid population growth, was clearly the major social and economic problem of the country. Paradoxically, in many farming areas the supply of labour offering itself for work was well below demand, probably because of reluctance to undertake agricultural work at low wages with no continuity of employment and in conditions that were hardly an inducement. Emigration had been drastically reduced as a result of the introduction of controls by the United Kingdom in 1962. It was planned to undertake labour-intensive projects for construction and land conservation in areas of high unemployment. Special efforts were to be made to create satisfactory living conditions and increase employment opportunities in areas other than the main urban centres.

The solution of the problem of unemployment was one of the basic objectives of *Paraguay's* second two-year plan (1967-68). Unemployment was estimated as about 5 percent in 1962. Measures to increase rural employment included agrarian reform and colonization, the consolidation of settlements, a rapid increase in productivity, and the relief of seasonal unemployment through public works programmes for infrastructure and farm improvement. The plan for 1971-75 indicates that although there were no very serious signs of open unemployment it was increasing, and would worsen further if appropriate measures were not taken. Disguised unemployment was probably high. The measures proposed are mainly in the field of manpower planning and training.

The economic and social development plan of *Peru* for 1967-70 stated that open unemployment was only 3.7 percent in 1961, and that the employment problem was mainly a question of disguised unemployment, underemployment, and low productivity. The expansion and appropriate distribution of employment were the third of the plan's major objectives, but no specific strategy or measures were proposed. In the medium-term agricultural plan for 1971-75 it was estimated that the rural labourer was occupied for an average of only 150 days a year in agricultural and nonagricultural activities. The plan aims at a reduction in rural underemployment by the more intensive use of natural resources. It is suggested that the agricultural cooperatives and semigovernmental farms should absorb surplus labour in activities which might be uneconomic in private holdings. Cultivation practices should be promoted which lead to higher labour inputs per hectare as

well as increasing production. The extension and credit services should stimulate techniques that raise productivity without indiscriminate mechanization, as well as the improvement of farm infrastructure by labour-intensive methods. Agricultural, handicraft and processing activities should be developed in order to provide employment in the slack season for the traditional crop and livestock-raising work, and construction and other public works carried out in rural areas in the same season.

One of the principal objectives of the second five-year plan of *Trinidad and Tobago* (1964-68) was to provide productive employment for the increasing labour force, and the plan contained a very detailed analysis of the employment situation and prospects, including various alternative measures of the level of underemployment. Open unemployment was estimated at about 10 percent in 1960. With increasingly capital-intensive techniques, both of the basic industries, petroleum and sugar, were employing less people than in the past, in spite of substantial increases in output; sugar production rose by 40 percent between 1956 and 1962, but employment fell by 2 300 on sugar estates and by 1 100 in sugar factories. The plan aimed to expand employment in the modern sector as rapidly as possible, but at the same time to raise productivity and incomes in the traditional sector, especially small farming, in order to limit an excessive flow toward the modern sector before it could be absorbed there. It was planned to increase total employment by 44 900 jobs between 1962 and 1968; employment in agriculture (excluding sugar) was to rise by 8 700, but there would be a further fall of 1 000 in sugar production and refining. Thus there would be a shortfall in relation to the expected increase of 49 000 in the labour force, and (although there would be a marked improvement in the " quality " of employment through a shift to more productive work) unemployment would remain at 10 percent. A number of special short-term measures were therefore necessary to alleviate pressing hardships by encouraging greater increases in employment than could normally be expected. Every encouragement was to be given to self-employed persons, particularly in agriculture, handicrafts and other rural activities. Both government and private enterprise should give preference to labour-intensive methods provided they did not raise costs unduly. Part-time workers should be used, particularly on government projects, in order to afford some employment to as many people as possible, especially those self-employed in the traditional sector. Relief programmes would offer employment to as large a number of people as possible; these included the continuation of the special works programme on a modified basis and the introduction of a special relief programme for unemployed young people.

The third five-year plan (1969-73) notes that the natural growth of population had declined from 3.1 percent in 1962 to 2.3 percent in 1968, and that because of substantial emigration actual population growth had fallen from 3 percent in 1964 to 1 percent in 1968. Nevertheless unemployment had risen to 14 percent. The plan elaborates a development strategy for the 1970s, and indicates that a perspective plan will be formulated for the achievement of full employment by 1983-85, largely through the diversification of the economy. Within the framework of the long-term strategy for full employment, however, it is still necessary to take special measures during the five-year plan period to alleviate the unemployment problem. These include a massive housing and construction programme, youth camps to train young people in productive skills, especially in agriculture, special programmes to provide work for the unemployed while at the same time creating useful community assets, and the development of handicrafts. Wage restraint is also essential, partly because any attempt to push wages up to the levels obtained in the petroleum industry and the public sector simply makes agricultural employment unattractive. The Government formally declared its support for family planning in 1967, and the programme has been considerably expanded.

The national economic and social plan of *Uruguay* published in 1965 gave considerable emphasis to agricultural employment problems. Agricultural productivity was high, but from 10 000 to 40 000 people were unemployed in 1964 for eight to nine months as a result of the seasonality of agricultural work. With a reduction in rural-urban migration, the agricultural labour force was expected to rise (in contrast to the longer term decline) from 185 000 in 1963 to 205 000 in 1974. There would be full employment for seven months of the year (instead of four months in 1963), and seasonal unemployment would affect 10-15 percent of the labour force in only four months of the year. There would still be a labour shortage, to be met from family help, in the three-month harvest period. Labour productivity would rise by more than 40 percent over ten years, mainly as a result of higher yields. There would be a slight increase in the labour used per hectare in meat production, chiefly because of the redistribution of land from large holdings. In spite of the progress expected in the consolidation of fragmented holdings (under the reform of agrarian structures), there would still remain a large number of *minifundistas* to whom it would not be possible to give additional land and employment opportunities. Details of the employment provisions of the current plan for 1973-77 are not available at the time of writing.

Venezuela's plan for 1963-66 estimated that open unemployment was 14.2 percent in 1962. A special problem was that while the petroleum industry contributed about 20 percent of GDP it employed only 1.4 percent of the labour force. The 6.7 percent rate of growth in GDP which was approximately the target of the previous plan would have only reduced unemployment to 13.7 percent by 1966 (implying an increase of 30 000 in the actual numbers of unemployed), and a growth rate of 7.9 percent was therefore aimed at in order to bring unemployment down to 6.9 percent in 1966. Because of the low productivity in agriculture, an increase in the labour force in this sector was considered neither feasible nor desirable. The average number of days worked in agriculture was only 150 a year, and there was ample scope for labour productivity to be raised through the various programmes of the agrarian reform. The plan presented some rough estimates of the magnitude of the " grey zone " of underemployment. This was to be studied in detail, and its reduction would be the main employment objective of future plans.

The plan for 1965-68 estimated that unemployment had been reduced to 10.5 percent in 1964, in comparison with the target of 9.7 percent for that year. In 1963 and 1964 employment had been provided not only for the 138 000 new entrants to the labour force but also for 81 000 unemployed. New measures proposed included public works programmes, especially in popular housing and urban development, and regional development programmes and colonization. However, the human resources programme consisted mainly of indicating the studies needed for the preparation of a long-term plan.

The fourth plan of Venezuela (1970-74) proposes a new development strategy, based mainly on a rapid expansion of international trade, but gives no less emphasis than its predecessors to employment objectives. It estimates that unemployment was reduced from 11.2 percent in 1964 to 6.7 percent in 1968, but rose again to 8.4 percent in 1969. The aim is to generate 597 000 new jobs, slightly more than the expected increase of 578 000 in the labour force, and thus reduce unemployment to 6.5 percent by 1974. The systematic generation of new employment is seen not only as an objective in itself but also as a means for diversifying production, and meeting the problems of rapid urbanization and regional disparities. It should also limit the exodus of the more dynamic members

of local communities. The institutions concerned with the labour market are to be reorganized, in order to permit a mobility of labour more consonant with actual requirements. While, because of increases in labour productivity (partly due to mechanization and the better organization of production and distribution), agriculture has only a minor role in employment generation, it is expected that the agricultural labour force will increase by 40 000 (5 percent) during the five years of the plan. A substantial expansion in employment in marketing and distribution is expected as a result of the increase in agro-industrial activities.

Near East

In the third five-year economic and social plan of *Afghanistan* (1967-71) the first objective was a rapid increase in production, especially in agriculture, which would result in increased national income and employment. Although the plan was primarily oriented toward production, the planned development activities were designed to take account of employment needs. With the expansion of the agricultural area and more intensive use of the existing area, including additional irrigation, it was anticipated that 160 000 more people would be employed in agricultural work, including 10 percent more women. Details of the employment provisions of the fourth plan, for 1973-77, are not available at the time of writing.

The second five-year plan of *Cyprus*, for 1967-71, was regarded as fundamentally a programme for creating employment opportunities faster than the increase in the labour force. Employment in agriculture had remained practically static between 1961 and 1966, and no appreciable increase was anticipated during the plan period. Agricultural underemployment was estimated as corresponding to 15 000 people, or 15.5 percent of the sector's labour force in 1966. At the same time there was a shortage of agricultural labour in certain areas and at certain periods. The creation of employment opportunities in major rural centres would prevent the mass migration of agricultural workers to urban areas, and would ensure the availability of the labour required to satisfy seasonal demand peaks in agriculture. The third plan (1972-76) has been postponed.

A basic objective of *Egypt's* national development plan for 1960-70 was to utilize human resources more fully and to improve employment. The first five-year plan (1960/61-1964/65) within this longer term plan is estimated to have given new employment to 1.3 million people. Half a million working places were created in agriculture through the investment of E£355 million, while the investment of E£516 million in the industrial sector created only 182 000 jobs. " Horizontal expansion " projects to increase the cultivated area were a major source of new agricultural employment. During the second five-year plan, for 1965/66-1969/70 (subsequently extended to 1971/72), it was intended to increase employment in the reclamation stage of such projects from 52 000 to 80 000, and in the cropping stage from 101 000 to 158 000. It was expected that 300 000 families would benefit from the reclaimed land during the period of the two plans, after its transformation into smallholdings. More recent plans have not been published.

The creation of an appropriate number of new jobs was the second most important objective of the third plan of *Iran*. Unemployment did not noticeably decline, however, because of economic recession, because the main growth was in the oil sector, which did not create new employment, and because of the introduction of modern techniques in certain industries. The more equitable distribution of income through the creation of employment was the second major objective in the fourth national development plan, for 1968-72. It was expected that by the end of the plan period unemployment would drop to about 1 percent, in comparison with 4.5 percent in 1967. In the agricultural sector 226 000 new jobs would be provided and underemployment reduced from 37 to about 21 percent. The main measures included the diversification of rural activities through the expansion of animal husbandry, food processing and agriculture-based industries; the creation of large-scale, mixed agricultural-industrial units; the conversion of rural cooperatives into agricultural production cooperatives, in order to increase employment opportunities on small and medium-sized holdings through more intensive cultivation; and the promotion of extension and training. Details of the employment provisions of the fifth plan (1973-78), prepared after the interagency employment mission organized by ILO, are not available at the time of writing.

While the investment, production and income targets of *Iraq's* five-year economic plan for 1965-69 were not realized, 472 000 new jobs were created, or 63 percent more than the target of 261 500. This paradoxical result is believed to reflect earlier investments which provided new employment during the plan period. The increase of 262 000 workers in the agricultural sector, in comparison with the target of 144 000, included a good deal of disguised unemployment and underemployment. Increased employment opportunities are one of the main objectives of the current plan for 1970-74, but few specific measures are included. Employment is to be increased from 2.5 million jobs in 1969 to 3.2 million in 1974, or at a rate of almost 5 percent a year.

Achievement of the highest possible level of employment is the major long-term objective of the development plan of *Jordan* for 1973-75. The plan aims to create at least 70 000 new jobs, including temporary jobs in construction, roads, and housing projects. Preliminary estimates indicate that unemployment (excluding disguised unemployment) was about 8 percent in the East Bank in 1971. One of the criteria used to determine the projects to be executed under the plan, and their priorities, was their contribution to the utilization of labour.

Somalia's first five-year plan should have generated about 30 000 new jobs, but this target was not met and the short-term development programme for 1968-70 therefore faced a backlog of unemployment. While employment maximization was one of the basic objectives of development, the total addition to employment during this programme was expected to be modest. Rural multipurpose projects were designed to use labour-intensive techniques, subject to considerations of cost, speed and productivity. The development programme for 1971-73 has the same basic objectives.

One of the aims of the *Sudan's* ten-year plan of economic and social development (1961/62-1970/71) was the creation of sufficient opportunities for productive employment. It was expected that despite a growth of 32 percent in the working population the planned increase of 65 percent in GDP would lead to a satisfactory employment situation, with respect both to the number of jobs and to a shift from less productive to more productive employment. The five-year plan for 1970/71-1974/75 is less optimistic, and notes that the labour force is expected to increase by 950 000 between 1969/70 and 1974/75, while it is planned to increase employment by 700 000 jobs (of which 500 000 in rural areas).

Solving the employment problem is one of the targets to be reached in *Turkey* over a period of 15 years, of which the five-year development plan for 1963-67 represented the first stage. A population policy was to be applied to ensure that in the long run it was possible to achieve a balance between the increase in the labour force and employment possibilities. During the 15-year period it would be necessary to create jobs for 7.5 million people, in addition to the 1 million " disguised unemployed " in agriculture. The achievement of the investment and production targets would provide only 6.8 million

additional jobs, and special measures were therefore necessary. These included a large increase in nonagricultural activities in rural areas, priority to employment-creating projects and sectors, and the use of labour-intensive technology in certain sectors, particularly construction. If such measures did not assure a satisfactory solution of unemployment problems, a higher target rate of growth would be set for the next plan periods.

Turkey's second five-year plan (1968-72) also gave high priority to employment and to family planning. However, the creation of employment during this plan period was to result from the rapid growth of the economy and not to be treated as an independent goal. During the first plan, out of a total increase in employment of 1.2 million jobs only 213 000 were in the agricultural sector, compared with the target of 700 000, since agricultural production did not increase as rapidly as intended. The possibilities for increasing agricultural employment are limited, however, because increased production depends on better utilization of present resources rather than an expansion of the cultivated area. It was planned to reduce unemployment in the nonagricultural sectors from 9.5 percent in 1967 to 8.2 percent in 1972, and the maximum seasonal disguised unemployment in agriculture from 9.9 percent to only 1.1 percent. Handicrafts were to be developed as an auxiliary source of rural employment, agricultural production intensified and cropping patterns changed. Programmes for creating employment would be particularly emphasized in areas, such as forest villages, with acute unemployment.

The third five-year plan (1973-77) envisages that the share of agriculture in the total labour force will decline from about 64 percent in 1972 to 25 percent by 1995, and priority is given to industrialization. Although 1.6 million employment opportunities are to be created outside agriculture during the plan period, unemployment figures (excluding the transfer of workers abroad) are expected to rise from 1.6 million in 1972 to 1.8 million in 1977.

ANNEX TABLES

ANNEX TABLE 1. – VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
World												
AGRICULTURAL PRODUCTS												
Wheat	228.47	258.98	239.58	277.11	267.37	310.11	298.92	331.25	315.19	318.44	353.82	347.60
Barley	82.15	98.91	101.83	109.31	106.32	117.27	119.60	131.05	137.03	139.55	151.45	152.24
Oats	50.50	50.26	47.36	44.31	46.64	48.56	50.83	54.37	55.39	55.56	57.73	51.29
Maize	206.95	210.46	221.96	215.90	227.81	242.25	266.87	252.70	267.60	261.31	305.61	301.39
Rice (milled equivalent) [1]	157.67	159.42	165.94	172.63	166.80	165.64	180.37	185.07	190.77	200.70	200.91	192.00
Sugar (centrifugal)	53.72	51.28	53.03	62.80	63.76	64.15	66.14	66.19	67.08	74.18	75.19	73.80
Apples	15.36	19.88	18.69	19.63	19.54	19.20	22.18	20.51	23.13	21.41	20.96	19.51
Citrus fruit	23.86	24.48	24.53	25.41	27.59	30.81	33.66	33.11	36.74	37.53	38.88	40.21
Bananas	21.03	21.63	22.82	24.31	26.32	27.13	27.97	28.11	29.56	30.75	31.62	32.96
Olive oil	1.50	1.00	1.95	1.00	1.36	1.36	1.50	1.58	1.35	1.52	1.67	1.55
Soybeans	31.10	30.87	31.69	32.38	36.52	39.08	40.71	44.00	45.20	46.54	48.46	53.02
Groundnuts	14.69	15.53	16.17	17.09	16.22	16.35	17.64	15.95	16.96	18.21	18.21	16.89
Cottonseed	18.03	19.30	20.48	21.23	21.94	20.31	20.00	21.65	21.36	21.77	22.73	24.11
Copra	3.46	3.21	3.38	3.44	3.39	3.58	3.26	3.40	3.41	3.48	3.94	4.42
Total vegetable oils and oilseeds (oil equivalent)	25.39	25.89	27.05	27.35	28.69	29.09	30.28	30.95	31.19	35.26	36.21	36.37
Coffee	4.67	4.30	4.09	3.68	5.06	3.89	4.51	3.88	4.34	3.95	5.20	4.90
Cocoa	1.18	1.20	1.25	1.55	1.22	1.33	1.39	1.23	1.42	1.52	1.59	1.48
Tea	1.05	1.06	1.09	1.12	1.13	1.19	1.19	1.24	1.26	1.30	1.31	1.37
Wine	21.98	28.52	25.83	28.52	28.86	26.30	28.53	28.33	27.75	30.21	28.94	27.81
Tobacco	3.75	4.13	4.51	4.88	4.58	4.59	4.89	4.76	4.62	4.68	4.52	4.68
Cotton (lint)	9.67	10.52	11.07	11.47	11.91	10.92	10.61	11.56	11.44	11.73	12.16	13.03
Jute [2]	3.61	3.09	3.32	3.30	3.46	3.71	3.79	2.66	3.68	3.56	3.21	3.49
Sisal, henequen and other agaves	0.80	0.83	0.87	0.91	0.90	0.89	0.84	0.81	0.82	0.83	0.80	0.77
Wool (greasy)	2.59	2.57	2.63	2.60	2.61	2.69	2.72	2.80	2.82	2.77	2.75	2.65
Rubber	2.14	2.17	2.22	2.32	2.40	2.47	2.43	2.64	2.89	2.94	3.02	3.06
Milk (total)	352.22	355.46	353.20	361.55	377.05	386.07	394.36	402.88	402.74	404.60	408.65	415.10
Meat [3]	77.44	80.31	83.22	83.61	87.08	91.22	95.16	97.39	99.44	104.09	106.92	108.94
Eggs	15.52	15.90	16.28	16.83	17.28	17.79	19.02	19.57	20.33	21.35	21.92	22.36
FISHERY PRODUCTS [4,5]												
Freshwater and diadromous fish	6.96	6.09	6.57	7.58	8.56	9.24	9.02	9.31	9.79	11.26	11.83	11.90
Marine fish	32.19	34.04	34.92	39.54	39.60	42.95	45.93	48.67	47.19	52.36	51.92	47.00
Crustacea, molluscs and other invertebrates	3.52	3.77	4.15	3.90	4.14	4.29	4.54	4.96	4.75	4.95	4.89	4.90
Seals and miscellaneous aquatic mammals	—	—	—	—	—	0.01	—	—	0.01	0.01	0.01	—
Miscellaneous aquatic animals and residues	0.20	0.24	0.22	0.27	0.24	0.14	0.15	0.13	0.10	0.13	0.12	0.10
Aquatic plants	0.69	0.79	0.69	0.58	0.65	0.68	0.83	0.85	0.77	0.87	0.92	0.90
FOREST PRODUCTS [4]												
Fuelwood [6]	909	922	940	957	969	971	969	974	982	989	1 000	1 011
Industrial roundwood [6]	981	1 002	1 016	1 074	1 094	1 115	1 139	1 162	1 193	1 228	1 215	1 281
Sawn softwood [6]	256.6	259.1	266.6	281.4	285.8	282.6	284.8	297.0	301.9	302.0	318.1	326.6
Sawn hardwood [6]	69.2	70.6	74.2	76.9	77.8	79.7	81.5	82.9	88.3	87.5	84.8	87.6
Plywood [6]	16.4	18.1	20.1	22.2	24.2	25.2	26.3	29.5	30.5	32.1	35.2	37.9
Particle board [6]	3.3	4.3	5.4	6.6	8.4	10.1	11.6	13.8	16.3	18.4	21.9	25.8
Fibreboard	4.6	5.0	5.4	6.0	6.3	6.2	6.4	7.0	7.5	7.7	8.2	8.9
Mechanical wood pulp	18.4	18.8	19.4	20.5	21.4	22.5	22.1	23.4	25.0	25.8	26.1	27.2
Chemical wood pulp	43.6	45.7	49.7	54.1	57.4	61.7	64.0	69.7	75.1	77.3	76.8	81.9
Newsprint	14.0	14.3	14.6	15.9	16.6	17.9	18.1	18.8	20.4	21.0	20.2	21.1
Paper and paperboard other than newsprint	61.0	63.8	68.1	73.2	77.8	83.4	85.3	92.6	99.8	102.6	103.8	110.9

See notes at end of table.

ANNEX TABLE 1. – VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
FISHERY PRODUCTS [5]	3.63	4.02	4.47	5.05	5.73	6.01	6.54	6.94	7.40	8.24	8.40	8.95
FOREST PRODUCTS												
Fuelwood [6]	113.7	112.5	118.1	124.5	120.7	117.9	112.5	106.8	103.6	101.9	102.2	101.7
Coniferous logs [6]	171.5	171.3	173.0	178.1	145.5	144.4	154.7	156.2	157.9	164.8	165.0	165.2
Broadleaved logs [6]	32.5	34.1	34.4	35.5	30.4	30.6	32.5	33.1	33.7	34.5	35.1	35.2
Other industrial roundwood [6]	101.3	104.2	112.8	116.7	151.3	151 0	155.0	157.9	152.1	156.9	157.4	159.5
Sawn softwood [6]	104.1	104.3	105.1	111.4	111.7	108.5	110.2	111.3	113.1	116.5	119.4	119.6
Sawn hardwood [6]	20.2	20.6	21.1	19.1	19.0	18.8	19.3	19.5	19.7	20.4	20.4	20.5
Plywood [6]	2.0	2.2	2.2	2.4	2.4	2.5	2.6	2.6	2.8	2.9	3.0	3.0
Particle board [6]	0.7	0.9	1.1	1.4	1.7	2.0	2.5	2.7	3.0	3.6	4.1	4.6
Fibreboard	0.5	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7
Mechanical wood pulp	1.6	1.6	1.7	1.7	1.8	2.0	2.0	2.1	2.1	2.1	2.2	2.2
Chemical wood pulp	3.9	4.1	4.3	4.3	4.6	5.1	5.6	6.0	6.3	6.8	7.1	7.4
Newsprint	0.7	0.8	0.8	0.9	1.0	1.2	1.3	1.3	1.4	1.4	1.5	1.5
Printing and writing paper	1.3	1.4	1.4	1.5	1.5	1.6	1.8	1.9	1.9	2.0	2.0	2.1
Other paper and paperboard	4.0	4.2	4.4	4.7	5.2	5.7	6.0	6.4	6.7	7.3	7.7	8.1
North America												
AGRICULTURAL PRODUCTS												
Wheat	41.25	45.11	50.90	51.28	53.48	58.22	57.57	60.58	58.36	45.81	58.44	56.56
Barley	11.00	12.93	13.37	12.07	13.29	15.12	13.53	16.29	17.46	18.11	23.19	20.51
Oats	19.04	22.29	20.89	17.72	19.62	17.41	16.15	19.23	19.52	18.99	18.40	14.72
Maize	92.13	92.45	103.01	89.85	105.26	106.27	122.79	113.66	118.27	108.03	146.24	143.71
Sorghum	12.20	12.96	14.87	12.44	17.09	18.16	19.20	18.79	18.98	17.36	22.25	20.87
Rice (milled equivalent) [1]	1.60	1.95	2.01	2.16	2.25	2.51	2.64	3.07	2.68	2.47	2.53	2.51
Sugar (centrifugal)	4.08	4.28	5.04	5.25	4.87	4.94	4.93	5.51	5.20	5.21	5.48	5.93
Potatoes	15.32	14.15	14.40	13.10	15.30	16.42	15.99	15.75	16.51	17.29	16.72	15.25
Apples	2.92	2.99	3.08	3.28	3.17	2.99	2.89	2.88	3.51	3.24	3.15	3.03
Citrus fruit	6.93	7.89	5.95	5.67	6.95	7.96	10.37	7.56	10.18	10.31	10.83	11.28
Soybeans	18.65	18.39	19.16	19.27	23.23	25.52	26.78	30.27	30.86	30.96	32.29	35.24
Cottonseed	5.42	5.57	5.62	5.66	5.52	3.59	2.91	4.21	3.69	3.69	3.85	5.04
Total vegetable oils and oilseeds (oil equivalent) [7]	4.96	5.01	5.25	5.27	6.26	6.21	6.20	7.17	7.44	7.99	8.15	8.62
Tobacco	1.03	1.14	1.15	1.08	0.92	0.96	0.99	0.88	0.93	0.97	0.88	0.88
Cotton (lint)	3.12	3.24	3.34	3.31	3.26	2.09	1.62	2.38	2.18	2.22	2.28	3.00
Milk (total)	65.35	65.61	65.16	65.99	64.66	62.73	62.14	61.51	61.27	61.37	61.84	62.60
Meat [3]	18.71	18.77	19.74	21.01	20.88	21.89	22.94	23.34	23.63	24.68	25.51	25.46
Eggs	4.09	4.12	4.07	4.15	4.17	4.21	4.43	4.40	4.40	4.48	4.56	4.50
FISHERY PRODUCTS [5]	3.95	4.10	3.97	3.83	3.96	3.86	3.70	3.95	3.87	4.14	4.06	3.75
FOREST PRODUCTS												
Fuelwood [6]	48.3	39.4	36.5	37.6	36.8	34.8	26.8	26.0	24.9	19.4	18.3	17.0
Coniferous logs [6]	176.6	193.5	196.8	208.8	212.5	216.5	214.8	233.7	227.8	227.7	243.2	259.0
Broadleaved logs [6]	33.4	35.7	38.7	39.8	41.7	41.7	39.7	38.1	38.8	38.9	35.8	37.0
Other industrial roundwood [6]	125.1	124.4	119.7	127.9	135.2	145.0	142.5	145.2	161.1	163.3	164.3	172.9
Sawn softwood [6]	79.6	82.5	87.8	91.0	93.1	91.6	89.1	96.5	95.3	90.0	100.7	107.3
Sawn hardwood [6]	15.1	15.8	17.0	18.4	18.9	19.4	18.9	18.4	21.4	17.9	16.1	16.7
Plywood [6]	9.7	10.6	11.9	13.1	14.5	14.8	14.9	16.5	15.6	16.0	18.3	19.5
Particle board [6]	0.4	0.8	0.9	1.2	1.6	2.2	2.4	2.9	3.4	3.4	4.8	6.1
Fibreboard	1.9	2.0	2.2	2.4	2.4	2.3	2.4	2.7	3.0	2.9	3.2	3.6
Mechanical wood pulp	9.6	9.9	10.1	10.8	11.1	11.8	11.4	12.1	13.0	13.1	13.7	14.4
Chemical wood pulp	25.0	26.5	28.5	31.1	32.9	36.0	36.3	40.3	42.6	43.1	42.4	45.5
Newsprint	8.0	8.0	8.0	8.7	9.0	9.9	9.8	10.1	11.1	11.0	10.5	11.0
Printing and writing paper	6.9	7.3	7.6	8.1	8.8	9.8	9.7	10.3	10.9	10.8	11.1	11.8
Other paper and paperboard	23.9	25.1	26.2	28.0	29.9	31.6	31.4	34.1	35.9	35.3	35.7	38.5

See notes at end of table.

ANNEX TABLE 1. – VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Western Europe												
AGRICULTURAL PRODUCTS												
Wheat	37.64	47.88	41.55	46.84	48.90	44.61	52.16	51.83	50.14	47.69	56.68	56.11
Barley	22.54	25.92	28.50	29.53	30.90	32.57	37.95	37.91	39.49	35.96	42.04	43.96
Oats	12.96	12.63	12.62	11.96	11.86	11.89	13.40	13.09	12.53	11.96	13.89	12.59
Rye	5.41	6.03	5.85	6.34	5.40	4.86	5.56	5.59	5.12	4.74	5.38	5.21
Maize	13.20	12.45	15.21	15.44	14.90	18.29	17.89	19.32	21.72	23.43	25.55	25.83
Sugar (centrifugal)	7.80	7.34	8.56	10.21	9.08	9.47	10.15	10.39	11.13	10.80	12.47	11.49
Potatoes	73.07	74.02	80.64	68.48	63.17	65.04	69.01	66.43	59.88	63.78	60.44	56.86
Apples	7.87	11.93	10.02	10.44	10.75	9.79	12.16	10.65	12.18	11.06	10.60	9.12
Citrus fruit	4.07	3.25	4.26	4.44	4.55	5.15	4.93	5.15	5.91	5.47	5.45	6.30
Olive oil	1.23	0.80	1.63	0.65	1.10	1.06	1.18	1.21	1.16	1.21	1.30	1.19
Rapeseed	0.38	0.53	0.41	0.65	0.77	0.61	0.94	1.02	0.98	1.06	1.28	1.47
Total vegetable oils and oilseeds (oil equivalent) [7]	1.55	1.20	2.02	1.12	1.60	1.53	1.74	1.82	1.81	1.87	2.21	2.10
Wine	14.22	19.93	16.69	19.74	19.44	18.34	18.83	18.62	17.67	20.44	17.69	17.34
Tobacco	0.21	0.26	0.34	0.38	0.37	0.33	0.37	0.32	0.29	0.31	0.31	0.33
Cotton (lint)	0.20	0.21	0.20	0.15	0.16	0.18	0.17	0.18	0.17	0.17	0.17	0.17
Milk (total)	104.52	105.89	105.36	105.49	108.95	111.30	113.83	116.51	116.21	117.59	117.43	120.70
Meat [3]	14.84	15.59	15.86	16.07	16.60	17.17	17.95	18.67	18.82	21.19	21.58	21.42
Eggs	3.44	3.55	3.70	3.91	3.82	3.96	4.02	4.20	4.38	4.71	4.60	4.76
FISHERY PRODUCTS [5]	7.96	8.24	8.50	9.17	10.25	10.89	11.28	11.01	10.41	10.96	11.04	11.20
FOREST PRODUCTS												
Fuelwood [6]	74.6	72.5	70.9	64.4	62.6	58.2	55.2	52.9	49.4	47.9	46.9	45.5
Coniferous logs [6]	71.0	70.5	66.9	75.1	76.0	74.5	75.1	74.9	80.0	85.2	85.3	83.0
Broadleaved logs [6]	20.3	20.5	21.2	22.5	23.0	23.7	23.6	23.2	24.2	25.6	24.5	25.0
Other industrial roundwood [6]	81.8	82.9	78.1	82.1	82.9	84.7	90.2	83.4	90.5	99.5	104.9	98.0
Sawn softwood [6]	40.4	39.8	39.1	42.1	42.0	41.3	41.9	43.3	46.0	47.5	49.0	48.8
Sawn hardwood [6]	9.3	9.1	9.4	10.2	10.6	10.8	10.9	11.1	11.5	11.7	12.1	12.3
Plywood [6]	2.1	2.2	2.5	2.6	2.6	2.6	2.7	2.8	3.1	3.1	3.2	3.5
Particle board [6]	2.0	2.4	3.0	3.6	4.5	5.1	5.9	7.0	8.5	9.7	11.2	13.1
Fibreboard	1.7	1.7	1.8	2.0	2.0	1.9	1.9	2.0	2.1	2.2	2.2	2.4
Mechanical wood pulp	5.6	5.6	5.8	6.2	6.4	6.7	6.5	7.1	7.6	8.0	7.6	7.8
Chemical wood pulp	10.6	10.8	11.8	13.1	13.8	13.8	14.6	15.2	16.4	17.1	16.6	16.9
Newsprint	4.1	4.1	4.1	4.4	4.7	4.9	4.9	5.0	5.3	5.6	5.2	5.4
Printing and writing paper	4.8	4.8	5.3	5.7	6.0	6.7	7.1	8.1	9.0	9.6	9.6	10.2
Other paper and paperboard	12.3	12.7	13.9	14.8	15.5	15.9	16.1	17.4	19.1	19.7	19.6	20.6
Eastern Europe and U.S.S.R.												
AGRICULTURAL PRODUCTS												
Wheat	80.04	84.70	63.15	88.83	78.25	118.59	98.08	114.43	100.57	118.99	123.43	111.89
Rye	28.06	26.73	21.92	23.78	27.64	23.65	23.65	25.58	21.66	20.58	23.26	20.35
Barley	19.28	25.96	25.95	34.73	27.18	34.89	32.39	36.92	41.53	46.77	45.00	47.88
Oats	14.30	10.82	8.79	9.48	10.37	13.70	16.61	16.47	18.25	19.04	19.92	19.27
Millet and sorghum	3.00	2.89	1.96	3.62	2.31	3.27	3.36	2.77	3.43	2.20	2.14	2.21
Maize	27.67	25.86	23.27	26.82	19.34	23.32	22.27	22.26	27.66	23.22	24.51	28.86
Pulses	4.98	8.51	8.99	12.05	7.86	8.27	7.65	7.93	8.72	8.51	7.82	7.98
Cotton (lint)	1.54	1.51	1.78	1.82	1.96	2.09	2.07	2.01	1.93	2.37	2.40	2.48
Flax (fibre)	0.49	0.54	0.48	0.44	0.58	0.56	0.61	0.51	0.59	0.55	0.59	0.55
Sugar (centrifugal)	10.26	9.73	9.63	14.39	12.55	12.85	14.45	13.78	12.20	12.93	12.16	12.68
Total vegetable oils and oilseeds (oil equivalent) [7]	2.99	3.10	3.00	3.74	3.80	4.33	4.62	4.65	4.23	4.46	4.43	4.16
Sunflowerseed	5.65	5.74	5.26	7.03	6.45	7.35	7.89	7.97	7.77	7.42	7.07	6.47
Potatoes	148.45	130.91	141.52	167.15	152.14	159.11	169.23	177.53	155.38	169.30	152.61	149.07
Milk (total)	91.77	92.16	89.40	91.97	102.93	108.49	113.47	116.28	115.65	117.81	118.31	118.55
Meat [3]	11.52	12.11	12.60	11.43	13.15	13.97	14.92	15.21	15.32	18.67	19.86	20.71
Wool (greasy)	0.44	0.45	0.45	0.42	0.44	0.45	0.48	0.51	0.48	0.51	0.52	0.51
Eggs	2.57	2.58	2.47	2.45	2.65	2.79	3.00	3.08	3.19	3.50	3.80	4.01

See notes at end of table.

ANNEX TABLE I. – VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Oceania												
AGRICULTURAL PRODUCTS												
Wheat	6.98	8.57	9.17	10.31	7.32	12.99	7.89	15.25	11.00	8.18	8.83	7.04
Sugar (centrifugal)	1.55	2.13	2.06	2.29	2.30	2.69	2.67	3.17	2.52	2.52	2.79	2.82
Wool (greasy)	1.04	1.04	1.09	1.09	1.07	1.12	1.13	1.22	1.25	1.22	1.20	1.13
Milk (total)	12.18	12.30	12.49	12.82	13.19	13.70	13.30	13.38	14.27	13.46	13.49	13.42
Meat [3]	2.32	2.51	2.58	2.65	2.58	2.53	2.71	2.86	3.07	3.21	3.51	3.64
FISHERY PRODUCTS [5]	0.11	0.11	0.11	0.12	0.13	0.14	0.15	0.16	0.14	0.16	0.18	0.18
FOREST PRODUCTS												
Fuelwood [6]	7.6	7.6	7.5	7.5	7.4	7.4	7.3	7.3	7.3	7.2	7.1	7.1
Industrial roundwood [6]	15.8	15.0	16.0	17.3	17.6	18.1	18.2	19.0	19.8	20.3	20.5	21.2
Sawn softwood [6]	2.2	2.1	2.2	2.5	2.5	2.5	2.3	2.4	2.5	2.6	2.4	2.4
Sawn hardwood [6]	2.6	2.4	2.5	2.6	2.8	2.7	2.6	2.8	2.6	2.7	2.8	2.8
Particle board [6]	0.01	0.02	0.04	0.06	0.10	0.15	0.18	0.23	0.27	0.32	0.34	0.36
Mechanical wood pulp	0.30	0.31	0.38	0.42	0.46	0.43	0.44	0.46	0.53	0.61	0.59	0.62
Chemical wood pulp	0.31	0.33	0.38	0.42	0.45	0.49	0.54	0.56	0.65	0.68	0.70	0.74
Newsprint	0.18	0.21	0.26	0.28	0.29	0.28	0.30	0.30	0.33	0.39	0.40	0.41
Paper and paperboard other than newsprint	0.54	0.55	0.64	0.69	0.81	0.85	0.91	0.92	1.04	1.13	1.14	1.18
Latin America												
AGRICULTURAL PRODUCTS												
Wheat	9.51	9.74	12.80	15.61	10.48	10.55	11.74	10.46	12.79	11.07	11.89	12.45
Maize	24.34	25.53	26.10	27.88	31.08	32.70	35.14	33.57	32.95	38.17	39.25	33.75
Rice (milled equivalent) [1]	5.26	5.51	5.54	6.04	7.03	5.87	6.68	6.76	6.68	7.69	7.29	7.53
Sugar (centrifugal)	18.04	15.92	15.56	16.77	19.94	17.83	19.98	18.73	18.71	25.54	21.92	21.36
Citrus fruit	5.59	5.87	6.22	6.29	6.66	7.31	7.53	8.05	8.65	8.87	9.22	9.03
Bananas	12.04	12.28	12.84	13.93	14.75	15.01	15.81	15.90	17.03	18.01	18.84	19.88
Groundnuts	1.04	1.29	1.11	1.02	1.37	1.51	1.29	1.22	1.17	1.38	1.54	1.36
Cottonseed	2.38	2.77	2.88	2.90	2.98	2.96	2.66	3.02	3.08	2.82	2.53	3.06
Sunflowerseed	0.68	0.97	0.59	0.57	0.84	0.94	1.23	1.03	0.97	1.23	0.90	0.91
Copra	0.27	0.28	0.24	0.25	0.25	0.24	0.25	0.25	0.25	0.22	0.22	0.24
Palm kernels	0.16	0.18	0.18	0.20	0.22	0.22	0.22	0.22	0.23	0.25	0.26	0.26
Total vegetable oils and oilseeds (oil equivalent) [8]	1.82	2.12	1.95	2.00	2.20	2.27	2.19	2.24	2.40	3.02	2.88	3.24
Coffee	3.68	3.08	2.77	1.87	3.62	2.54	2.87	2.42	2.61	2.28	3.43	3.18
Cocoa	0.33	0.32	0.31	0.32	0.32	0.33	0.37	0.35	0.38	0.38	0.39	0.39
Tobacco	0.44	0.48	0.52	0.50	0.54	0.50	0.54	0.55	0.55	0.57	0.55	0.59
Cotton (lint)	1.32	1.54	1.61	1.63	1.67	1.65	1.50	1.71	1.70	1.56	1.41	1.73
Sisal	0.20	0.21	0.21	0.22	0.24	0.23	0.22	0.21	0.21	0.27	0.28	0.28
Wool (greasy)	0.34	0.33	0.34	0.35	0.34	0.37	0.35	0.34	0.34	0.34	0.32	0.30
Milk (total)	18.42	18.73	19.34	20.51	21.20	22.10	22.11	23.09	23.64	23.88	25.64	26.13
Meat [3]	7.64	8.03	8.39	8.00	8.26	8.65	8.99	9.72	10.17	10.45	10.02	10.57
Eggs	0.95	0.96	1.00	1.06	1.12	1.21	1.24	1.30	1.33	1.51	1.61	1.70
FISHERY PRODUCTS [5]	6.78	8.75	8.90	11.67	9.64	11.64	12.82	13.66	11.94	15.51	13.94	7.40
FOREST PRODUCTS												
Fuelwood [6]	186.2	201.9	208.0	212.3	217.9	221.9	224.2	226.2	229.0	232.1	234.7	237.3
Industrial roundwood [6]	32.5	33.0	31.1	35.4	37.7	38.8	39.3	41.8	44.0	48.5	50.1	52.3
Sawn softwood [6]	5.1	5.3	5.0	5.5	5.7	6.2	6.2	6.6	7.0	7.6	7.9	8.2
Sawn hardwood [6]	6.3	6.6	6.4	6.8	6.7	7.1	7.2	7.4	7.8	8.6	8.8	9.0
Plywood [6]	0.33	0.37	0.37	0.38	0.39	0.40	0.40	0.42	0.53	0.64	0.74	0.80
Particle board [6]	0.05	0.07	0.10	0.14	0.16	0.19	0.20	0.29	0.38	0.59	0.63	0.67
All wood pulp	0.67	0.75	0.86	0.94	1.09	1.31	1.34	1.46	1.52	1.72	1.86	2.09
All paper and paperboard	1.80	1.90	1.98	2.21	2.43	2.67	2.74	2.93	3.28	3.78	4.00	4.17

See notes at end of table.

ANNEX TABLE 1. – VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Far East [9]												
AGRICULTURAL PRODUCTS												
Wheat	15.32	16.61	15.41	14.57	17.43	14.96	16.35	23.62	25.99	28.15	30.98	33.93
Maize	10.16	11.48	10.83	12.50	11.37	13.00	13.61	13.85	13.66	16.20	13.80	11.98
Millet and sorghum	16.65	18.58	17.99	19.21	15.04	17.84	19.99	17.99	19.84	21.35	17.93	15.75
Rice (milled equivalent) [1]	79.06	77.72	84.04	87.44	78.16	78.14	86.39	91.48	95.62	98.07	97.81	90.86
Sugar (centrifugal)	6.80	6.45	6.99	6.57	7.60	8.10	6.36	6.42	8.41	8.56	8.40	7.31
Sugar (noncentrifugal)	7.84	7.73	7.49	8.13	8.88	8.99	8.00	8.05	9.16	9.89	10.14	9.36
Pulses [10]	14.28	13.19	13.12	11.85	13.67	11.27	10.20	13.50	12.18	13.73	12.88	12.35
Soybeans	0.69	0.65	0.61	0.66	0.68	0.70	0.76	0.80	0.76	0.82	0.79	0.83
Groundnuts	6.09	6.23	6.32	7.13	5.34	5.61	6.99	5.97	6.51	7.48	7.09	5.87
Copra	2.73	2.46	2.65	2.70	2.69	2.85	2.53	2.65	2.63	2.84	3.28	3.74
Total vegetable oils and oilseeds (oil equivalent) [11]	5.59	5.64	5.80	5.92	5.57	5.69	6.05	6.07	6.20	7.90	8.20	7.94
Tea	0.69	0.69	0.70	0.72	0.73	0.73	0.74	0.76	0.75	0.74	0.75	0.77
Tobacco	0.69	0.76	0.76	0.79	0.80	0.80	0.88	0.95	0.93	0.89	0.83	0.92
Cotton (lint)	1.26	1.49	1.60	1.50	1.46	1.52	1.72	1.64	1.64	1.56	2.01	1.88
Jute [2]	3.17	2.65	2.79	2.72	2.87	3.09	3.14	2.00	2.99	2.88	2.51	2.80
Rubber (natural)	1.93	1.95	2.01	2.08	2.16	2.25	2.24	2.44	2.68	2.70	2.77	2.82
Milk (total)	32.70	33.03	33.39	33.78	34.16	34.50	35.11	35.71	36.48	38.39	39.64	40.93
Meat [3]	2.72	2.82	2.92	3.03	3.15	3.31	3.39	3.47	3.54	3.63	3.75	3.89
Eggs	0.56	0.57	0.61	0.65	0.67	0.68	0.70	0.74	0.79	0.79	0.84	0.85
FISHERY PRODUCTS [5]	4.56	4.74	5.20	5.87	6.11	6.59	6.95	7.70	8.16	8.56	9.11	9.50
FOREST PRODUCTS												
Fuelwood [6]	242.8	248.8	253.4	260.8	267.0	273.9	280.5	286.7	294.4	301.2	308.1	315.0
Industrial roundwood [6]	37.4	38.7	45.1	47.0	50.6	53.2	57.8	61.6	67.4	66.5	70.0	72.1
Sawn softwood [6]	0.6	0.9	1.1	1.3	1.4	1.2	1.3	1.4	1.4	1.4	1.6	1.9
Sawn hardwood [6]	8.4	8.5	9.4	9.8	10.1	10.5	11.7	11.4	12.3	12.9	12.8	13.2
Plywood [6]	0.3	0.4	0.5	0.6	0.8	1.0	1.1	1.5	1.6	1.7	2.0	2.7
All wood pulp	0.08	0.08	0.11	0.12	0.15	0.16	0.16	0.21	0.23	0.25	0.23	0.25
All paper and paperboard	1.77	1.90	2.01	2.28	2.56	2.75	2.90	3.12	3.41	3.78	4.00	4.17
China and other Asian centrally planned countries												
AGRICULTURAL PRODUCTS												
Wheat	16.73	21.62	22.20	25.94	26.40	26.04	28.40	27.30	28.72	31.34	32.90	34.86
Maize	21.73	24.21	24.65	25.72	27.45	27.40	27.78	27.88	29.29	31.11	32.08	30.58
Millet and sorghum	15.51	16.91	17.61	18.21	19.40	19.40	19.69	19.70	20.62	22.42	23.42	22.42
Rice (milled equivalent) [1]	58.04	58.97	59.12	61.85	64.72	63.91	66.44	65.92	68.67	73.37	75.68	72.60
Sugar (centrifugal)	2.15	1.98	2.12	2.71	3.19	3.33	3.23	3.42	3.56	3.66	3.99	4.04
Sugar (noncentrifugal)	0.36	0.29	0.28	0.61	0.68	0.70	0.71	0.78	0.79	0.79	0.79	0.79
Pulses [10]	6.92	7.41	7.72	8.05	8.05	8.06	8.07	7.98	8.39	8.50	8.70	8.82
Soybeans	10.64	10.49	10.69	11.46	11.26	11.26	11.42	11.00	11.23	11.89	11.99	11.82
Groundnuts	1.84	1.77	2.03	2.45	2.47	2.52	2.48	2.30	2.50	2.62	2.64	2.69
Total vegetable oils and oilseeds (oil equivalent) [12]	3.34	3.33	3.56	3.99	4 03	4.12	4.16	3.95	3.97	4.17	4.21	4.17
Tea	0.18	0.18	0.18	0.18	0.18	0.18	0.19	0.19	0.20	0.20	0.20	0.21
Tobacco	0.61	0.66	0.78	0.83	0.84	0.85	0.91	0.91	0.84	0.85	0.84	0.85
Cotton (lint)	0.92	0.89	1.02	1.39	1.54	1.68	1.81	1.68	1.61	1.70	1.65	1.41
Jute [2]	0.33	0.33	0.38	0.43	0.47	0.49	0.51	0.50	0.54	0.53	0.54	0.54
Milk (total)	4.50	4.55	4.63	4.70	4.76	4.80	4.85	4.90	4.96	5.19	5.25	5.37
Meat [3]	11.84	12.17	12.55	12.82	13.17	13.49	13.88	14.15	14.37	14.68	14.90	15.24
Eggs	2.46	2.55	2.84	2.85	2.96	2.93	3.29	3.34	3.39	3.42	3.46	3.51

See notes at end of table.

ANNEX TABLE 1. – VOLUME OF PRODUCTION OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
Near East [12]												
	Million metric tons											
AGRICULTURAL PRODUCTS												
Wheat	15.78	18.13	18.15	17.34	18.60	19.52	20.87	20.80	21.31	20.28	23.01	26.34
Barley	5.73	6.98	7.37	6.00	6.62	6.62	7.08	6.85	7.27	6.01	6.37	7.29
Maize	3.40	3.58	3.65	3.74	3.88	4.17	4.08	4.16	4.26	4.19	4.22	4.25
Rice (milled equivalent) [1]	1.54	2.34	2.45	2.40	2.34	2.28	2.80	2.98	2.97	3.11	2.83	2.94
Sugar (centrifugal)	0.97	0.93	1.08	1.41	1.24	1.46	1.74	1.77	1.70	1.98	2.30	2.26
Pulses [10]	1.16	1.46	1.37	1.57	1.59	1.45	1.43	1.40	1.51	1.37	1.50	1.70
Citrus fruit	1.01	1.18	1.32	1.31	1.48	1.70	1.90	1.98	2.08	2.10	2.45	2.44
Dates	1.52	1.52	1.49	1.32	1.38	1.40	1.34	1.27	1.44	1.49	1.35	1.37
Olive oil	0.18	0.09	0.15	0.18	0.11	0.21	0.15	0.22	0.10	0.15	0.09	0.22
Cottonseed	1.71	2.16	2.17	2.24	2.43	2.22	2.23	2.40	2.62	2.60	2.80	2.92
Total vegetable oils and oilseeds (oil equivalent) [7]	0.75	0.72	0.83	0.91	0.88	0.95	0.92	0.96	1.02	1.21	1.21	1.39
Tobacco	0.15	0.13	0.16	0.25	0.19	0.22	0.24	0.21	0.20	0.19	0.20	0.21
Cotton (lint)	0.94	1.20	1.19	1.27	1.37	1.29	1.30	1.41	1.52	1.49	1.63	1.70
Wool (greasy)	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.14	0.15	0.16	0.16
Milk (total)	9.88	10.07	10.14	10.42	10.66	11.10	11.25	11.81	11.80	11.96	11.91	12.05
Meat [3]	1.47	1.54	1.54	1.55	1.63	1.69	1.69	1.76	1.84	2.12	2.14	2.20
FISHERY PRODUCTS [5]	0.41	0.43	0.49	0.52	0.50	0.49	0.55	0.51	0.57	0.57	0.58	0.60
FOREST PRODUCTS												
Fuelwood [6]	28.9	31.0	33.2	35.0	37.6	37.7	38.0	38.7	40.3	40.3	40.6	40.8
Industrial roundwood [6]	8.8	9.1	9.9	10.7	11.1	11.2	11.5	12.1	12.8	13.5	13.8	14.1
Sawn softwood [6]	0.7	1.0	1.1	1.2	1.3	1.7	1.8	2.0	2.2	2.2	2.2	2.2
Sawn hardwood [6]	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.6
Plywood [6]	0.04	0.05	0.06	0.06	0.07	0.09	0.10	0.10	0.11	0.11	0.12	0.12
All wood pulp	0.04	0.07	0.07	0.08	0.08	0.09	0.08	0.08	0.08	0.10	0.16	0.18
All paper and paperboard	0.12	0.18	0.20	0.22	0.22	0.23	0.26	0.28	0.31	0.34	0.42	0.45
Africa [14]												
AGRICULTURAL PRODUCTS												
Wheat	2.47	4.20	4.57	3.93	4.42	2.99	3.97	5.86	4.48	4.93	5.36	6.16
Barley	2.12	3.66	4.06	3.18	3.38	2.24	3.17	5.65	4.27	4.22	4.64	5.05
Maize	8.47	8.75	9.12	9.22	9.35	11.11	10.77	10.76	11.64	10.55	11.04	12.41
Millet and sorghum	14.06	15.17	15.66	16.12	15.93	15.58	15.66	14.76	16.05	15.84	15.04	16.01
Rice (milled equivalent) [1]	2.17	2.42	2.47	2.58	2.49	2.66	2.94	2.91	3.07	3.11	3.26	3.19
Sugar (centrifugal)	1.45	1.46	1.78	1.63	1.91	1.93	2.04	2.13	2.32	2.52	2.77	3.02
Pulses [10]	3.13	3.24	3.42	3.35	3.44	3.55	3.39	3.75	4.06	4.30	4.37	4.56
Citrus fruit	1.38	1.38	1.44	1.66	1.53	1.65	1.72	1.94	2.02	2.12	2.29	2.33
Bananas	1.74	1.83	1.94	1.90	1.88	1.88	2.01	1.99	2.26	3.70	3.82	3.88
Olive oil	0.08	0.09	0.15	0.15	0.12	0.06	0.15	0.13	0.06	0.13	0.25	0.11
Groundnuts	3.99	4.42	4.45	4.26	5.03	4.92	4.51	4.49	4.47	4.41	4.50	4.37
Total vegetable oils and oilseeds (oil equivalent) [8]	3.00	3.11	3.22	3.18	3.36	3.25	3.01	3.10	3.12	4.01	4.23	3.97
Coffee	0.75	0.96	1.04	1.10	1.21	1.06	1.28	1.16	1.33	1.32	1.35	1.35
Cocoa	0.83	0.85	0.90	1.20	0.86	0.97	0.98	0.84	1.00	1.09	1.16	1.04
Wine	1.73	1.60	1.72	1.48	1.93	1.02	0.88	1.28	1.03	1.06	1.03	1.05
Tobacco	0.15	0.15	0.16	0.16	0.16	0.17	0.16	0.18	0.18	0.17	0.18	0.18
Cotton	0.24	0.30	0.32	0.35	0.35	0.41	0.41	0.45	0.54	0.57	0.54	0.56
Sisal	0.37	0.40	0.42	0.44	0.42	0.42	0.40	0.39	0.39	0.37	0.34	0.31
Rubber (natural)	0.15	0.15	0.16	0.16	0.16	0.17	0.16	0.18	0.18	0.20	0.21	0.20
Wool (greasy)	0.03	0.04	0.04	0.03	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05
Milk (total)	5.45	5.35	5.39	5.53	5.64	6.02	6.14	6.36	6.63	6.80	6.89	6.97
Meat [3]	2.25	2.26	2.26	2.30	2.38	2.49	2.57	2.62	2.70	3.16	3.20	3.26
Eggs	0.25	0.25	0.26	0.28	0.29	0.31	0.33	0.37	0.39	0.39	0.40	0.41
FISHERY PRODUCTS [5]	1.38	1.47	1.50	1.80	1.81	2.03	2.08	2.08	2.33	2.41	2.43	2.80
FOREST PRODUCTS												
Fuelwood [6]	190.6	194.6	199.4	203.2	208.0	209.9	216.4	221.6	227.1	233.6	239.0	244.3
Industrial roundwood [6]	19.4	19.6	21.1	21.9	22.9	23.5	24.2	25.5	28.2	28.7	30.0	31.1
Sawn softwood [6]	0.23	0.25	0.23	0.25	0.27	0.27	0.32	0.32	0.34	0.38	0.41	0.45
Sawn hardwood [6]	1.8	1.7	1.7	1.8	2.0	2.0	2.0	2.2	2.5	2.6	2.7	2.8
Plywood [6]	0.11	0.14	0.17	0.18	0.20	0.16	0.18	0.19	0.23	0.25	0.27	0.30
All wood pulp	0.03	0.04	0.12	0.15	0.15	0.15	0.15	0.16	0.18	0.19	0.20	0.22
All paper and paperboard	0.10	0.08	0.09	0.10	0.10	0.10	0.13	0.14	0.16	0.17	0.19	0.20

[1] Paddy converted at 65 percent. – [2] Including allied fibres. – [3] Beef and veal, mutton and lamb, pork, poultry meat. – [4] Excluding China. – [5] Nominal catch (liveweight). – [6] Million cubic metres. – [7] Olive oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, linseed, hempseed, castor beans. – [8] Olive oil, palm oil, soybeans, groundnuts, cottonseed, sesame seed, sunflowerseed, rapeseed, copra, palm kernels, linseed, hempseed, castor beans. – [9] Excluding China and other Asian centrally planned countries, and Japan. – [10] Dry beans, dry peas, broad beans, chick-peas, lentils. – [11] Palm oil, soybeans, groundnuts, cottonseed, sesame seed, rapeseed, copra, palm kernels, linseed, castor beans. – [12] Soybeans, groundnuts, coconuts, palm kernels, castor beans, sunflowerseed, rapeseed, tung nuts, sesame seed, cottonseed, linseed, palm oil. – [13] Excluding Israel. – [14] Excluding South Africa.

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION

	Total						Per caput					
	1968	1969	1970	1971	1972 (Prelim-inary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Prelim-inary)	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
WESTERN EUROPE												
Food production												
EUROPEAN ECONOMIC COMMUNITY												
Belgium	113	116	121	132	132	—	110	112	117	126	125	—
Denmark	107	99	95	100	98	— 2	102	94	90	94	92	— 2
France	120	113	117	123	126	+ 2	114	107	110	114	116	+ 1
Germany, Fed. Rep. of	118	116	118	124	118	— 4	113	109	110	116	111	— 4
Ireland	116	116	114	124	121	— 2	113	113	110	119	115	— 3
Italy	113	119	120	120	115	— 4	109	113	114	112	107	— 5
Luxembourg	101	104	97	109	105	— 3	97	100	93	104	100	— 4
Netherlands	117	118	129	139	138	— 1	110	109	118	126	124	— 2
United Kingdom	108	109	115	119	119	—	105	105	111	114	114	—
OTHER WESTERN EUROPE												
Austria	112	116	110	113	109	— 3	109	112	107	109	105	— 4
Finland	105	111	111	119	119	—	102	107	108	115	115	—
Greece	120	128	137	140	147	+ 5	116	123	130	133	139	+ 4
Iceland	102	102	101	101	104	+ 3	94	93	92	91	93	+ 2
Malta	122	128	140	142	146	+ 3	125	129	140	142	145	+ 2
Norway	109	105	102	106	106	+ 1	105	100	97	99	99	—
Portugal	106	105	110	102	100	— 2	102	99	103	95	92	— 3
Spain	119	121	125	128	129	+ 1	114	114	116	118	118	—
Sweden	109	94	104	105	104	— 2	104	90	98	99	96	— 2
Switzerland	111	113	108	113	110	— 3	104	105	99	103	100	— 4
Yugoslavia	123	135	117	131	132	—	117	127	109	122	121	— 1
REGIONAL	115	115	117	122	121	— 1	111	109	111	114	113	— 1
Agricultural production												
EUROPEAN ECONOMIC COMMUNITY												
Belgium	112	115	119	130	129	—	108	111	115	124	123	— 1
Denmark	107	99	95	100	98	— 2	102	94	90	94	92	— 2
France	120	113	117	122	125	+ 2	114	107	109	114	115	+ 1
Germany. Fed. Rep. of	118	116	118	123	118	— 4	113	109	110	116	111	— 4
Ireland	115	116	113	124	121	— 2	113	113	109	119	115	— 3
Italy	113	119	120	119	115	— 4	109	113	114	112	107	— 5
Luxembourg	101	104	97	109	105	— 3	97	100	93	104	100	— 4
Netherlands	116	117	128	138	137	— 1	109	108	117	125	123	— 2
United Kingdom	107	108	114	118	119	—	104	105	110	113	113	—
OTHER WESTERN EUROPE												
Austria	112	115	110	113	109	— 3	109	112	107	109	105	— 3
Finland	105	111	111	119	119	—	102	107	108	115	115	—
Greece	116	122	130	134	140	+ 5	111	117	124	127	132	+ 4
Iceland	102	102	98	97	100	+ 3	94	93	89	87	89	+ 2
Malta	122	128	140	142	146	+ 3	125	129	140	142	145	+ 2
Norway	110	105	102	105	106	+ 1	105	100	97	99	99	—
Portugal	106	105	110	102	100	— 2	102	99	103	95	92	— 3
Spain	118	119	123	125	126	+ 1	112	112	114	116	116	—
Sweden	108	94	104	105	103	— 2	104	90	98	99	96	— 2
Switzerland	111	113	108	113	110	— 3	104	105	99	103	100	— 3
Yugoslavia	121	133	116	129	130	+ 1	115	126	108	120	119	—
REGIONAL	115	114	117	121	120	— 1	110	109	110	114	112	— 1

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION (*continued*)

	Total						Per caput					
	1968	1969	1970	1971	1972 (Prelim-inary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Prelim-inary)	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
EASTERN EUROPE AND THE U.S.S.R.												
Food production												
Eastern Europe	120	119	118	124	131	+ 6	114	113	110	115	121	+ 5
U.S.S.R.	128	124	136	136	132	— 3	121	116	126	125	120	— 4
REGIONAL	126	123	130	132	132	—	119	116	121	122	121	— 1
Agricultural production												
Eastern Europe	120	119	118	124	131	+ 6	114	112	110	115	120	+ 5
U.S.S.R.	127	124	135	136	132	— 3	120	116	125	125	120	— 3
REGIONAL	125	122	129	132	132	—	119	115	121	122	121	— 1
NORTH AMERICA												
Food production												
Canada	116	115	106	121	115	— 5	106	104	94	106	99	— 7
United States	115	115	114	124	122	— 2	109	107	105	113	110	— 3
REGIONAL	115	115	113	124	121	— 2	108	107	104	113	109	— 3
Agricultural production												
Canada	116	116	107	121	114	— 6	106	104	95	106	98	— 7
United States	110	110	109	118	117	—	104	103	101	108	106	— 1
REGIONAL	111	110	109	118	117	— 1	104	103	100	108	105	— 2
OCEANIA												
Food production												
Australia	132	122	122	131	126	— 4	120	109	107	112	106	— 6
New Zealand	118	123	118	122	127	+ 3	108	112	107	109	111	+ 2
REGIONAL	128	123	121	129	126	— 2	117	110	106	111	107	— 4
Agricultural production												
Australia	126	122	120	125	120	— 4	115	109	105	108	101	— 6
New Zealand	117	120	118	120	122	+ 1	107	110	106	107	107	—
REGIONAL	124	121	119	124	121	— 3	113	109	105	107	102	— 5

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION (*continued*)

	Total						Per caput					
	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
LATIN AMERICA												
Food production												
CENTRAL AMERICA												
Costa Rica	139	150	156	166	177	+ 6	115	120	120	123	126	+ 2
El Salvador	116	120	128	141	136	— 3	99	99	102	108	101	— 6
Guatemala	117	124	130	135	137	+ 2	101	104	106	108	106	— 1
Honduras	141	138	141	156	158	+ 2	119	113	111	119	117	— 2
Mexico	122	127	130	137	135	— 1	104	104	103	104	100	— 5
Nicaragua	128	136	138	145	147	+ 1	111	114	113	115	113	— 2
Panama	136	149	145	154	151	— 2	116	123	115	119	113	— 6
CARIBBEAN												
Barbados	97	88	97	88	77	— 13	92	83	97	88	77	— 13
Cuba	106	97	142	115	99	— 14	95	86	123	96	81	— 16
Dominican Republic	108	121	132	136	147	+ 8	91	99	104	104	108	+ 4
Haiti	104	107	110	113	115	+ 2	93	93	94	93	93	— 1
Jamaica	109	108	111	118	119	+ 1	97	94	95	99	98	— 1
SOUTH AMERICA												
Argentina	105	118	113	107	108	—	97	108	101	95	94	— 1
Bolivia	123	125	128	133	139	+ 4	109	109	109	111	113	+ 2
Brazil	117	124	128	137	139	+ 1	102	105	105	110	107	— 2
Chile	119	111	118	116	108	— 7	106	97	100	96	88	— 9
Colombia	119	122	130	140	150	+ 7	101	100	103	108	111	+ 3
Ecuador	117	115	126	122	120	— 2	99	94	100	93	89	— 5
Guyana	106	110	106	113	96	— 15	91	92	86	90	74	— 17
Paraguay	114	112	124	128	131	+ 2	97	92	98	98	96	— 1
Peru	108	118	128	132	131	— 1	93	98	104	103	99	— 4
Uruguay	103	109	103	93	90	— 3	97	101	94	84	81	— 4
Venezuela	130	141	144	147	136	— 8	110	116	115	113	101	— 11
REGIONAL	114	120	124	126	126	—	99	102	102	100	97	— 3
Agricultural production												
CENTRAL AMERICA												
Costa Rica	139	150	155	165	176	+ 6	116	120	120	122	125	+ 2
El Salvador	101	108	114	127	129	+ 1	86	89	91	98	96	— 2
Guatemala	121	127	127	138	143	+ 4	105	107	104	111	111	+ 1
Honduras	141	138	138	152	156	+ 3	119	113	109	116	116	— 1
Mexico	119	120	122	129	128	— 1	101	98	96	98	94	— 4
Nicaragua	130	132	124	133	145	+ 9	113	112	102	106	112	+ 6
Panama	136	149	144	154	151	— 2	116	123	115	119	112	— 6
CARIBBEAN												
Barbados	97	88	97	88	77	— 13	92	83	97	88	77	— 13
Cuba	105	96	141	113	100	— 12	95	85	122	95	82	— 14
Dominican Republic	105	118	129	133	143	+ 8	89	97	102	102	106	+ 4
Haiti	103	106	109	112	114	+ 2	91	92	92	92	92	—
Jamaica	109	108	111	118	119	+ 1	97	94	95	99	98	— 1
SOUTH AMERICA												
Argentina	104	116	112	106	106	+ 1	96	106	100	94	93	— 1
Bolivia	122	125	128	136	143	+ 5	109	109	109	113	115	+ 2
Brazil	118	126	128	135	138	+ 2	102	106	105	107	107	— 1
Chile	118	111	118	114	108	— 6	105	96	100	95	87	— 8
Colombia	121	124	131	140	151	+ 8	103	102	104	107	112	+ 4
Ecuador	117	116	126	122	120	— 2	99	95	100	94	89	— 5
Guyana	106	110	106	113	96	— 15	91	92	86	90	74	— 17
Paraguay	114	114	123	123	130	+ 5	96	94	97	94	96	+ 2
Peru	103	110	120	122	121	—	89	92	97	95	92	— 3
Uruguay	103	107	101	93	86	— 8	97	99	93	84	77	— 9
Venezuela	129	140	144	147	135	— 8	110	116	114	113	101	— 11
REGIONAL	113	119	122	123	124	+ 1	98	101	100	98	96	— 2

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION (*continued*)

	Total						Per caput					
	1968	1969	1970	1971	1972 (Prelim-inary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Prelim-inary)	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
FAR EAST												
Food production												
SOUTH ASIA												
Bangladesh	117	122	118	109	105	— 3	99	100	93	83	77	— 7
India	111	116	123	123	118	— 4	99	101	105	103	97	— 6
Nepal	108	114	111	110	94	— 15	97	100	96	93	78	— 16
Pakistan	130	131	145	144	147	+ 2	113	110	118	113	112	— 1
Sri Lanka	114	112	118	115	114	— 1	101	97	100	95	92	— 4
EAST AND SOUTHEAST ASIA												
Burma	106	106	110	110	106	— 4	94	93	94	92	87	— 6
Indonesia	111	112	127	131	129	— 2	97	95	105	105	100	— 5
Khmer Republic	127	107	146	114	87	— 24	111	91	121	91	67	— 26
Korea, Rep. of	114	132	128	129	128	—	100	113	108	105	103	— 2
Laos	137	151	153	145	145	—	121	130	129	119	116	— 3
Malaysia												
Sabah	138	145	144	172	203	+ 18	116	117	112	129	147	+ 14
Sarawak	117	133	132	134	133	— 1	101	110	105	104	98	— 5
West Malaysia	127	138	146	160	172	+ 7	110	116	121	130	136	+ 4
Philippines	114	121	127	128	132	+ 3	97	100	101	99	98	—
Thailand	120	131	133	140	127	— 9	103	108	106	108	95	— 12
Viet-Nam, Rep. of	94	105	114	122	122	— 1	84	91	97	102	100	— 3
Developing countries	113	118	125	125	121	— 3	100	102	105	102	97	— 6
China	113	116	122	126	124	— 1	103	104	108	109	106	— 3
Japan	124	121	119	113	117	+ 4	118	114	111	103	106	+ 3
Agricultural production												
SOUTH ASIA												
Bangladesh	115	122	117	106	106	—	98	100	93	81	78	— 4
India	110	115	121	123	117	— 4	98	101	104	103	96	— 6
Nepal	108	114	111	111	95	— 14	97	100	96	93	78	— 16
Pakistan	132	133	145	147	149	+ 1	114	112	118	116	114	— 2
Sri Lanka	115	114	120	116	114	— 1	102	98	101	95	92	— 3
EAST AND SOUTHEAST ASIA												
Burma	106	106	110	111	107	— 3	95	93	94	92	87	— 5
Indonesia	110	112	126	129	128	— 1	97	95	104	104	99	— 4
Khmer Republic	127	108	138	107	82	— 23	111	92	114	86	64	— 25
Korea, Rep. of	116	134	130	131	133	+ 1	102	115	109	108	106	— 1
Laos	137	151	153	146	145	— 1	122	131	129	120	116	— 3
Malaysia												
Sabah	126	136	140	152	168	+ 10	105	110	109	114	122	+ 6
Sarawak	90	115	95	94	94	— 1	78	96	76	73	69	— 4
West Malaysia	129	144	149	159	164	+ 3	112	122	124	129	129	—
Philippines	114	120	125	127	131	+ 3	96	99	100	98	97	—
Thailand	119	130	134	139	129	— 7	102	108	107	107	97	— 10
Viet-Nam, Rep. of	92	101	110	119	117	— 2	81	88	94	99	96	— 4
Developing countries	113	118	124	125	121	— 3	100	102	104	102	97	— 5
China	114	117	123	126	124	— 2	104	105	108	109	106	— 3
Japan	123	120	118	111	116	+ 4	117	113	109	102	105	+ 2

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION (*continued*)

	Total						Per caput					
	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
NEAR EAST												
Food production												
NEAR EAST IN AFRICA												
Egypt	122	124	127	129	132	+ 2	106	105	105	104	103	— 1
Libyan Arab Republic	154	145	121	110	168	+ 52	130	118	96	84	123	+ 47
Sudan	119	142	148	156	159	+ 2	103	119	120	123	121	— 2
NEAR EAST IN ASIA												
Afghanistan	112	115	107	106	122	+ 15	101	100	92	88	99	+ 12
Cyprus	149	161	157	176	178	+ 1	143	154	148	165	165	— 1
Iran	127	128	138	125	141	+ 13	110	108	113	100	109	+ 9
Iraq	141	134	134	125	184	+ 46	120	110	106	96	135	+ 41
Jordan	59	74	42	68	76	+ 12	51	62	34	53	58	+ 8
Lebanon	137	119	125	141	141	—	120	101	103	112	109	— 3
Saudi Arabia	118	125	125	127	129	+ 1	104	106	104	103	101	— 1
Syrian Arab Republic	96	109	82	88	134	+ 53	82	90	66	68	101	+ 48
Turkey	118	118	125	130	130	—	103	101	104	105	103	— 3
Yemen Arab Republic	104	105	106	107	108	+ 1	91	90	88	86	84	— 2
Yemen, People's Dem. Rep. of	101	121	114	126	128	+ 1	88	103	95	102	100	— 2
Developing countries	119	122	125	126	136	+ 8	104	104	103	101	106	+ 5
Israel	137	136	144	165	175	+ 6	119	115	119	133	138	+ 4
Agricultural production												
NEAR EAST IN AFRICA												
Egypt	118	123	124	126	129	+ 2	103	105	103	102	101	— 1
Libyan Arab Republic	151	143	122	111	165	+ 49	128	117	96	84	121	+ 44
Sudan	121	143	150	157	159	+ 1	105	120	122	124	121	— 2
NEAR EAST IN ASIA												
Afghanistan	112	115	108	106	122	+ 14	101	101	92	89	99	+ 11
Cyprus	147	159	155	174	176	+ 1	141	152	146	163	163	—
Iran	126	128	136	124	142	+ 14	110	108	112	99	110	+ 11
Iraq	141	133	135	126	180	+ 44	120	109	107	96	133	+ 39
Jordan	62	77	45	70	78	+ 11	53	64	36	55	59	+ 7
Lebanon	137	120	126	141	142	—	119	101	103	113	109	— 3
Saudi Arabia	118	125	125	127	129	+ 1	104	106	104	103	101	— 1
Syrian Arab Republic	95	106	86	92	130	+ 42	82	88	69	71	98	+ 37
Turkey	120	119	125	132	132	—	105	102	104	107	104	— 3
Yemen Arab Republic	104	105	106	107	107	—	91	90	88	87	84	— 3
Yemen, People's Dem. Rep. of	94	117	111	124	124	—	82	100	92	100	97	— 3
Developing countries	119	122	124	127	136	+ 7	104	104	103	102	106	+ 4
Israel	140	140	147	167	180	+ 8	121	118	120	134	141	+ 5

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION (*continued*)

	Total						Per caput					
	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972
	..... *1961-65 average = 100*					*Percent*	..... *1961-65 average = 100*					*Percent*
AFRICA												
Food production												
NORTHWEST AFRICA												
Algeria	107	99	106	102	112	+ 10	93	83	86	80	85	+ 6
Morocco	150	124	135	147	146	—	131	105	110	117	113	— 3
Tunisia	100	95	108	138	132	— 4	86	79	88	109	101	— 7
WEST AFRICA												
Dahomey	113	124	127	130	130	—	100	107	107	106	104	— 3
Gambia	163	113	107	122	108	— 12	149	101	94	105	91	— 13
Ghana	104	112	126	135	134	— 1	90	94	102	107	102	— 4
Guinea	119	120	121	123	104	— 15	107	105	104	103	86	— 17
Ivory Coast	117	135	130	145	143	— 2	105	118	111	121	116	— 4
Liberia	97	97	101	102	106	+ 4	89	88	90	89	90	+ 2
Mali	101	114	105	117	105	— 11	91	99	90	97	85	— 13
Mauritania	106	114	114	115	115	—	96	101	98	97	95	— 3
Niger	114	113	116	117	115	— 1	99	95	96	93	89	— 4
Nigeria	95	110	101	105	108	+ 3	84	95	85	86	86	+ 1
Senegal	96	103	80	108	80	— 26	85	89	68	90	65	— 28
Sierra Leone	116	125	124	126	127	+ 1	104	110	107	106	104	— 2
Togo	129	134	134	136	114	— 16	115	116	113	112	91	— 18
Upper Volta	117	115	117	122	120	— 1	106	102	102	104	100	— 3
CENTRAL AFRICA												
Angola	112	118	121	125	121	— 3	102	106	105	107	101	— 5
Cameroon	131	125	125	137	136	—	120	112	110	117	114	— 3
Central African Republic	105	106	108	113	114	+ 1	95	94	94	95	94	— 1
Chad	101	99	97	99	92	— 7	90	86	83	83	75	— 9
Congo	82	88	89	96	97	+ 1	73	78	77	81	80	— 1
Gabon	118	121	124	129	131	+ 2	114	116	118	121	123	+ 1
Zaire	134	133	136	140	140	—	121	117	117	118	115	— 2
EAST AFRICA												
Burundi	116	122	150	150	154	+ 3	104	107	129	125	125	—
Ethiopia	118	120	122	128	131	+ 3	107	107	107	109	109	—
Kenya	120	128	132	130	138	+ 6	104	107	107	102	105	+ 3
Madagascar	116	118	117	116	119	+ 2	102	101	97	94	93	— 1
Malawi	126	140	129	143	152	+ 7	112	121	109	117	122	+ 4
Mauritius	104	116	101	110	121	+ 9	92	101	87	90	96	+ 7
Mozambique	113	114	118	122	130	+ 6	103	102	103	104	108	+ 4
Rhodesia	104	115	107	126	141	+ 12	88	94	85	96	104	+ 8
Rwanda	124	136	146	149	150	+ 1	108	115	120	119	116	— 2
Somalia	115	119	121	121	121	—	103	105	104	102	99	— 2
Tanzania	123	137	168	167	175	+ 5	108	118	141	137	140	+ 2
Uganda	113	129	126	124	129	+ 3	100	111	106	102	102	+ 1
Zambia	118	128	121	123	133	+ 8	102	107	99	98	102	+ 5
SOUTHERN AFRICA												
Botswana	101	110	109	125	128	+ 3	91	97	94	105	106	—
Lesotho	102	106	101	103	79	— 23	94	95	89	89	68	— 24
Developing countries	113	118	119	124	126	+ 1	100	102	101	102	101	— 1
South Africa	119	125	129	148	154	+ 4	106	109	109	122	124	+ 2

ANNEX TABLE 2. – INDICES OF FOOD AND AGRICULTURAL PRODUCTION (*concluded*)

Agricultural production	Total						Per caput					
	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972	1968	1969	1970	1971	1972 (Preliminary)	Change 1971 to 1972
	1961-65 average = 100					Percent	1961-65 average = 100					Percent
NORTHWEST AFRICA												
Algeria	108	100	107	104	114	+ 10	95	85	87	82	86	+ 6
Morocco	149	124	135	146	146	—	130	105	110	116	113	— 3
Tunisia	101	96	108	137	131	— 4	87	80	88	108	100	— 7
WEST AFRICA												
Dahomey	117	128	133	138	140	+ 1	104	110	111	113	111	— 2
Gambia	163	113	107	122	108	— 12	149	101	94	105	91	— 13
Ghana	104	112	126	135	134	— 1	90	94	102	107	102	— 4
Guinea	119	120	120	123	104	— 15	107	105	104	103	86	— 17
Ivory Coast	119	137	132	149	147	— 1	107	120	113	124	119	— 4
Liberia	113	116	131	124	119	— 4	104	105	116	108	102	— 6
Mali	103	116	108	121	109	— 10	92	101	92	101	89	— 12
Mauritania	106	114	114	115	115	—	96	101	98	97	95	— 3
Niger	114	113	117	117	116	— 1	99	96	96	93	89	— 4
Nigeria	95	109	101	103	107	+ 3	84	94	85	85	85	+ 1
Senegal	96	103	81	110	83	— 25	85	90	69	91	67	— 27
Sierra Leone	116	124	124	125	126	+ 1	104	109	106	105	104	— 1
Togo	128	134	134	136	115	— 15	114	116	113	112	92	— 18
Upper Volta	120	118	119	126	125	— 1	109	105	104	107	104	— 3
CENTRAL AFRICA												
Angola	113	119	122	127	121	— 4	103	107	107	108	102	— 6
Cameroon	132	127	126	137	137	—	120	114	110	117	115	— 2
Central African Republic	109	110	112	115	117	+ 1	99	98	97	98	97	— 1
Chad	108	101	99	101	96	— 6	96	88	85	85	78	— 8
Congo	82	89	90	96	97	+ 1	74	78	77	81	80	— 1
Gabon	118	121	124	129	131	+ 2	114	116	118	121	123	+ 1
Zaire	133	132	135	139	140	—	120	116	116	117	115	— 2
EAST AFRICA												
Burundi	116	122	150	150	153	+ 2	105	107	129	125	125	—
Ethiopia	118	120	123	128	132	+ 3	107	107	107	109	110	—
Kenya	118	126	128	127	133	+ 5	102	105	104	99	102	+ 2
Madagascar	116	118	117	116	119	+ 2	102	101	97	94	93	— 1
Malawi	122	134	128	142	151	+ 6	108	116	108	117	121	+ 3
Mauritius	104	116	101	111	121	+ 9	93	101	87	90	96	+ 7
Mozambique	114	115	118	120	129	+ 7	103	102	103	102	108	+ 5
Rhodesia	93	105	99	113	124	+ 9	79	86	79	87	92	+ 6
Rwanda	124	136	145	149	150	+ 1	108	115	119	118	116	— 2
Somalia	115	119	121	121	121	—	103	105	104	102	99	— 3
Tanzania	119	132	158	156	162	+ 4	105	114	133	128	129	+ 1
Uganda	112	128	126	124	127	+ 3	99	110	106	101	101	—
Zambia	116	124	118	121	130	+ 8	100	105	97	96	100	+ 4
SOUTHERN AFRICA												
Botswana	101	110	108	124	127	+ 2	91	97	93	105	105	—
Lesotho	102	106	103	106	86	— 19	93	95	91	92	73	— 20
Developing countries	112	118	119	124	125	+ 1	100	102	100	102	100	— 1
South Africa	118	123	125	141	147	+ 4	105	107	106	116	119	+ 2

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
World[1]												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	46.13	44.87	49.67	59.19	56.37	62.73	52.87	53.27	48.60	57.12	58.48	63.83
Barley	7.20	6.64	5.70	7.99	8.06	6.41	7.21	6.39	7.11	10.37	11.00	13.35
Maize	14.00	19.91	21.10	22.30	25.03	25.80	27.52	28.83	27.39	29.15	30.74	36.78
Oats	1.26	1.44	1.24	1.34	1.73	1.37	1.20	1.03	0.99	1.51	1.62	2.09
Rye	1.85	2.12	1.53	0.67	0.46	0.76	0.80	0.57	0.55	0.62	1.03	0.66
Millet and sorghums	2.43	3.92	3.99	3.88	5.36	9.17	7.75	5.27	4.74	6.61	6.84	6.63
Rice (milled equivalent)[2]	6.62	6.44	7.42	7.86	8.11	7.84	7.47	6.88	7.27	7.96	8.07	7.55
Sugar (raw equivalent)[3]	20.54	18.77	17.68	17.13	19.94	19.28	21.00	21.24	20.29	22.60	22.56	22.30
Potatoes	2.79	3.37	2.94	3.63	3.78	3.56	3.37	3.41	3.59	3.80	3.03	4.00
Pulses (dry)	1.13	1.38	1.51	1.46	2.24	2.05	1.68	1.80	2.15	1.75	1.82	1.99
Apples	1.59	1.71	1.52	1.73	1.99	1.90	1.97	2.09	2.26	2.12	2.27	2.59
Bananas	3.88	3.95	4.22	4.26	4.70	5.12	5.14	5.59	5.60	5.75	6.29	6.72
Citrus fruit[4]	3.24	3.64	3.35	4.21	4.27	4.28	4.48	4.39	4.63	5.05	5.06	5.43
Grapes (fresh)	0.62	0.76	0.74	0.76	0.97	0.79	0.81	0.78	0.94	0.86	0.97	0.88
Dates	0.26	0.30	0.42	0.36	0.35	0.38	0.35	0.33	0.36	0.42	0.36	0.36
Vegetable oils and oilseeds (oil equivalent)[5]	5.99	6.49	6.60	6.99	7.05	7.51	7.60	8.13	8.30	9.02	9.50	10.40
Oilseed cake and meal	5.47	6.58	6.90	7.27	8.19	8.82	8.88	9.18	9.68	11.06	11.65	12.09
Cattle[6]	4.90	4.86	4.96	4.70	5.31	4.98	5.34	5.98	6.34	6.52	6.50	7.23
Sheep, lambs and goats[6]	7.35	7.68	8.06	7.88	8.70	9.22	8.23	9.67	9.79	9.74	10.37	10.71
Pigs[6]	2.61	2.67	2.37	2.96	3.80	3.40	3.19	3.40	3.92	4.41	5.30	6.26
Meat[7]	2.13	2.58	2.96	2.89	3.04	3.11	3.34	3.43	3.77	3.99	4.17	4.67
Milk (condensed, evaporated and powdered)	0.56	0.58	0.60	0.64	0.62	0.63	0.66	0.69	0.68	0.69	0.70	0.61
Eggs (in the shell)	0.54	0.48	0.41	0.36	0.35	0.32	0.33	0.34	0.37	0.41	0.45	0.46
Coffee (green)	2.70	2.85	3.07	2.83	2.74	3.08	3.15	3.36	3.41	3.23	3.27	3.45
Cocoa beans	1.02	1.03	1.04	1.04	1.30	1.12	1.08	1.05	1.00	1.13	1.18	1.22
Tea	0.58	0.60	0.61	0.62	0.65	0.62	0.68	0.72	0.67	0.74	0.74	0.76
Wine	2.80	2.95	2.39	2.67	2.53	2.85	2.36	2.56	3.27	3.69	3.53	4.07
Pepper and pimento	0.13	0.14	0.15	0.13	0.14	0.15	0.19	0.19	0.18	0.17	0.20	0.20
Tobacco (unmanufactured)	0.88	0.87	0.90	1.01	0.98	0.96	1.03	1.00	1.00	0.97	1.00	1.15
Wool (actual weight)	1.45	1.45	1.43	1.40	1.44	1.48	1.37	1.50	1.52	1.50	1.39	1.48
Cotton (lint)	3.75	3.40	3.76	3.92	3.76	4.00	3.84	3.84	3.70	3.90	3.96	3.89
Jute and kenaf	0.71	1.03	1.27	1.05	1.15	1.39	1.26	0.92	0.92	0.99	0.77	0.64
Rubber (natural)[8]	0.85	0.99	0.80	0.89	0.95	0.93	0.87	1.02	1.12	1.05	0.82	0 88
FISHERY PRODUCTS[9]												
Fresh, chilled or frozen fish	1.15	1.34	1.48	1.71	1.72	1.80	1.79	1.82	1.81	2.03	2.04	2.10
Dried, salted or smoked fish	0.55	0.55	0.54	0.50	0.50	0.50	0.50	0.49	0.50	0.52	0.49	0.50
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.25	0.27	0.27	0.30	0.30	0.30	0.32	0.34	0.38	0.44	0.51	0.54
Fish products and preparations, whether or not in airtight containers	0.52	0.54	0.51	0.58	0.52	0.57	0.55	0.61	0.59	0.61	0.60	0.66
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Oils and fats, crude or refined, of aquatic animal origin	0.62	0.67	0.74	0.63	0.72	0.68	0.81	0.83	0.71	0.64	0.71	0.70
Meals, solubles and similar animal feedstuffs of aquatic animal origin	1.36	1.72	1.78	2.44	2.47	2.48	3.02	3.55	3.04	3.00	3.02	2.81
FOREST PRODUCTS[9]												
Pulpwood[10]	13.1	12.4	11.7	13.2	13.8	14.2	14.8	14.1	15.9	18.6	16.1	13.3
Coniferous logs[10]	5.9	6.4	8.7	9.9	11.6	13.8	17.2	21.1	20.4	24.3	21.6	25.7
Broadleaved logs[10]	14.0	14.2	17.4	19.3	20.7	21.9	24.2	29.0	36.2	37.5	40.1	42.9
Sawn softwood[10]	36.3	38.2	41.4	44.6	44.0	42.6	42.8	47.5	47.3	49.5	51.7	57.1
Sawn hardwood[10]	4.3	4.3	4.6	5.4	5.6	5.8	5.7	6.3	6.8	7.1	7.1	8.0
Plywood and veneers[10]	1.9	2.1	2.4	3.0	3.3	3.6	3.8	4.7	4.6	4.7	5.2	6.5
Fibreboard	0.9	0.9	1.0	1.1	1.1	1.1	1.2	1.3	1.4	1.4	1.5	1.6
Mechanical wood pulp	1.3	1.2	1.3	1.4	1.4	1.4	1.2	1.3	1.3	1.3	1.0	1.2
Chemical wood pulp	8.5	9.0	10.1	11.0	11.1	12.1	12.4	13.7	14.9	15.6	13.8	15.0
Newsprint	7.7	7.5	7.8	8.5	9.0	9.7	9.4	9.7	10.6	10.6	10.3	10.8
Other paper and paperboard	5.0	5.2	5.9	6.8	7.4	8.3	8.7	10.1	11.9	12.6	13.2	14.3

See notes at end of table.

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Western Europe												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	3.19	3.69	5.07	5.29	6.99	6.45	6.16	8.42	10.91	9.39	7.13	10.41
Barley	2.51	1.69	2.29	3.16	2.63	3.37	4.08	4.20	4.32	4.39	3.78	5.29
Maize	1.09	0.34	0.94	1.27	1.89	2.11	2.77	2.54	3.23	3.87	5.30	4.60
Rye	0.31	0.18	0.16	0.05	0.05	0.06	0.05	0.09	0.14	0.20	0.39	0.39
Sugar (raw equivalent) [3]	1.47	1.26	1.59	1.45	1.54	1.27	1.15	1.66	1.45	1.97	2.09	2.92
Potatoes	1.75	1.83	1.64	1.70	2.26	1.98	1.86	1.86	2.41	2.22	1.90	2.75
Pulses (dry)	0.19	0.22	0.17	0.15	0.17	0.19	0.24	0.29	0.28	0.26	0.26	0.31
Apples	0.84	0.88	0.53	0.73	0.88	0.76	0.78	0.86	0.95	0.94	1.06	1.29
Citrus fruit [4]	1.45	1.73	1.22	2.00	1.91	1.97	1.94	1.79	1.92	2.29	1.98	2.23
Grapes (fresh)	0.31	0.34	0.29	0.38	0.41	0.41	0.42	0.41	0.41	0.44	0.48	0.42
Vegetable oils and oilseeds (oil equivalent) [11]	0.38	0.40	0.37	0.42	0.32	0.36	0.49	0.53	0.72	0.98	1.05	1.05
Oilseed cake and meal	0.91	0.92	0.89	1.03	1.07	1.13	1.28	1.19	1.34	1.56	1.79	1.96
Cattle [6]	1.80	1.37	1.85	1.88	1.74	1.46	2.00	2.34	2.48	2.59	2.74	3.10
Sheep, lambs and goats [6]	1.53	1.30	1.35	0.87	0.85	0.58	0.72	0.93	0.98	0.63	0.72	0.88
Pigs [6]	0.58	0.49	0.39	0.66	0.82	0.49	0.88	1.17	1.90	2.35	2.29	2.44
Meat (fresh, chilled and frozen) [7]	0.58	0.74	0.81	0.79	0.92	0.91	1.10	1.21	1.26	1.44	1.70	1.68
Bacon, ham and salted pork	0.36	0.37	0.35	0.35	0.36	0.36	0.35	0.35	0.34	0.34	0.34	0.34
Milk (condensed, evaporated and powdered)	0.64	0.69	0.72	0.75	0.90	1.01	1.17	1.38	1.34	1.44	1.51	1.47
Butter	0.26	0.23	0.24	0.23	0.27	0.27	0.31	0.35	0.33	0.49	0.45	0.36
Cheese	0.34	0.36	0.38	0.40	0.42	0.47	0.48	0.52	0.53	0.57	0.62	0.65
Eggs (in the shell)	0.29	0.28	0.23	0.19	0.15	0.14	0.13	0.15	0.19	0.23	0.26	0.26
Wine	1.01	1.01	1.14	1.12	1.19	1.30	1.31	1.32	1.45	1.79	2.36	2.86
Wool (actual weight)	0.11	0.12	0.13	0.10	0.11	0.11	0.10	0.11	0.11	0.10	0.10	0.11
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	684.5	771.7	849.9	877.0	907.7	876.5	861.2	905.8	971.7	1 098.4	1 035.0	1 003.0
Dried, salted or smoked fish	333.3	353.8	334.3	314.7	323.2	317.4	312.9	311.9	337.2	338.4	315.7	331.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	112.5	123.4	114.0	118.9	108.8	113.7	116.4	130.8	133.8	150.8	188.2	211.0
Fish products and preparations, whether or not in airtight containers	183.7	211.7	196.7	209.1	221.4	211.3	193.6	195.5	172.8	183.7	175.7	200.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	8.0	9.0	9.0	13.0	13.0	13.0	12.6	13.3	17.1	19.2	16.6	17.0
Oils and fats, crude or refined, of aquatic animal origin	218.8	243.9	199.8	190.0	266.2	340.1	391.5	260.1	270.0	172.1	149.5	198.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	286.2	240.2	306.9	434.8	555.0	576.8	810.7	787.5	657.9	625.4	726.1	750.0
	Million metric tons											
FOREST PRODUCTS												
Pulpwood [10]	5.93	4.28	3.34	3.62	3.61	3.01	3.82	4.17	5.22	6.71	6.19	4.33
Coniferous logs [10]	1.30	1.14	1.05	1.06	1.03	1.35	1.55	1.37	1.23	1.46	1.35	1.42
Broadleaved logs [10]	0.98	0.93	0.91	0.97	1.02	1.10	1.17	1.20	1.23	1.35	1.47	1.57
Pitprops [10]	1.81	1.37	1.07	0.83	0.56	0.54	0.36	0.39	0.49	0.57	0.49	0.45
Sawn softwood [10]	14.24	13.86	13.86	14.62	13.57	12.72	12.85	15.05	16.24	16.21	16.55	18.09
Sawn hardwood [10]	0.93	0.96	0.98	1.14	1.21	1.26	1.23	1.35	1.44	1.51	1.52	1.86
Plywood and veneers [10]	0.65	0.66	0.73	0.83	0.86	0.88	0.92	1.05	1.16	1.21	1.23	1.35
Fibreboard	0.75	0.78	0.83	0.88	0.82	0.76	0.82	0.86	0.89	0.86	0.87	0.90
Particle board	0.35	0.43	0.48	0.56	0.80	0.89	1.04	1.20	1.45	1.69	2.20	2.53
Mechanical wood pulp	1.06	0.97	1.05	1.15	1.12	1.13	1.00	1.06	1.04	1.04	0.77	0.86
Chemical wood pulp	4.50	4.80	5.36	5.86	5.79	6.24	6.15	6.54	6.76	6.74	5.64	6.35
Newsprint	1.62	1.63	1.71	1.88	1.97	2.07	2.10	2.31	2.43	2.56	2.49	2.71
Other paper and paperboard	3.57	3.77	4.23	4.77	5.06	5.54	5.67	6.49	7.74	8.17	8.45	9.34

See notes at end of table.

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Eastern Europe and U.S.S.R.												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	5.46	5.18	4.98	2.52	2.32	4.51	7.68	6.91	7.97	6.78	9.25	...
Barley	1.18	0.61	0.69	0.76	2.14	0.39	0.53	0.67	0.82	0.72	0.80	...
Maize	1.36	2.33	1.78	1.93	1.38	0.83	1.60	0.74	1.54	1.12	0.88	...
Rye	1.15	1.35	0.89	0.17	0.06	0.32	0.44	0.28	0.30	0.25	0.22	...
Sugar (raw equivalent) [3]	3.19	3.28	2.19	1.71	2.02	2.17	2.42	2.68	2.14	2.10	1.71	...
Potatoes	0.44	0.70	0.50	1.18	0.79	0.77	0.70	0.71	0.30	0.63	0.34	...
Sunflowerseed	0.17	0.22	0.15	0.27	0.22	0.35	0.49	0.47	0.56	0.33	0.24	...
Oilseed cake and meal	0.42	0.39	0.24	0.08	0.16	0.43	0.40	0.34	0.34	0.08	0.06	...
Meat (fresh, chilled and frozen) [7]	0.20	0.27	0.27	0.17	0.24	0.25	0.45	0.43	0.41	0.30	0.34	...
Butter	0.09	0.11	0.10	0.06	0.08	0.10	0.12	0.12	0.10	0.10	0.05	...
Eggs (in the shell)	0.13	0.11	0.08	0.08	0.11	0.09	0.11	0.10	0.08	0.09	0.11	...
Cotton	0.39	0.35	0.32	0.39	0.46	0.52	0.55	0.57	0.45	0.52	0.55	...
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	17.9	33.7	80.9	88.9	178.3	229.5	216.0	236.1	230.6	306.5	338.4	345.0
Dried, salted or smoked fish	31.7	40.5	44.4	35.3	39.9	28.6	36.0	25.4	23.1	21.6	16.7	17.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0,2	0.3	0.6	1.1	1.2	1.3	1.3	0.6	0.9	1.7	1.2	2.0
Fish products and preparations, whether or not in airtight containers	25.3	24.3	19.3	18.9	19.6	22.7	24.2	27.1	28.8	29.4	28.1	29.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	3.7	3.0	5.0	5.6	4.9	5.0	5.0	4.7	3.4	3.8	3.8	4.0
Oils and fats, crude or refined, of aquatic animal origin	18.2	15.2	32.2	40.0	57.1	71.9	58.3	59.6	64.0	34.5	14.6	17.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	4.9	3.7	3.8	4.2	7.2	14.2	38.3	30.6	32.6	13.5	11.3	6.0
	Million metric tons											
FOREST PRODUCTS												
Pulpwood [10]	3.54	4.40	5.13	6.00	6.38	7.32	7.49	6.88	7.57	8.68	7.36	6.82
Coniferous logs [10]	1.99	2.62	2.89	3.43	4.72	5.04	5.01	6.12	6.38	7.57	7.36	8.17
Pitprops [10]	1.24	1.36	1.58	1.53	1.58	1.31	0.96	0.85	0.88	0.97	0.88	0.82
Sawn softwood [10]	7.23	8.47	9.49	10.96	11.17	11.44	10.88	10.93	10.74	11.01	10.76	10.95
Plywood and veneers [10]	0.21	0.25	0.28	0.29	0.38	0.38	0.40	0.45	0.45	0.47	0.43	0.44
Chemical wood pulp	0.33	0.34	0.32	0.37	0.37	0.39	0.47	0.51	0.57	0.55	0.55	0.59
North America												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	30.82	25.97	31.89	38.26	32.38	40.23	29.11	27.84	21.10	30.59	31.15	37.07
Barley	2.40	2.59	1.62	2.48	2.11	2.04	2.02	1.03	0.80	4.15	5.16	5.75
Maize	7.35	10.81	11.12	12.14	15.21	15.60	12.97	14.96	13.96	14.40	12.89	22.41
Millet and sorghums	1.64	2.79	2.94	2.55	4.38	7.40	5.80	3.55	2.70	3.76	2.83	3.83
Rye	0.34	0.57	0.48	0.29	0.18	0.35	0.31	0.18	0.09	0.15	0.41	0.24
Rice (milled equivalent) [2]	0.80	1.05	1.20	1.33	1.36	1.16	1.51	1.37	1.23	1.28	0.84	1.31
Citrus fruit [4]	0.30	0.27	0.26	0.30	0.33	0.37	0.42	0.27	0.39	0.39	0.39	0.41
Pulses (dry)	0.16	0.26	0.34	0.28	0.30	0.32	0.30	0.27	0.35	0.40	0.33	0.31
Vegetable oils and oilseeds (oil equivalent) [12]	1.32	1.69	1.71	2.16	2.23	2.04	2.11	2.19	2.33	3.27	3.44	3.53
Oilseed cake and meal	0.79	1.37	1.69	1.95	2.47	2.60	2.75	3.00	3.28	3.97	4.43	4.01
Milk (condensed, evaporated and powdered)	0.44	0.48	0.61	0.69	0.50	0.29	0.27	0.29	0.31	0.36	0.32	0.23
Tobacco (unmanufactured)	0.24	0.23	0.25	0.26	0.23	0.27	0.28	0.29	0.29	0.25	0.24	0.30
Cotton (lint)	1.45	0.87	0.99	1.19	0.86	0.82	0.90	0.88	0.55	0.68	0.90	0.67

See notes at end of table.

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	141.9	157.3	159.1	197.5	216.4	240.0	224.9	252.1	234.4	219.0	233.9	243.0
Dried, salted or smoked fish	65.3	59.9	70.0	61.4	54.3	53.6	56.2	56.7	54.8	57.1	61.3	59.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	19.0	18.9	22.8	24.5	25.6	23.7	24.2	26.9	34.0	36.2	38.5	36.0
Fish products and preparations, whether or not in airtight containers	24.2	26.4	31.2	42.8	36.0	37.1	42.4	34.6	36.5	31.4	31.7	38.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	4.5	6.6	7.2	7.7	10.4	10.6	11.5	9.7	10.6	10.1	11.8	12.0
Oils and fats, crude or refined, of aquatic animal origin	61.2	61.7	129.8	87.4	58.7	41.1	46.7	37.6	103.8	94.8	118.1	95.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	38.8	46.2	54.3	60.4	57.5	51.7	51.3	66.0	75.5	83.3	99.4	70.0
	Million metric tons											
FOREST PRODUCTS												
Pulpwood [10]	3.17	3.20	2.88	3.14	3.44	3.52	3.07	2.64	2.66	2.84	2.10	1.70
Coniferous logs [10]	2.28	2.24	4.33	4.85	5.25	6.42	9.25	11.84	10.93	13.39	10.85	14.10
Broadleaved logs [10]	0.31	0.40	0.41	0.38	0.45	0.43	0.52	0.51	0.43	0.37	0.34	0.50
Sawn softwood [10]	13.28	14.50	16.68	17.36	17.43	16.51	17.25	19.16	18.27	20.06	22.02	25.71
Sawn hardwood [10]	0.55	0.60	0.59	0.69	0.74	0.91	0.81	0.66	0.75	0.67	0.79	1.01
Plywood and veneers [10]	0.21	0.29	0.31	0.45	0.47	0.52	0.62	0.67	0.72	0.68	0.71	0.87
Mechanical wood pulp	0.22	0.24	0.23	0.26	0.29	0.24	0.22	0.22	0.25	0.28	0.23	0.27
Chemical wood pulp	3.45	3.60	4.09	4.47	4.47	4.87	5.22	6.04	6.92	7.59	6.88	7.32
Newsprint	5.84	5.68	5.74	6.29	6.60	7.19	6.85	6.90	7.60	7.47	7.24	7.49
Other paper and paperboard	0.99	1.05	1.22	1.57	1.76	2.01	2.21	2.63	2.84	3.03	3.34	3.48
Oceania												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	5.02	6.29	4.82	7.81	6.47	5.68	6.97	6.99	5.37	7.36	9.48	8.71
Barley	0.77	0.71	0.23	0.40	0.38	0.23	0.43	0.12	0.45	0.63	1.12	1.82
Oats	0.34	0.35	0.32	0.30	0.37	0.25	0.40	0.18	0.33	0.22	0.56	0.33
Sugar (raw equivalent) [3]	0.81	0.86	1.17	1.14	1.29	1.27	1.67	1.63	2.07	1.39	1.57	2.01
Beef and veal	0.23	0.32	0.40	0.41	0.44	0.39	0.37	0.38	0.40	0.51	0.52	0.58
Mutton and lamb	0.41	0.41	0.43	0.48	0.47	0.47	0.46	0.55	0.58	0.61	0.60	0.67
Butter	0.25	0.24	0.27	0.28	0.27	0.28	0.32	0.27	0.29	0.30	0.28	0.23
Cheese	0.11	0.12	0.12	0.13	0.12	0.12	0.14	0.12	0.13	0.13	0.13	0.13
Wool (actual weight)	0.89	0.89	0.91	0.92	0.90	0.92	0.88	0.94	1.01	1.06	0.98	1.04
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	3.0	3.0	3.0	4.0	8.0	12.0	11.5	12.7	16.2	17.0	18.2	22.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	5.0	6.0	6.0	7.0	8.0	8.0	10.1	13.0	12.9	13.6	16.3	19.0
Fish products and preparations, whether or not in airtight containers	0.1	0.1	0.1	0.1	0.1	—	0.4	0.5	0.6	0.7	1.0	1.8
Crustacean and mollusc products and preparations, whether or not in airtight containers	—	—	—	—	1.0	1.0	1.2	2.0	2.0	1.9	2.6	3.0
Oils and fats, crude or refined, of aquatic animal origin	11.0	8.0	4.0	5.3	9.0	6.0	3.9	6.5	5.6	4.2	6.4	7.0
	Million cubic metres											
FOREST PRODUCTS												
Coniferous logs	0.27	0.29	0.29	0.36	0.45	0.55	0.80	1.44	1.68	1.83	1.81	1.86

See notes at end of table.

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Latin America												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	1.10	2.87	1.97	4.31	7.44	5.26	2.37	2.44	2.79	2.47	1.17	1.83
Maize	1.79	3.00	3.18	3.75	4.79	5.29	6.05	5.08	5.50	6.78	7.76	3.68
Millet and sorghums	0.39	0.67	0.64	0.89	0.34	1.18	1.17	0.88	1.54	2.19	2.69	0.82
Rye	0.04	0.01	—	0.11	0.10	—	—	0.02	0.01	0.03	—	—
Rice (milled equivalent) [2]	0.34	0.31	0.18	0.15	0.44	0.60	0.32	0.47	0.36	0.41	0.43	0.23
Sugar (raw equivalent) [3,13]	10.90	8.89	7.69	7.64	10.17	9.25	11.03	10.39	10.07	12.29	11.75	11.21
Bananas	3.21	3.18	3.43	3.35	3.64	4.07	4.13	4.67	4.64	4.84	5.10	5.38
Vegetable oils and oilseeds (oil equivalent) [14]	0.49	0.58	0.51	0.41	0.61	0.50	0.59	0.44	0.56	0.67	0.59	0.73
Oilseed cake and meal	1.29	1.50	1.42	1.29	1.66	1.71	1.56	1.51	1.73	2.20	2.38	2.55
Cattle	1.09	1.39	1.20	0.88	1.04	1.07	1.06	1.20	1.36	1.44	1.24	1.46
Beef and veal	0.37	0.51	0.67	0.62	0.51	0.54	0.52	0.48	0.70	0.70	0.54	0.83
Coffee (green)	1.83	1.92	2.06	1.82	1.69	1.90	1.93	2.11	2.09	1.94	2.01	2.09
Cocoa beans	0.19	0.15	0.18	0.16	0.19	0.21	0.22	0.20	0.21	0.22	0.23	0.24
Tobacco (unmanufactured)	0.11	0.11	0.13	0.15	0.13	0.11	0.12	0.12	0.14	0.15	0.16	0.18
Wool (actual weight)	0.23	0.21	0.19	0.14	0.20	0.21	0.18	0.22	0.18	0.17	0.16	0.14
Cotton (lint)	0.76	1.01	0.98	0.91	1.03	1.05	0.80	0.89	1.17	0.92	0.68	0.83
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	30.5	33.7	35.9	24.3	30.6	32.0	39.5	40.2	47.4	53.9	51.7	52.0
Dried, salted or smoked fish	—	1.1	—	1.6	1.6	0.4	0.8	0.8	1.0	1.5	1.1	1.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	59.0	62.1	62.2	64.5	68.5	65.3	70.3	68.3	73.7	88.1	87.4	87.0
Fish products and preparations, whether or not in airtight containers	22.8	20.6	17.8	18.2	14.0	14.1	8.2	9.8	8.2	8.7	11.7	12.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	3.9	4.0	4.7	3.5	5.0	3.4	3.2	3.8	4.8	4.6	3.3	4.0
Oils and fats, crude or refined, of aquatic animal origin	140.8	161.3	154.2	137.6	171.3	114.9	210.6	344.9	178.1	217.5	307.7	293.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	775.5	1 143.7	1 139.4	1 590.6	1 500.3	1 506.6	1 727.4	2 269.5	1 869.0	2 008.0	1 955.5	1 626.0
	Million cubic metres											
FOREST PRODUCTS												
Pulpwood	0.24	0.34	0.24	0.41	0.34	0.36	0.33	0.36	0.42	0.38	0.37	0.37
Broadleaved logs	0.39	0.40	0.36	0.41	0.54	0.55	0.40	0.39	0.38	0.36	0.31	0.31
Sawn softwood	1.37	1.06	1.05	1.39	1.49	1.66	1.52	1.94	1.60	1.72	1.81	1.81
	Million metric tons											
Far East [15]												
AGRICULTURAL PRODUCTS												
Maize	0.73	0.69	0.94	1.31	0.93	1.47	1.35	1.67	1.73	1.49	2.06	1.84
Rice (milled equivalent) [2]	4.11	3.87	4.54	4.56	4.32	3.70	2.93	2.30	2.32	2.72	2.91	2.97
Sugar (raw equivalent) [3]	1.55	1.62	1.98	1.75	1.62	1.64	1.22	1.17	1.20	1.62	2.21	1.90
Pulses (dry)	0.16	0.16	0.20	0.16	0.22	0.22	0.19	0.18	0.23	0.21	0.24	0.23
Vegetable oils and oilseeds (oil equivalent) [5,16]	1.54	1.49	1.60	1.60	1.47	1.70	1.44	1.75	1.64	1.73	2.16	2.68
Oilseed cake and meal	1.05	1.33	1.57	1.66	1.48	1.43	1.35	1.46	1.29	1.49	1.49	1.62
Coffee (green)	0.16	0.13	0.17	0.12	0.17	0.16	0.25	0.18	0.26	0.21	0.19	0.19
Tea	0.45	0.47	0.48	0.47	0.48	0.44	0.48	0.48	0 43	0.48	0.46	0.47
Pepper and pimento	0.10	0.11	0.11	0.09	0.08	0.10	0.13	0.14	0.12	0.11	0.14	0.13
Cotton (lint)	0.15	0.17	0.27	0.26	0.22	0.21	0.21	0.20	0.24	0.15	0.23	0.24
Jute and kenaf	0.75	0.99	0.89	1.00	1.11	1.19	1.21	0.87	0.87	0.94	0.71	0.60
Rubber (natural) [4]	0.77	0.90	0.71	0.81	0.86	0.83	0.80	0.94	1.04	0.95	0.72	0.83

See notes at end of table.

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	54.7	74.9	84.2	99.5	93.3	107.9	214.0	140.9	130.4	137.9	140.3	148.0
Dried, salted or smoked fish	52.3	43.9	40.7	37.6	33.9	46.0	44.0	44.8	44.9	58.6	53.3	53.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	33.3	35.1	39.2	53.8	56.9	58.5	64.7	67.3	83.8	106.2	132.7	130.0
Fish products and preparations, whether or not in airtight containers	7.6	3.5	4.3	5.6	9.0	8.1	6.0	7.1	10.5	9.3	10.0	10.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	9.8	10.2	9.2	9.6	10.7	11.3	12.5	12.7	12.0	15.3	15.3	15.0
Oils and fats, crude or refined, of aquatic animal origin	1.1	0.4	0.1	—	0.4	0.3	0.5	0.6	0.9	0.6	0.4	—
Meals, solubles and similar animal feedstuffs of aquatic animal origin	8.1	11.9	12.4	14.8	21.9	29.2	25.8	23.7	25.7	39.0	40.5	44.0
	Million cubic metres											
FOREST PRODUCTS												
Broadleaved logs	7.78	8.30	10.91	11.89	13.34	14.49	16.58	19.76	26.17	28.07	29.90	31.77
Sawn hardwood	0.99	0.94	1.10	1.45	1.48	1.50	1.59	2.03	2.28	2.54	2.48	2.70
Plywood	0.10	0.12	0.20	0.31	0.41	0.57	0.64	1.01	1.20	1.38	1.69	2.40
	Million metric tons											
China and other Asian centrally planned countries												
AGRICULTURAL PRODUCTS												
Maize	0.04	0.01	0.15	0.19	0.24	0.16	0.08	0.06	0.02	—	—	—
Rice (milled equivalent) [2]	0.59	0.65	0.79	0.98	1.07	1.50	1.40	1.02	1.03	1.09	1.08	0.88
Sugar (raw equivalent) [3]	0.80	0.90	0.90	1.18	1.21	1.31	1.02	0.99	0.79	0.69	0.79	0.73
Tea	0.05	0.04	0.04	0.05	0.05	0.06	0.05	0.06	0.06	0.05	0.05	0.06
Near East [17]												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	0.04	0.29	0.23	0.26	0.09	0.10	0.12	0.25	0.07	0.05	0.03	0.33
Barley	0.16	0.76	0.54	0.29	0.47	0.19	0.07	0.15	0.36	0.22	0.02	0.15
Rice (milled equivalent) [2]	0.23	0.14	0.38	0.54	0.37	0.36	0.44	0.58	0.78	0.67	0.55	0.49
Potatoes	0.14	0.24	0.20	0.19	0.18	0.23	0.24	0.21	0.25	0.30	0.27	0.28
Pulses (dry)	0.09	0.18	0.18	0.20	0.31	0.14	0.18	0.12	0.13	0.09	0.12	0.13
Citrus fruit [4]	0.15	0.16	0.18	0.19	0.23	0.23	0.27	0.33	0.41	0.43	0.61	0.53
Dates	0.22	0.26	0.37	0.31	0.30	0.32	0.30	0.28	0.33	0.41	0.32	0.32
Oilseed cake and meal	0.37	0.43	0.50	0.54	0.59	0.62	0.61	0.70	0.70	0.75	0.62	0.79
Sheep, lambs and goats [6]	0.88	1.51	1.55	1.63	1.90	1.61	1.23	1.36	1.20	1.16	0.92	0.89
Cotton (lint)	0.66	0.70	0.84	0.80	0.83	1.00	0.90	0.87	0.86	1.08	1.10	1.02
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	10.7	8.9	9.5	10.9	14.7	13.5	9.8	9.8	9.7	8.2	7.8	8.0
Dried, salted or smoked fish	7.7	4.7	6.2	6.7	8.3	9.9	5.3	2.1	2.6	0.9	0.9	1.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	2.8	5.1	4.0	3.5	3.6	2.8	4.6	2.6	3.4	0.9	1.2	1.5
Fish products and preparations, whether or not in airtight containers	0.6	0.6	0.6	0.3	0.4	0.7	0.2	0.3	0.2	—	—	—
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.9	—	—	—	—	0.9	0.5	0.1	—	0.4	0.4	0.5
Oils and fats, crude or refined, of aquatic animal origin	0.1	0.1	0.1	0.3	0.3	0.1	0.1	—	—	—	—	—

See notes at end of table.

ANNEX TABLE 3. – VOLUME OF EXPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Africa [15]												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent) [19]	0.18	0.19	0.25	0.26	0.21	0.22	0.08	0.10	0.09	0.16	0.07	0.04
Barley	0.04	0.04	0.28	0.35	0.02	0.07	0.01	0.01	0.14	0.13	0.01	—
Maize	0.46	0.62	0.43	0.22	0.29	0.34	0.73	0.84	0.62	0.27	0.35	0.47
Sugar (raw equivalent) [3]	0.90	0.98	1.07	1.08	1.20	1.14	1.13	1.24	1.24	1.25	1.07	1.26
Bananas	0.35	0.43	0.47	0.44	0.43	0.38	0.38	0.37	0.38	0.39	0.40	0.47
Citrus fruit [4]	0.61	0.64	0.67	0.75	0.66	0.68	0.69	0.75	0.79	0.83	0.85	0.93
Pulses (dry)	0.21	0.27	0.31	0.36	0.30	0.28	0.26	0.40	0.37	0.41	0.38	0.45
Groundnuts and oil (oil equivalent)	0.67	0.68	0.71	0.71	0.70	0.82	0.75	0.89	0.66	0.55	0.32	0.46
Palm kernels and oil (oil equivalent)	0.36	0.32	0.32	0.33	0.33	0.34	0.24	0.26	0.26	0.29	0.30	0.26
Palm oil	0.36	0.31	0.31	0.31	0.28	0.27	0.18	0.20	0.18	0.22	0.20	0.17
Oilseed cake and meal	0.57	0.52	0.52	0.84	0.67	0.72	0.82	0.85	0.81	0.81	0.66	0.84
Cattle [6]	0.93	0.98	0.99	1.00	0.99	0.99	0.98	1.00	1.03	1.01	1.05	1.05
Sheep, lambs and goats [6]	2.55	2.78	2.80	2.98	2.90	3.06	2.54	3.62	3.71	3.70	3.99	3.92
Coffee (green)	0.67	0.76	0.78	0.85	0.85	0.92	0.91	0.99	0.98	1.00	1.00	1.08
Cocoa beans	0.80	0.86	0.83	0.84	1.08	0.88	0.83	0.82	0.75	0.86	0.91	0.94
Wine	1.60	1.78	1.04	1.29	1.08	1.21	0.72	0.84	1.37	1.45	0.69	0.66
Tobacco (unmanufactured)	0.11	0.11	0.11	0.14	0.16	0.14	0.11	0.08	0.08	0.07	0.08	0.06
Cotton (lint)	0.27	0.20	0.28	0.28	0.28	0.31	0.33	0.31	0.32	0.40	0.38	0.38
Sisal	0.36	0.41	0.40	0.39	0.36	0.37	0.34	0.34	0.31	0.37	0.31	0.30
Rubber (natural)	0.14	0.15	0.15	0.14	0.15	0.16	0.15	0.17	0.18	0.20	0.18	0.19
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	20.4	36.2	33.5	17.8	17.2	19.2	17.1	19.4	18.6	30.7	41.7	42.0
Dried, salted or smoked fish	50.2	38.3	36.8	33.7	42.3	38.7	35.0	36.6	34.4	40.2	33.8	35.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	2.4	2.9	2.9	3.5	3.8	3.3	5.2	6.6	8.8	10.0	11.5	11.0
Fish products and preparations, whether or not in airtight containers	32.3	59.4	56.3	63.0	37.6	56.7	52.7	61.8	62.3	59.5	70.0	70.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	—	0.8	0.7	0.6	0.5	0.3	0.2	0.1	0.2	0.2	—	—
Oils and fats, crude or refined, of aquatic animal origin	7.0	7.6	8.3	12.7	6.5	11.1	13.1	14.9	16.6	16.7	11.6	12.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	70.7	49.6	49.0	77.1	77.2	92.8	63.5	83.6	121.1	91.5	75.9	130.0
	Million cubic metres											
FOREST PRODUCTS												
Broadleaved logs	4.45	4.13	4.80	5.65	5.24	5.14	5.20	6.02	7.44	6.63	7.07	7.70
Sawn hardwood	0.56	0.57	0.57	0.70	0.72	0.75	0.70	0.75	0.74	0.76	0.70	0.73

[1] Including the U.S.S.R., eastern Europe, and China and other Asian centrally planned countries. – [2] Including paddy converted at 65 percent. – [3] Including refined sugar converted at 108.7 percent. – [4] Oranges, mandarines and lemons. – [5] Excluding reexports of copra from Malaysia, but including unrecorded shipments of copra from Indonesia and the Philippines to Malaysia. – [6] Million head. – [7] Beef and veal, mutton and lamb, pork, poultry meat. – [8] Excluding imports into Malaysia for reexport and exports from Hong Kong, but including unrecorded shipments from Indonesia to Malaysia. – [9] Excluding China. – [10] Million cubic metres. – [11] Linseed, sunflowerseed, olive oil, groundnut oil, coconut oil, palm oil, palm-kernel oil, soybean oil, sunflowerseed oil, castor oil, cottonseed oil, linseed oil. – [12] Groundnuts, soybeans, sunflowerseed, linseed, cottonseed, groundnut oil, coconut oil, soybean oil, linseed oil, castor oil, cottonseed oil. – [13] Excluding trade between the United States and its territories. – [14] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, linseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm-kernel oil, sunflowerseed oil, linseed oil, castor oil, cottonseed oil. – [15] Excluding Japan, and China and other Asian centrally planned countries. – [16] Groundnuts, copra, palm kernels, soybeans, cottonseed, groundnut oil, coconut oil, palm oil, palm-kernel oil, soybean oil, cottonseed oil. – [17] Excluding Israel. – [18] Excluding South Africa. – [19] Including coarse ground flour.

ANNEX TABLE 4. – WORLD AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
Agricultural products	*U.S. dollars per metric ton*											
Wheat	64	66	66	66	61	63	67	64	65	62	65	69
Wheat flour	83	85	85	86	86	89	86	85	85	86	91	93
Barley	47	57	57	57	63	69	67	64	58	53	60	58
Maize	51	51	55	56	58	58	57	52	56	60	64	62
Rice (milled)	111	123	126	125	125	134	158	175	164	140	123	146
Sugar (raw)	110	97	133	142	99	99	95	95	102	113	126	147
Apples	130	142	148	133	142	153	153	147	157	157	168	188
Bananas	82	78	75	83	92	91	92	86	89	85	83	88
Oranges	122	117	133	117	117	127	125	121	129	124	140	148
Raisins	227	275	277	332	340	349	326	322	327	328	309	331
Dates	88	121	105	109	106	104	111	126	105	105	114	118
Cottonseed	301	298	265	255	297	299	295	285	270	303	364	319
Copra	247	143	157	164	189	162	159	189	161	178	168	137
Palm kernels	124	118	134	136	165	147	126	159	136	148	138	115
Soybeans	97	95	101	101	107	114	109	103	98	103	115	126
Groundnuts (shelled)	176	171	168	175	192	185	172	158	189	209	228	233
Olive oil	531	561	798	548	622	636	660	694	637	667	688	785
Cottonseed oi	301	298	265	255	297	299	295	285	270	303	364	319
Coconut oil	233	222	255	278	307	262	262	316	275	306	280	228
Palm oil	214	196	189	202	237	203	193	150	144	226	227	193
Palm-kernel oil	236	215	217	240	296	261	241	321	267	293	302	242
Soybean oil	285	244	239	243	293	313	272	220	225	278	316	295
Groundnut oil	345	300	306	323	339	314	321	272	316	340	390	371
Cattle [1]	116	108	121	139	142	130	133	126	142	149	167	211
Pigs [1]	44	42	38	36	36	38	36	40	45	49	48	55
Beef and veal	558	522	561	679	756	760	754	780	814	910	1 069	1 193
Mutton and lamb	390	382	422	442	529	503	493	464	483	551	556	621
Poultry meat	629	649	660	669	686	705	641	643	678	680	672	753
Bacon, ham, salted pork	659	657	712	761	752	867	827	740	806	864	855	1 006
Canned meat	958	1 000	917	811	816	780	848	1 217	727	687	1 118	1 160
Milk, condensed and evaporated	313	307	311	333	340	338	325	305	310	312	357	415
Milk, powdered	697	781	924	1 048	1 088	892	562	852	959	1 072	845	875
Butter	730	773	827	879	916	848	791	740	752	733	977	1 130
Cheese	707	785	698	745	817	835	849	831	894	939	1 068	1 235
Potatoes	51	66	59	49	62	67	63	54	67	74	66	76
Coffee	674	648	643	830	800	768	712	753	721	937	826	902
Cocoa	475	452	488	499	381	406	542	604	782	767	629	594
Tea	1 138	1 101	1 127	1 106	1 073	1 047	1 034	941	884	934	949	982
Wine	198	184	219	219	236	233	267	271	254	270	294	351
Tobacco (unmanufactured)	1 152	1 151	1 251	1 191	1 199	1 261	1 276	1 265	1 292	1 287	1 276	1 404
Linseed	126	135	125	125	121	114	120	127	122	112	105	120
Linseed oil	254	230	200	208	201	188	174	210	213	213	196	199
Castor beans	126	109	111	116	107	107	117	145	126	116	123	134
Castor oil	285	276	256	249	213	245	321	333	259	265	327	410
Cotton	637	605	607	604	615	588	587	618	601	623	688	727
Jute and kenaf	240	211	159	193	222	206	205	229	224	217	222	238
Sisal	195	198	296	287	182	163	136	121	129	117	115	136
Wool (greasy)	1 109	1 137	1 233	1 456	1 217	1 197	1 169	984	1 051	958	792	871
Rubber (natural)	505	426	461	411	376	384	315	280	330	365	277	...
Fishery products [2]												
Fresh, chilled or frozen fish	301	315	297	289	329	353	325	347	396	424	488	562
Dried, salted or smoked fish	331	345	361	391	427	455	470	456	468	517	625	742
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	684	758	846	796	892	989	1 033	1 127	1 248	1 230	1 296	1 338
Fish products and preparations, whether or not in airtight containers	601	659	649	639	703	682	733	706	725	771	832	912
Crustacean and moliusc products and preparations, whether or not in airtight containers	1 151	1 140	1 211	1 283	1 319	1 469	1 453	1 486	1 579	1 672	1 870	1 889
Oils and fats, crude or refined, of aquatic animal origin	173	133	137	183	194	182	129	93	122	201	211	195
Meals, solubles and similar animal feedstuffs of aquatic animal origin	87	104	108	110	125	145	119	109	129	164	167	175

See notes at end of table.

ANNEX TABLE 4. – WORLD AVERAGE EXPORT UNIT VALUES OF SELECTED AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	U.S. dollars per metric ton											
Forest products [2]												
Fuelwood [3]	8	8	9	9	9	10	8	8	9	9	10	10
Charcoal	38	37	39	45	46	45	46	49	40	51	55	48
Coniferous logs [3]	19	20	16	17	18	18	19	21	22	24	24	21
Broadleaved logs [3]	24	25	24	23	24	25	25	24	23	23	24	27
Pulpwood [3]	12	12	11	11	12	11	11	11	11	12	13	13
Pitprops [3]	14	14	13	14	15	16	16	15	16	17	18	21
Sawn softwood [3]	37	36	36	37	39	39	38	39	43	44	47	50
Sawn hardwood [3]	59	61	63	63	64	63	62	61	64	65	66	71
Veneer sheets [3]	243	244	229	222	226	220	220	211	247	260	231	228
Plywood [3]	144	147	146	140	138	141	141	138	145	146	154	162
Particle board	59	55	55	56	58	59	59	58	63	67	62	65
Fibreboard	76	75	77	90	94	91	88	87	90	97	100	105
Mechanical wood pulp	66	66	65	65	69	69	68	69	70	77	79	72
Chemical wood pulp	123	117	117	126	129	123	123	120	128	149	156	142
Newsprint	129	128	126	127	125	127	130	132	135	141	147	151
Printing and writing paper	238	234	227	234	235	242	246	245	242	254	263	252

[1] U.S. dollars per head. – [2] Excluding China and other Asian centrally planned countries. – [3] U.S. dollars per cubic metre.

ANNEX TABLE 5. – VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Western Europe												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	15.13	13.32	12.07	10.59	12.66	12.42	10.45	10.94	13.57	13.57	13.34	13.58
Barley	4.19	4.72	3.63	4.51	4.84	5.02	4.95	4.10	4.62	6.40	6.68	5.71
Maize	9.43	12.91	13.87	14.48	16.95	18.69	19.38	18.76	16.63	17.48	19.60	20.49
Oats	0.86	1.32	1.07	0.97	1.32	1.28	1.05	1.02	0.96	1.23	1.24	1.04
Rye	0.75	1.02	0.74	0.46	0.36	0.41	0.41	0.27	0.24	0.22	0.27	0.26
Millet and sorghums	1.77	2.88	2.03	2.18	2.74	3.20	2.43	1.49	0.84	1.36	1.93	0.91
Rice (milled equivalent) [1]	0.54	0.58	0.58	0.59	0.61	0.73	0.58	0.71	0.70	0.63	0.69	0.76
Sugar (raw equivalent) [2]	3.99	4.22	5.32	4.97	4.54	4.97	4.84	4.67	4.42	4.50	4.66	4.88
Potatoes	1.48	1.97	1.72	1.56	2.39	2.06	1.95	1.85	2.36	2.32	2.05	2.47
Pulses (dry)	0.45	0.61	0.68	0.66	1.03	1.00	0.81	0.97	1.16	0.94	0.88	1.07
Apples	1.11	1.23	0.96	1.13	1.36	1.28	1.24	1.30	1.34	1.27	1.42	1.65
Bananas	1.66	1.75	1.73	1.74	2.13	2.28	2.28	2.23	2.22	2.12	2.31	2.55
Citrus fruit [3]	2.71	2.98	2.71	3.30	3.21	3.31	3.19	3.14	3.43	3.61	3.43	3.72
Grapes (fresh)	0.37	0.43	0.37	0.44	0.50	0.48	0.49	0.48	0.51	0.51	0.55	0.46
Vegetable oils and oilseeds (oil equivalent) [4]	3.62	3.61	3.90	3.85	3.90	4.20	4.21	4.32	4.52	4.93	5.35	5.68
Oilseed cake and meal	4.60	5.67	5.91	6.17	7.00	7.99	7.48	7.44	8.05	9.11	9.81	10.46
Cattle [5]	1.83	1.49	2.02	2.03	2.03	2.03	2.56	2.99	3.33	3.29	3.49	3.90
Sheep, lambs and goats [5]	0.88	1.35	1.32	1.37	1.93	1.79	1.74	2.16	2.53	2.54	2.82	2.93
Pigs [5]	1.04	0.96	0.74	0.91	1.24	1.25	1.14	1.30	1.83	2.13	2.37	3.00
Meat (fresh, chilled and frozen) [6]	1.27	1.44	1.72	1.81	1.89	1.91	2.06	2.04	2.26	2.27	2.42	2.88
Butter	0.47	0.49	0.51	0.56	0.52	0.52	0.57	0.54	0.53	0.59	0.55	0.51
Cheese	0.36	0.39	0.42	0.43	0.46	0.47	0.48	0.50	0.50	0.54	0.59	0.60
Coffee (green)	0.99	1.04	1.12	1.19	1.18	1.24	1.28	1.39	1.47	1.50	1.52	1.63
Cocoa beans	0.52	0.56	0.56	0.54	0.59	0.60	0.55	0.54	0.55	0.53	0.55	0.60
Tea	0.29	0.29	0.30	0.29	0.30	0.28	0.32	0.34	0.28	0.32	0.31	0.29
Wine	2.33	2.55	1.95	2.10	1.92	2.16	1.62	1.68	1.97	2.30	2.05	2.62
Tobacco (unmanufactured)	0.48	0.52	0.52	0.54	0.53	0.52	0.56	0.54	0.57	0.58	0.63	0.64
Wool (actual weight)	0.86	0.88	0.86	0.81	0.80	0.80	0.73	0.79	0.83	0.78	0.73	0.80
Cotton (lint)	1.59	1.46	1.44	1.54	1.39	1.57	1.45	1.41	1.44	1.35	1.27	1.28
Sisal	0.36	0.39	0.40	0.37	0.38	0.39	0.34	0.37	0.36	0.34	0.33	0.32
Rubber (natural)	0.78	0.76	0.75	0.74	0.76	0.76	0.76	0.81	0.91	0.94	0.94	0.94
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	598.9	648.8	727.2	747.3	820.9	792.5	816.9	869.7	814.3	894.9	958.5	922.0
Dried, salted or smoked fish	207.8	203.2	200.6	188.9	196.9	202.3	211.8	198.0	195.4	211.5	219.7	237.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	104.4	117.3	109.0	136.8	138.1	132.0	143.1	151.3	160.3	176.4	195.8	218.0
Fish products and preparations, whether or not in airtight containers	219.0	261.8	254.3	269.4	272.8	256.6	255.8	269.0	244.9	245.5	254.4	263.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	13.4	17.6	21.8	28.1	31.6	34.0	31.7	34.5	35.7	42.5	43.5	45.0
Oils and fats, crude or refined, of aquatic animal origin	570.7	596.0	640.9	593.6	623.9	568.3	742.4	766.6	662.7	608.6	628.0	606.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	960.2	1 165.6	1 195.5	1 496.2	1 564.7	1 469.5	1 723.0	1 997.1	2 082.9	1 904.2	1 781.0	1 794.0
	Million metric tons											
FOREST PRODUCTS												
Pulpwood [7]	8.55	7.47	6.92	8.78	9.42	8.99	9.14	9.78	11.00	14.53	12.08	9.20
Coniferous logs [7]	2.28	2.25	2.44	2.23	2.25	2.52	2.51	2.53	2.38	2.52	2.25	2.67
Broadleaved logs [7]	5.78	5.51	6.08	6.76	6.21	6.41	6.30	7.00	8.34	7.78	8.09	9.28
Pitprops [7]	1.82	1.44	1.30	1.34	1.16	0.87	0.44	0.40	0.54	0.59	0.40	0.29
Sawn softwood [7]	19.62	20.22	21.68	24.25	23.57	21.85	22.09	23.66	23.88	24.40	24.24	25.55
Sawn hardwood [7]	2.03	1.91	2.20	2.48	2.60	2.67	2.65	3.10	3.36	3.54	3.43	3.88
Plywood and veneers [7]	0.90	0.98	1.10	1.33	1.40	1.38	1.65	1.88	2.01	2.25	2.17	2.49
Fibreboard	0.52	0.59	0.65	0.75	0.69	0.65	0.74	0.77	0.78	0.80	0.78	0.84
Mechanical wood pulp	1.06	0.97	1.04	1.16	1.21	1.14	1.00	1.07	1.08	1.07	0.79	0.84
Chemical wood pulp	4.89	4.97	5.80	6.23	6.04	6.57	6.69	7.46	8.22	8.79	7.13	8.25
Newsprint	1.43	1.49	1.56	1.69	1.70	1.84	1.72	1.90	2.29	2.41	2.35	2.77
Other paper and paperboard	2.98	3.24	3.72	4.30	4.65	5.02	5.24	6.14	7.11	7.43	7.86	8.47

See notes at end of table.

ANNEX TABLE 5. – VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
Eastern Europe and U.S.S.R.												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	5.46	4.18	8.21	15.09	10.80	12.58	6.17	5.85	4.91	6.72	8.30	11.45
Barley	0.69	0.67	0.89	1.17	1.93	0.44	0.78	0.97	0.84	2.16	1.32	4.36
Maize	0.61	1.37	0.96	1.20	1.26	1.10	1.10	1.36	1.37	1.09	2.55	4.93
Rye	0.76	0.87	0.78	0.15	0.06	0.23	0.28	0.22	0.26	0.18	0.40	0.29
Rice (milled equivalent) [1]	0.24	0.55	0.50	0.63	0.50	0.59	0.65	0.51	0.58	0.55	0.61	0.50
Sugar (raw equivalent) [2]	4.22	3.42	1.91	2.18	2.96	2.53	3.23	2.67	2.10	4.34	2.87	3.00
Citrus fruit [3]	0.24	0.27	0.27	0.37	0.45	0.54	0.59	0.62	0.69	0.70	0.74	0.85
Vegetable oils and oilseeds (oil equivalent) [3]	0.39	0.37	0.40	0.48	0.44	0.49	0.49	0.50	0.48	0.46	0.48	0.46
Sheep, lambs and goats [5]	1.76	1.38	1.25	1.15	1.41	1.93	1.67	1.09	0.95	1.00	1.02	1.21
Meat (fresh, chilled and frozen) [6]	0.25	0.41	0.33	0.43	0.39	0.34	0.30	0.25	0.22	0.38	0.54	0.33
Coffee (green)	0.08	0.07	0.09	0.10	0.11	0.12	0.12	0.14	0.17	0.18	0.17	0.18
Cocoa beans	0.07	0.10	0.11	0.13	0.16	0.12	0.16	0.19	0.17	0.18	0.23	0.23
Wine	0.19	0.18	0.22	0.25	0.26	0.31	0.41	0.48	0.90	0.94	0.99	0.99
Tobacco (unmanufactured)	0.12	0.13	0.16	0.20	0.17	0.13	0.13	0.13	0.11	0.12	0.12	0.14
Cotton (lint)	0.66	0.66	0.71	0.68	0.71	0.74	0.68	0.70	0.67	0.86	0.80	0.74
Rubber (natural)	0.52	0.48	0.45	0.35	0.43	0.48	0.44	0.50	0.48	0.52	0.44	0.45
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	130.8	153.4	153.7	146.1	145.6	159.4	138.4	126.0	119.8	132.0	82.8	92.0
Dried, salted or smoked fish	43.9	51.6	56.4	45.8	26.8	19.7	20.9	24.0	17.0	10.0	28.6	25.0
Fish products and preparations, whether or not in airtight containers	28.9	31.1	26.0	27.6	23.8	21.4	26.4	38.0	31.0	27.5	30.3	30.0
Oils and fats, crude or refined, of aquatic animal origin	49.1	61.4	84.9	75.2	65.4	52.7	31.0	21.0	24.0	22.0	21.8	22.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	55.2	86.4	163.0	197.7	292.3	292.5	314.7	366.0	344.0	403.0	437.4	430.0
	Million metric tons											
FOREST PRODUCTS												
Sawn softwood [7]	2.05	2.32	2.32	2.41	2.66	2.55	2.65	2.86	2.79	2.92	3.26	2.95
Sawn hardwood [7]	0.38	0.40	0.36	0.43	0.43	0.44	0.48	0.46	0.44	0.44	0.43	0.42
Pulp and pulp products	0.72	0.77	0.79	0.95	1.15	1.22	1.53	1.72	1.95	2.49	2.32	2.35
North America												
AGRICULTURAL PRODUCTS												
Maize	0.61	0.92	0.61	0.55	0.49	0.54	0.76	0.81	0.69	0.55	0.25	0.45
Sugar (raw equivalent) [2,9]	4.54	4.98	4.83	3.98	4.37	4.62	5.18	5.39	5.29	5.72	5.75	5.67
Bananas	1.70	1.44	1.51	1.60	1.73	1.79	1.82	1.86	1.82	2.05	2.13	2.15
Citrus fruit [3]	0.20	0.20	0.22	0.25	0.23	0.23	0.24	0.26	0.26	0.26	0.26	0.28
Vegetable oils and oilseeds (oil equivalent) [8]	0.60	0.63	0.59	0.65	0.65	0.76	0.71	0.76	0.80	0.76	0.80	1.00
Cattle [5]	1.05	1.25	0.86	0.58	1.13	1.11	0.78	1.05	1.05	1.22	1.08	1.26
Meat (fresh, chilled and frozen) [6]	0.35	0.49	0.58	0.41	0.35	0.44	0.48	0.55	0.65	0.69	0.65	0.78
Coffee (green)	1.41	1.54	1.51	1.44	1.35	1.39	1.36	1.61	1.30	1.26	1.39	1.32
Cocoa beans	0.37	0.31	0.30	0.29	0.38	0.34	0.30	0.25	0.24	0.30	0.34	0.31
Wool (actual weight)	0.16	0.13	0.13	0.11	0.14	0.14	0.09	0.12	0.09	0.07	0.06	0.05
Rubber (natural)	0.43	0.47	0.42	0.50	0.50	0.49	0.51	0.60	0.65	0.61	0.67	0.67

See notes at end of table.

ANNEX TABLE 5. – VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
FISHERY PRODUCTS	*Thousand metric tons*											
Fresh, chilled or frozen fish	282.9	348.4	322.1	340.2	361.1	432.7	394.3	502.7	494.5	527.6	531.8	728.0
Dried, salted or smoked fish	39.8	37.7	36.5	36.0	35.8	38.4	32.8	33.2	30.5	38.3	34.0	32.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	91.6	99.7	110.7	100.6	104.8	113.5	114.2	122.4	128.6	137.6	129.4	148.0
Fish products and preparations, whether or not in airtight containers	69.6	72.5	63.1	68.2	67.7	88.9	82.4	88.4	83.6	102.0	87.3	108.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	13.1	14.3	15.5	22.3	23.2	21.5	24.9	26.2	26.3	27.8	23.9	31.0
Oils and fats, crude or refined, of aquatic animal origin	50.8	59.6	49.8	35.7	43.3	38.5	31.3	32.0	26.5	31.0	28.4	10.0
Meals, solubles, and similar animal feedstuffs of aquatic animal origin	210.2	234.7	350.6	406.9	250.3	410.1	595.3	779.9	325.8	227.8	257.0	357.0
FOREST PRODUCTS	*Million metric tons*											
Pulpwood [7]	3.43	3.39	3.08	1.85	1.83	1.98	1.86	1.65	1.64	1.37	1.06	1.10
Coniferous logs [7]	0.97	1.21	1.23	1.20	1.56	1.24	1.30	1.58	1.50	1.79	1.79	2.39
Broadleaved logs [7]	0.22	0.28	0.24	0.51	0.50	0.53	0.59	0.53	0.47	0.48	0.41	0.46
Sawn softwood [7]	9.86	11.15	12.11	11.73	11.73	11.39	11.69	13.98	14.06	13.86	17.38	21.52
Sawn hardwood [7]	0.83	0.97	0.97	1.00	1.08	1.26	1.20	1.09	1.36	1.01	1.12	1.43
Plywood [7]	0.73	0.96	1.07	1.31	1.42	1.64	1.66	2.29	2.53	2.35	2.98	3.87
Chemical wood pulp	2.01	2.34	2.28	2.42	2.60	2.80	2.64	2.99	3.43	3.05	3.08	3.28
Newsprint	4.96	4.97	4.91	5.40	5.74	6.34	5.99	5.86	6.16	6.02	6.24	6.44
Other paper and paperboard	0.29	0.30	0.28	0.31	0.33	0.42	0.41	0.43	0.48	0.54	0.62	0.70
Oceania												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	0.17	0.19	0.18	0.18	0.17	0.15	0.10	0.05	0.01	0.02	0.09	0.01
Sugar (raw equivalent) [2]	0.14	0.12	0.13	0.13	0.11	0.13	0.13	0.15	0.15	0.14	0.17	0.17
Rubber (natural)	0.04	0.05	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
FISHERY PRODUCTS	*Thousand metric tons*											
Fresh, chilled or frozen fish	15.8	14.4	5.1	19.1	21.0	28.0	27.0	27.0	33.0	34.0	39.1	40.0
Dried, salted or smoked fish	4.0	5.0	5.0	4.9	4.0	5.0	3.0	4.0	5.0	4.0	4.6	5.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	—	0.5	0.5	1.0	1.2	1.0	1.0	1.0	1.0	1.0	1.6	2.0
Fish products and preparations, whether or not in airtight containers	24.7	19.1	18.8	27.4	24.5	25.1	27.0	27.0	28.0	29.0	27.9	28.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.6	0.3	0.3	0.6	0 7	2.0	2.0	2.0	2.0	3.0	2.5	3.0
Oils and fats, crude or refined, of aquatic animal origin	3.5	3.3	2.9	3.9	7.3	8.0	4.0	5.0	7.0	4.0	4.8	5.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	9.4	6.2	5.7	8.5	11.0	11.0	14.0	28.0	30.0	27.0	32.0	35.0
FOREST PRODUCTS	*Million metric tons*											
Sawn softwood [7]	0.71	0.60	0.58	0.73	0.69	0.72	0.70	0.69	0.77	0.72	0.73	0.74
Newsprint	0.30	0.20	0.22	0.26	0.29	0.28	0.28	0.30	0.30	0.28	0.29	0.29
Other paper and paperboard	0.20	0.15	0.17	0.17	0.19	0.17	0.19	0.20	0.22	0.27	0.28	0.31
Latin America												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	4.19	4.90	5.16	5.72	5.12	6.07	6.36	6.72	6.62	5.70	6.29	7.70
Maize	0.22	0.36	0.63	0.66	0.40	0.41	0.37	0.63	0.66	1.48	0.85	1.25
Rice (milled equivalent) [1]	0.35	0.31	0.34	0.50	0.55	0.45	0.37	0.40	0.39	0.39	0.49	0.51
Sugar (raw equivalent) [2]	0.51	0.24	0.27	0.22	0.27	0.31	0.25	0.17	0.41	0.18	0.23	0.25
Bananas	0.27	0.23	0.24	0.24	0.25	0.25	0.23	0.24	0.26	0.29	0.24	0.24
Pulses (dry)	0.17	0.13	0.16	0.19	0.16	0.19	0.21	0.21	0.21	0.18	0.20	0.22
Cattle [5]	0.61	0.67	0.66	0.57	0.53	0.56	0.61	0.53	0.56	0.56	0.52	0.46
Sheep, lambs and goats [5]	0.09	0.12	0.29	0.14	0.07	0.09	0.11	0.13	0.12	0.13	0.18	0.18
Milk (condensed, evaporated and powdered)	0.18	0.20	0.23	0.24	0.24	0.23	0.28	0.30	0.29	0.31	0.37	0.36
Rubber (natural)	0.09	0.07	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.10	0.13	0.11

See notes at end of table.

ANNEX TABLE 5. – VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	2.3	3.1	16.4	16.4	20.0	16.3	22.7	28.3	31.0	23.5	37.3	35.0
Dried, salted or smoked fish	65.5	68.5	78.2	81.1	59.6	81.6	90.2	90.8	102.0	104.0	79.7	80.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.5	0.8	0.9	1.0	1.4	3.5	4.8	6.5	8.0	8.5	8.1	8.0
Fish products and preparations, whether or not in airtight containers	16.3	21.8	20.7	25.9	22.8	28.1	24.6	22.6	21.0	20.0	20.9	21.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.5	0.5	0.5	0.6	1.4	1.5	1.1	0.8	0.7	0.1	0.4	1.0
Oils and fats, crude or refined, of aquatic animal origin	10.3	2.3	7.5	13.5	18.3	32.5	19.7	37.3	41.5	43.0	42.8	43.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	31.0	48.5	53.8	72.7	77.1	91.9	104.7	137.1	134.2	132.0	163.6	162.0
	Million metric tons											
FOREST PRODUCTS												
Broadleaved logs [7]	0.28	0.23	0.22	0.25	0.37	0.35	0.31	0.23	0.21	0.22	0.20	0.22
Sawn softwood [7]	1.32	1.09	0.99	1.23	1.43	1.51	1.36	1.60	1.59	1.53	1.51	1.50
Chemical wood pulp	0.42	0.35	0.37	0.45	0.46	0.52	0.46	0.59	0.60	0.67	0.60	0.65
Newsprint	0.64	0.58	0.54	0.56	0.60	0.66	0.67	0.76	0.85	0.85	0.70	0.70
Other paper and paperboard	0.31	0.28	0.29	0.41	0.43	0.58	0.63	0.70	0.69	0.92	0.87	0.90
Far East [10]												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	6.24	5.99	8.21	9.21	10.75	11.52	11.34	10.76	8.34	8.90	8.19	8.34
Barley	0.16	0.09	0.21	0.20	0.11	0.01	0.01	0.16	0.12	0.04	0.08	0.39
Maize	0.36	0.47	0.54	0.34	0.37	0.30	0.58	0.35	0.56	0.70	0.87	1.15
Millet and sorghums	0.02	0.03	0.02	0.02	0.07	1.59	2.17	0.46	0.46	0.10	0.11	0.13
Rice (milled equivalent) [1]	4.10	3.71	4.37	4.29	3.79	3.92	4.18	4.04	3.88	4.97	4.31	4.80
Sugar (raw equivalent) [8]	0.92	1.01	0.90	0.91	1.07	1.24	1.24	1.55	1.90	1.52	1.69	1.61
Dates	0.07	0.05	0.08	0.08	0.08	0.08	0.09	0.10	0.09	0.11	0.08	0.08
Vegetable oils and oilseeds (oil equivalent) [8]	0.41	0.39	0.42	0.50	0.42	0.40	0.37	0.38	0.49	0.55	0.62	0.63
Milk (condensed, evaporated and powdered)	0.38	0.40	0.43	0.41	0.39	0.41	0.36	0.39	0.42	0.38	0.39	0.37
Cotton (lint)	0.45	0.44	0.40	0.44	0.45	0.46	0.52	0.58	0.50	0.59	0.62	0.56
Jute and kenaf	0.10	0.09	0.06	0.07	0.16	0.10	0.03	0.08	0.03	0.01	0.01	0.01
Rubber (natural) [11]	0.12	0.13	0.12	0.09	0.10	0.10	0.12	0.11	0.13	0.09	0.08	0.08
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	76.0	89.1	97.8	107.7	109.4	115.6	113.9	110.9	102.0	101.8	114.7	116.0
Dried, salted or smoked fish	80.1	57.5	64.4	62.0	55.8	72.0	57.8	62.7	60.9	61.1	61.8	62.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	36.3	34.2	43.3	42.0	39.5	42.5	40.3	36.6	35.9	43.9	50.9	52.0
Fish products and preparations, whether or not in airtight containers	96.6	62.9	67.8	67.1	64.2	73.8	82.4	92.9	106.6	105.5	106.5	108.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	17.9	17.9	20.1	17.2	17.1	12.6	21.8	23.9	22.6	20.8	15.1	15.0
Oils and fats, crude or refined, of aquatic animal origin	1.6	1.9	1.8	1.6	1.6	2.1	5.2	5.9	6.9	7.9	6.6	7.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	44.8	44.3	42.7	49.2	52.8	55.8	70.9	86.2	112.0	117.6	125.9	130.0
	Million metric tons											
FOREST PRODUCTS												
Coniferous logs [7]	0.01	0.11	0.19	0.23	0.14	0.25	0.31	0.48	0.23	0.29	0.44	0.60
Broadleaved logs [7]	0.92	1.31	1.39	2.31	2.77	3.74	4.05	5.59	4.46	5.16	5.73	6.80
Sawn softwood [7]	0.16	0.16	0.16	0.19	0.15	0.13	0.17	0.08	0.08	0.07	0.12	0.15
Sawn hardwood [7]	0.09	0.12	0.12	0.35	0.30	0.37	0.40	0.65	0.47	0.47	0.50	0.53
Chemical wood pulp	0.19	0.24	0.26	0.23	0.21	0.25	0.24	0.31	0.31	0.30	0.33	0.35
Newsprint	0.29	0.24	0.26	0.26	0.27	0.34	0.32	0.42	0.46	0.46	0.61	0.62
Other paper and paperboard	0.39	0.37	0.41	0.49	0.46	0.56	0.62	0.67	0.90	0.96	1.04	1.10

See notes at end of table.

ANNEX TABLE 5. – VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*continued*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Million metric tons											
China and other Asian centrally planned countries												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	3.89	5.14	4.89	5.99	5.85	7.13	4.22	6.14	4.52	6.62	5.71	6.29
Barley	1.12	0.50	0.03	0.58	0.03	—	0.03	0.05	0.09	0.24	0.32	0.35
Maize	0.06	0.52	0.05	0.41	0.23	0.09	0.27	0.38	0.41	0.60	0.55	0.58
Millet and sorghums	0.04	0.01	0.03	—	—	—	—	—	—	—	0.03	0.04
Rice (milled equivalent) [1]	0.13	0.03	0.11	0.13	0.17	0.07	0.06	0.06	0.04	0.04	0.04	0.05
Sugar (raw equivalent) [2]	1.56	0.97	0.56	0.46	0.53	0.68	0.74	0.65	0.73	0.79	0.86	0.88
Dates	0.03	0.06	0.07	0.06	0.04	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Vegetable oils and oilseeds (oil equivalent) [4]	0.07	0.05	0.06	0.08	0.06	0.06	0.10	0.10	0.12	0.15	0.13	0.18
Milk (condensed, evaporated and powdered)	—	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03
Cotton (lint)	0.11	0.13	0.22	0.17	0.25	0.19	0.19	0.17	0.20	0.21	0.24	0.26
Jute and kenaf	0.01	0.02	0.03	0.06	0.06	0.06	0.07	0.06	0.05	0.05	0.05	0.05
Rubber (natural, dry)	0.10	0.10	0.13	0.15	0.16	0.18	0.16	0.24	0.30	0.32	0.35	0.36
	Million metric tons											
Near East [12]												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	3.95	3.56	4.23	3.43	4.43	4.39	4.62	4.57	3.38	4.80	7.32	4.27
Maize	0.18	0.33	0.28	0.53	0.25	0.31	0.34	0.35	0.20	0.26	0.28	0.37
Rice (milled equivalent) [1]	0.31	0.37	0.28	0.36	0.37	0.39	0.32	0.34	0.38	0.45	0.62	0.52
Sugar (raw equivalent) [2]	1.46	1.10	0.88	1.27	1.82	1.54	1.36	1.09	0.99	0.02	1.28	1.17
Dates	0.06	0.06	0.07	0.07	0.06	0.05	0.07	0.05	0.06	0.07	0.11	0.08
Vegetable oils and oilseeds (oil equivalent) [5]	0.16	0.24	0.27	0.22	0.21	0.22	0.25	0.26	0.34	0.35	0.43	0.32
Sheep, lambs and goats [6]	2.16	2.68	2.60	2.86	4.87	3.32	2.14	3.88	3.72	3.65	3.84	4.11
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	5.6	6.5	6.9	8.5	13.7	23.8	21.5	13.6	9.0	9.2	10.0	10.0
Dried, salted or smoked fish	4.0	2.8	2.1	2.9	2.9	8.8	2.8	3.5	2.4	2.2	0.7	1.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	0.2	0.1	0.2	0.1	0.2	0.2	0.4	0.4	0.3	0.4	2.8	3.0
Fish products and preparations, whether or not in airtight containers	10.1	10.9	9.1	9.0	6.9	5.5	7.7	8.6	8.4	10.1	11.6	12.0
Oils and fats, crude or refined, of aquatic animal origin	0.8	0.7	0.6	0.4	0.8	0.9	0.5	0.3	0.9	0.7	1.5	1.8
Meals, solubles and similar animal feedstuffs of aquatic animal origin	—	—	—	—	—	2.5	5.2	4.5	7.8	3.9	5.4	6.0
	Million metric tons											
FOREST PRODUCTS												
Sawn softwood [7]	0.83	0.83	0.84	1.02	1.06	1.24	1.05	0.90	0.93	1.22	1.13	1.15
All paper and paperboard	0.27	0.28	0.28	0.27	0.31	0.37	0.46	0.46	0.52	0.49	0.60	0.64
Africa [13]												
AGRICULTURAL PRODUCTS												
Wheat and wheat flour (wheat equivalent)	2.04	2.04	1.59	1.57	1.74	2.53	3.07	2.78	2.18	2.96	3.49	3.41
Barley	0.37	0.24	0.01	0.02	0.04	0.09	0.12	0.05	0.07	0.03	0.04	0.12
Rice (milled equivalent) [1]	0.47	0.56	0.52	0.60	0.74	0.70	0.63	0.60	0.59	0.72	0.80	0.81
Sugar (raw equivalent) [2]	1.22	1.30	1.10	1.17	1.23	1.32	1.30	1.23	0.97	1.30	1.35	1.37
Potatoes	0.35	0.27	0.23	0.22	0.17	0.17	0.12	0.16	0.14	0.17	0.18	0.18
Cattle [5]	0.79	0.84	0.91	0.89	0.89	0.87	0.85	0.81	0.91	0.91	0.93	0.97
Sheep, lambs and goats [6]	2.38	2.29	2.52	2.34	2.29	2.36	2.34	2.36	2.38	2.35	2.43	2.40
Wine	0.24	0.22	0.23	0.25	0.25	0.27	0.25	0.26	0.24	0.22	0.20	0.21

See notes at end of table.

ANNEX TABLE 5. – VOLUME OF IMPORTS OF MAJOR AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	Thousand metric tons											
FISHERY PRODUCTS												
Fresh, chilled or frozen fish	55.0	55.7	72.8	62.8	65.9	81.6	58.1	56.8	67.2	81.6	100.0	105.0
Dried, salted or smoked fish	99.7	97.0	101.0	91.8	85.8	97.3	85.9	71.6	69.1	71.4	68.7	70.0
Crustacea and molluscs, fresh, frozen, dried, salted, etc.	3.9	1.9	1.2	2.1	0.7	0.8	0.7	0.6	1.5	2.0	0.9	1.0
Fish products and preparations, whether or not in airtight containers	39.5	31.3	31.1	29.6	33.8	32.8	26.7	29.9	30.8	37.2	31.5	32.0
Crustacean and mollusc products and preparations, whether or not in airtight containers	0.1	0.1	—	0.1	0.1	—	0.8	0.8	0.7	0.6	1.0	1.0
Oils and fats, crude or refined, of aquatic animal origin	1.0	1.9	1.7	2.3	1.7	0.8	0.8	1.7	3.6	4.0	4.5	5.0
Meals, solubles and similar animal feedstuffs of aquatic animal origin	7.9	7.6	8.7	6.2	9.4	10.1	11.5	11.0	15.0	15.0	16.1	16.0
	Million metric tons											
FOREST PRODUCTS												
Sawn softwood [7]	0.50	0.44	0.44	0.55	0.48	0.54	0.57	0.63	0.71	0.91	0.94	0.95
Sawn hardwood [7]	0.12	0.12	0.13	0.12	0.17	0.19	0.17	0.18	0.17	0.18	0.18	0.18
Newsprint	0.05	0.05	0.05	0.03	0.04	0.05	0.04	0.03	0.03	0.04	0.05	0.05
Other paper and paperboard	0.15	0.15	0.18	0.19	0.23	0.24	0.26	0.28	0.31	0.37	0.38	0.40

[1] Including paddy converted at 65 percent. – [2] Including refined sugar converted at 108.7 percent. – [3] Oranges, mandarines and lemons. – [4] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm-kernel oil, soybean oil, sunflowerseed oil, castor oil, cottonseed oil. – [5] Million head. – [6] Beef and veal, mutton and lamb, pork, poultry meat. – [7] Million cubic metres. – [8] Groundnuts, copra, palm kernels, soybeans, sunflowerseed, castor beans, linseed, cottonseed, olive oil, groundnut oil, coconut oil, palm oil, palm-kernel oil, soybean oil, sunflowerseed oil, castor oil, linseed oil, cottonseed oil. – [9] Excluding trade between the United States and its territories. – [10] Excluding Japan, and China and other Asian centrally planned countries. – [11] Excluding imports into Malaysia for reexport. – [12] Excluding Israel. – [13] Excluding South Africa.

ANNEX TABLE 6. – INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Western Europe												
Agricultural products	85	88	100	109	118	122	131	135	156	179	207	258
Food	84	87	99	109	120	123	133	139	163	186	216	266
Feed	86	90	96	109	119	136	141	136	153	189	227	268
Raw materials	87	91	111	107	104	106	104	94	93	100	96	116
Fishery products	83	92	94	105	127	133	131	127	143	171	198	230
Forest products	91	89	96	110	114	118	120	129	149	169	177	195
Eastern Europe and U.S.S.R.												
Agricultural products	97	102	105	94	101	113	138	132	137	127	140	131
Food	98	106	109	90	97	110	142	132	144	129	144	126
Feed	150	149	110	31	59	130	129	108	117	28	32	27
Raw materials	96	89	95	107	113	116	121	127	103	111	115	132
Forest products	79	89	94	112	125	132	131	139	149	168	173	181
North America												
Agricultural products	89	87	98	115	110	123	110	106	97	123	135	160
Food	83	87	99	117	114	129	110	104	96	126	135	165
Feed	41	77	104	118	160	185	186	203	228	275	312	337
Raw materials	118	87	93	109	93	96	98	99	87	94	113	120
Fishery products	80	84	98	116	122	130	137	140	164	178	205	241
Forest products	88	90	97	110	116	125	131	151	169	186	189	221
Oceania												
Agricultural products	83	92	95	120	110	106	110	100	106	118	118	137
Food	80	91	93	117	119	110	122	114	114	138	157	186
Feed	60	100	116	136	88	46	102	103	142	197	149	178
Raw materials	87	93	97	122	101	101	96	83	95	93	72	81
Fishery products	72	96	92	101	138	176	189	257	311	314	409	500
Forest products	82	81	105	116	117	119	147	181	210	244	270	294
Latin America												
Agricultural products	93	91	99	107	111	112	108	112	120	136	133	152
Food	93	88	98	109	113	115	113	117	123	145	142	163
Feed	79	97	108	98	118	123	119	117	128	164	192	225
Raw materials	95	102	103	97	103	98	82	90	105	92	81	95
Fishery products	66	96	98	115	125	145	142	161	169	228	241	228
Forest products	95	85	82	109	130	146	140	173	208	211	222	241
Far East[1]												
Agricultural products	100	94	103	103	101	99	93	92	98	100	101	103
Food	99	89	105	105	102	98	96	95	88	98	107	109
Feed	64	94	114	117	110	106	91	94	80	109	108	125
Raw materials	103	101	99	98	99	100	88	89	113	103	92	93
Fishery products	71	87	101	118	123	146	166	184	231	290	348	369
Forest products	73	82	105	113	126	149	169	206	254	287	325	398

See notes at end of table.

ANNEX TABLE 6. – INDICES OF VALUE OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Near East[2]												
Agricultural products	87	94	103	104	111	115	112	116	125	134	147	156
Food	74	103	103	106	114	107	112	122	147	128	136	155
Feed	68	84	102	116	129	137	137	133	137	160	138	182
Raw materials	95	90	104	102	109	118	111	112	113	135	152	155
Fishery products	93	91	92	103	122	129	139	112	101	44	53	58
Forest products	86	87	92	94	141	169	171	205	226	270	309	330
Africa[3]												
Agricultural products	92	92	99	110	107	108	103	111	115	130	117	129
Food	89	91	99	111	109	113	111	123	124	140	131	145
Feed	80	87	92	113	129	123	148	151	141	151	134	157
Raw materials	96	86	106	107	104	97	88	78	83	94	92	95
Fishery products	101	102	96	106	95	117	111	120	144	157	170	187
Forest products	83	81	101	120	115	114	115	132	159	147	150	174
World												
Agricultural products	90	91	100	109	110	115	114	114	120	134	142	163
Food	88	90	100	110	112	118	119	119	124	143	154	177
Feed	70	91	104	108	126	138	139	142	151	180	199	226
Raw materials	99	94	100	106	101	103	96	95	100	101	98	107
Fishery products[4]	80	95	96	109	121	131	131	137	151	179	202	228
Forest products	87	89	97	110	117	124	128	143	164	182	189	214

[1] Excluding Japan, and China and other Asian centrally planned countries. – [2] Excluding Israel. – [3] Excluding South Africa. – [4] Excluding Eastern Europe and U.S.S.R., China and other Asian centrally planned countries.

ANNEX TABLE 7. – INDICES OF VOLUME OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Western Europe												
Agricultural products	93	93	99	103	111	114	125	136	145	161	172	186
Food	93	93	98	104	113	114	127	141	151	168	177	189
Feed	97	91	93	107	111	120	129	129	144	170	194	213
Raw materials	96	96	105	100	104	106	109	105	102	103	102	116
Fishery products	91	97	97	103	112	113	119	116	116	119	117	122
Forest products	91	92	99	108	109	114	116	129	143	149	147	153
Eastern Europe and U.S.S.R.												
Agricultural products	102	106	99	89	103	116	141	139	140	123	131	119
Food	103	112	101	84	99	112	145	141	147	123	132	110
Feed	168	150	102	30	52	122	116	99	97	24	23	19
Raw materials	99	89	92	105	114	122	127	129	107	115	117	132
Forest products	78	89	98	113	121	130	132	139	148	159	154	158
North America												
Agricultural products	91	88	99	115	108	118	105	104	94	117	122	139
Food	85	88	100	116	112	123	104	102	93	122	123	146
Feed	46	81	101	117	155	166	164	186	208	246	270	257
Raw materials	117	87	95	111	91	95	100	101	83	87	99	99
Fishery products	83	88	103	114	113	116	116	121	130	126	136	135
Forest products	87	90	99	110	115	123	128	141	151	161	161	182
Oceania												
Agricultural products	90	98	98	108	106	103	108	111	114	124	127	133
Food	84	96	96	112	112	104	116	115	115	128	141	147
Feed	58	98	124	138	80	35	88	91	123	186	117	153
Raw materials	97	100	100	104	99	102	99	106	114	120	111	118
Fishery products	81	89	84	101	145	160	179	233	242	249	301	355
Forest products	78	81	104	121	116	122	157	202	232	255	250	259
Latin America												
Agricultural products	95	100	100	96	109	111	110	112	118	121	116	119
Food	96	99	100	97	109	111	114	116	119	125	122	123
Feed	89	103	101	96	110	115	110	107	121	147	157	162
Raw materials	93	105	101	93	108	106	92	97	116	100	84	90
Fishery products	85	106	105	125	79	119	139	174	146	164	168	151
Forest products	100	86	83	108	124	138	135	163	169	180	184	188
Far East[1]												
Agricultural products	93	97	104	104	101	102	99	101	104	106	112	115
Food	97	96	105	103	100	100	93	93	91	97	107	111
Feed	75	95	111	116	103	99	93	103	93	111	113	121
Raw materials	90	100	103	104	103	106	106	113	123	117	119	122
Fishery products	87	90	95	112	116	129	172	147	158	187	206	207
Forest products	74	77	100	118	131	145	164	208	256	278	302	327

See notes at end of table.

ANNEX TABLE 7. – INDICES OF VOLUME OF EXPORTS OF AGRICULTURAL, FISHERY AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Near East[2]												
Agricultural products	87	99	103	103	108	116	110	111	116	128	131	132
Food	79	104	102	104	110	94	95	104	125	109	113	119
Feed	73	90	101	114	121	123	126	139	142	157	130	163
Raw materials	92	96	104	102	106	127	117	113	110	136	139	137
Fishery products	105	101	95	90	109	121	99	67	72	41	43	48
Forest products	78	92	116	97	122	154	149	170	216	262	319	335
Africa[3]												
Agricultural products	94	98	98	104	106	107	99	105	104	109	100	107
Food	91	98	99	103	108	108	102	111	106	108	103	115
Feed	93	91	92	112	112	116	132	134	130	132	108	134
Raw materials	95	88	99	107	111	109	103	94	95	109	102	96
Fishery products	100	106	101	106	88	105	98	115	129	131	140	152
Forest products	87	85	98	116	113	113	112	128	145	138	143	154
World												
Agricultural products	93	96	100	104	108	112	111	114	116	124	127	134
Food	91	96	100	104	109	113	114	117	117	128	132	140
Feed	79	94	101	107	119	125	127	135	145	166	175	183
Raw materials	98	96	100	103	103	106	103	106	107	108	107	111
Fishery products[4]	95	101	98	100	107	113	108	106	117	128	144	160
Forest products	87	90	99	110	115	122	126	141	155	163	164	176

[1] Excluding Japan, and China and other Asian centrally planned countries. – [2] Excluding Israel. – [3] Excluding South Africa. – [4] Excluding eastern Europe and U.S.S.R., China and other Asian centrally planned countries.

ANNEX TABLE 8. – INDICES OF VALUE OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Western Europe												
Agricultural products	88	93	100	107	111	116	113	109	120	131	144	169
Food	85	91	100	108	116	121	120	116	128	143	161	188
Feed	70	96	103	108	123	143	134	130	138	164	186	208
Raw materials	100	98	101	105	95	98	90	88	96	91	87	101
Forest products	87	86	96	113	118	120	119	131	151	173	174	193
Eastern Europe and U.S.S.R.												
Agricultural products	88	86	94	116	116	114	102	103	105	129	132	146
Food	79	81	92	127	121	117	105	101	100	127	133	158
Feed	40	58	92	145	166	176	172	192	187	223	254	274
Raw materials	106	96	98	97	104	104	90	95	96	114	107	104
Forest products	91	95	92	104	119	121	141	155	170	199	213	214
North America												
Agricultural products	93	98	102	105	102	110	109	122	121	139	139	154
Food	92	98	103	105	102	112	113	128	127	150	153	167
Feed	81	104	112	100	103	108	103	105	123	145	130	158
Raw materials	99	101	99	103	99	98	88	88	90	77	68	77
Forest products	90	96	97	106	112	122	118	137	151	139	163	202
Oceania												
Agricultural products	95	83	99	114	109	105	99	92	101	112	112	115
Food	87	86	99	120	108	114	106	100	105	120	127	128
Feed	25	10	66	160	239	532	492	688	453	631	656	521
Raw materials	107	80	99	105	108	90	86	74	90	94	84	90
Forest products	105	83	96	101	115	107	111	118	129	148	155	164
Latin America												
Agricultural products	85	93	101	114	107	115	117	121	123	129	144	159
Food	84	93	102	114	106	113	119	122	124	131	144	163
Feed	72	101	90	137	100	107	111	116	156	146	306	272
Raw materials	89	91	97	110	113	122	102	108	109	112	131	121
Forest products	103	91	87	105	113	127	124	146	161	183	180	190
Far East[1]												
Agricultural products	88	88	101	110	113	122	132	130	125	131	135	146
Food	85	86	102	113	114	127	136	131	124	130	131	143
Feed	92	106	107	91	105	83	87	98	128	151	173	181
Raw materials	102	98	94	97	109	102	116	128	129	135	149	157
Forest products	93	95	96	110	106	134	142	172	209	231	238	287
Near East[2]												
Agricultural products	87	88	99	112	115	119	115	113	108	128	173	148
Food	87	87	99	112	115	120	115	114	107	128	177	148
Feed	66	105	90	101	139	191	178	159	189	277	425	444
Raw materials	86	99	97	105	113	107	109	105	119	124	122	128
Forest products	100	101	84	99	117	133	132	127	143	165	189	208

See notes at end of table.

ANNEX TABLE 8. – INDICES OF VALUE OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Africa[2]												
Agricultural products	97	97	92	104	110	110	116	108	107	129	143	149
Food	97	98	92	103	109	110	116	105	106	128	144	148
Feed	51	67	88	119	175	166	183	177	219	273	336	710
Raw materials	87	77	81	126	129	128	139	149	142	171	181	178
Forest products	91	89	96	104	119	127	135	143	165	205	216	230
World												
Agricultural products	89	92	100	109	111	116	114	114	120	134	144	163
Food	85	90	100	111	114	120	120	120	125	143	157	177
Feed	70	91	102	111	126	142	133	133	141	170	191	211
Raw materials	100	96	100	103	101	102	95	95	102	102	100	111
Forest products	88	89	96	110	117	125	128	145	164	181	187	214

[1] Excluding Japan, and China and other Asian centrally planned countries. – [2] Excluding Israel. – [3] Excluding South Africa.

ANNEX TABLE 9. – INDICES OF VOLUME OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Western Europe												
Agricultural products	93	99	100	102	106	111	110	111	116	121	124	132
Food	91	97	100	102	109	113	115	116	121	126	132	140
Feed	79	99	101	106	116	131	125	126	137	153	164	175
Raw materials	100	101	100	101	98	101	97	99	103	101	97	102
Forest products	88	89	99	111	112	115	117	131	144	152	147	153
Eastern Europe and U.S.S.R.												
Agricultural products	89	89	94	113	114	112	100	103	104	126	129	143
Food	85	86	90	121	119	113	97	95	92	116	123	148
Feed	45	62	94	136	163	179	161	184	181	209	235	256
Raw materials	99	96	101	99	104	104	96	104	100	117	111	110
Forest products	90	94	91	105	120	129	150	167	181	213	208	196
North America												
Agricultural products	97	104	102	97	99	106	107	117	111	115	117	124
Food	97	105	104	96	98	106	108	119	112	118	120	125
Feed	88	105	108	103	96	92	87	87	108	114	102	111
Raw materials	102	98	95	100	104	102	100	109	101	92	89	101
Forest products	89	96	98	105	111	121	117	128	138	131	146	174
Oceania												
Agricultural products	100	90	99	104	107	108	103	101	107	111	114	118
Food	95	95	100	106	104	115	108	105	107	114	119	119
Feed	29	—	71	157	243	500	400	600	400	529	543	429
Raw materials	107	83	99	100	110	96	93	90	103	102	101	112
Forest products	113	82	93	100	112	106	109	115	121	131	135	138
Latin America												
Agricultural products	90	95	101	110	104	112	113	122	123	127	136	151
Food	89	96	102	110	102	111	114	121	123	127	133	153
Feed	85	100	83	129	101	100	105	109	149	151	284	244
Raw materials	91	91	97	110	111	115	111	125	117	118	140	130
Forest products	104	90	86	107	113	129	130	150	156	181	166	169
Far East[1]												
Agricultural products	91	91	101	107	110	120	124	125	122	126	125	128
Food	89	88	103	109	112	124	125	122	117	123	121	126
Feed	97	104	106	93	101	74	80	96	130	145	166	177
Raw materials	101	102	94	96	106	104	124	145	139	137	142	137
Forest products	86	89	96	117	112	141	148	181	205	220	215	247
Near East[2]												
Agricultural products	92	95	97	101	115	119	117	119	114	134	162	138
Food	93	94	97	101	115	119	115	117	112	132	164	136
Feed	71	117	91	103	123	157	146	149	183	260	357	371
Raw materials	83	98	97	104	118	118	129	137	136	145	144	155
Forest products	91	97	92	103	118	130	135	131	150	155	172	177

See notes at end of table.

ANNEX TABLE 9. – INDICES OF VOLUME OF IMPORTS OF AGRICULTURAL AND FOREST PRODUCTS (*concluded*)

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972 (Preliminary)
	1961-65 average = 100											
Africa[3]												
Agricultural products	102	102	93	98	105	112	116	113	109	125	133	134
Food	103	103	94	96	104	112	116	112	109	126	136	135
Feed	62	71	87	112	158	154	167	162	192	237	283	642
Raw materials	86	75	82	134	123	125	138	159	144	151	166	161
Forest products	94	87	94	105	119	126	131	140	152	183	189	193
World												
Agricultural products	93	97	99	104	107	113	111	115	116	124	128	136
Food	91	96	99	105	109	115	114	117	118	127	133	141
Feed	79	95	101	108	118	130	122	127	139	157	168	179
Raw materials	99	97	100	101	103	104	102	108	109	111	109	115
Forest products	87	91	98	110	114	122	126	142	155	164	162	176

[1] Excluding Japan, and China and other Asian centrally planned countries. – [2] Excluding Israel. – [3] Excluding South Africa.

ANNEX TABLE 10. – STOCKS OF SELECTED AGRICULTURAL PRODUCTS

	Date	1961-65 average	1966	1967	1968	1969	1970	1971	1972	1973 (Estimated)
		Million metric tons								
Wheat										
EXPORTING COUNTRIES										
United States	1 July	30.7	14.6	11.6	14.7	22.2	24.1	19.9	23.5	11.6
Canada	1 Aug.	13.3	11.4	15.7	18.1	23.2	27.5	20.0	16.0	10.0
Argentina	1 Dec.	1.5	0.2	0.2	1.0	0.3	0.8	0.7	0.5	0.5
Australia	1 Dec.	0.6	0.4	2.2	1.4	7.3	7.2	3.5	1.4	0.3
European Economic Community: original members	1 Aug.	6.5	[1]6.8	[1]5.4	5.4	7.5	4.1	4.6	6.1	4.9
TOTAL OF ABOVE		52.6	33.4	35.1	40.6	60.5	63.7	48.7	47.5	27.3
IMPORTING COUNTRIES										
India [2]	31 Dec.	...	1.2	0.8	2.1	2.3	3.1	5.0	3.5	...
Coarse grains [3]										
United States [4]	1 July	62.7	38.7	34.2	44.4	46.0	44.6	30.9	45.1	31.2
Canada	1 Aug.	4.3	4.5	4.9	4.4	6.7	6.9	5.4	6.7	5.8
Argentina [5]	1 Dec.	0.4	0.1	0.6	1.8	1.7	1.8	2.3	2.5	2.5
Australia	1 Dec.	0.2	0.6	0.9	0.8	1.2	1.2	1.2	1.2	1.0
European Economic Community: original members	1 Aug.	[6]5.1	[6]4.8	[6, 7]5.1	4.7	5.1	4.5	4.5	5.3	4.0
TOTAL OF ABOVE		72.7	48.5	45.7	56.1	60.9	59.0	44.3	60.8	44.5
Rice (milled equivalent)										
EXPORTING COUNTRIES										
Pakistan [2]	31 Dec.	...	0.06	[8]0.02	0.19	0.24	0.28	[9]0.35	...	...
Thailand [10]	31 Dec.	...	0.04	—	[8]0.06	[11]0.30	[12]1.10	0.89	...	...
United States [13]	1 Aug.	0.24	0.26	0.27	0.21	0.52	0.52	0.59	0.36	...
Japan [14]	31 Oct.	—	—	—	—	9.36	9.50	7.03	5.20	...
TOTAL OF ABOVE		...	0.36	0.29	0.46	10.42	11.40	10.03	...	...
IMPORTING COUNTRIES										
India [2]	31 Dec.	...	0.40	...	1.03	1.64	1.74	2.28	1.30	...
Japan [14]	31 Oct.	3.19	3.38	5.85	7.03	—	—	—	—	—
TOTAL OF ABOVE		...	3.78	...	8.06	1.64	1.74	2.28	1.30	...
Butter										
Canada and United States		0.13	0.04	0.11	0.08	0.08	0.09	0.07	0.06	...
European Economic Community: original members [15]		0.09	0.15	0.20	0.33	0.34	0.16	0.13	0.34	...
new members		0.04	0.05	0.06	0.08	0.05	0.03	0.04	0.09	...
Other western Europe [16]		0.01	0.02	0.02	0.02	0.03	0.02	0.02	0.01	...
Australia and New Zealand		0.07	0.07	0.06	0.07	0.09	0.07	0.05	0.05	...
TOTAL OF ABOVE	31 Dec.	0.34	0.33	0.45	0.58	0.59	0.37	0.30	0.55	...
Dried skim milk										
United States		0.18	0.05	0.12	0.13	0.10	0.06	0.04	0.02	...
European Economic Community: original members [17]		...	...	0.20	0.31	0.39	0.18	0.10	0.19	...
new members		0.03	...	...	0.04	0.02	0.02	0.02	0.10	...
TOTAL OF ABOVE	31 Dec.	...	...	...	0.48	0.51	0.26	0.16	0.31	...
Sugar (raw value)										
WORLD TOTAL	1 Sept.	14.1	19.2	19.1	20.6	19.3	21.2	19.0	16.6	15.7
Coffee										
United States	30 Sept.	0.21	0.20	0.16	0.31	0.20	0.21	0.31	0.23	...
Brazil	31 March	[18]3.62	4.44	4.08	3.79	3.16	2.37	1.52	1.33	1.00

[1] 1 July until 1967 included (except Federal Republic of Germany, 1 June). – [2] Government (or official agency) stocks only. – [3] Barley, oats, maize, sorghum and rye. – [4] Maize and sorghum, 1 October. – [5] Maize, 1 April. – [6] 1 July until 1967 included (except France which is 1 October). – [7] From 1967 France moved from crop year October/September to July/June. – [8] November. – [9] 28 March 1972. – [10] Old crop for export. – [11] September. – [12] 31 January 1971. – [13] Converted from paddy to milled rice at 69.5 percent. – [14] Government stocks only. – [15] Excluding Italy and Luxembourg. – [16] Finland, Norway, Sweden, Switzerland. – [17] Excluding Italy. – [18] 1962-65.

ANNEX TABLE 11. – ANNUAL CHANGES IN CONSUMER PRICES: ALL ITEMS AND FOOD

	All items					Food				
	1960 to 1965	1965 to 1969	1969 to 1970	1970 to 1971	1971 to 1972	1960 to 1965	1965 to 1969	1969 to 1970	1970 to 1971	1971 to 1972
	Percent per year									
Developed countries										
WESTERN EUROPE										
Austria	3.9	3.1	4.4	4.7	6.3	4.4	2.1	4.7	3.8	5.8
Belgium	2.5	3.4	4.0	4.4	5.4	2.9	3.4	3.5	1.9	6.6
Denmark	5.5	6.7	6.5	5.8	6.6	4.2	7.1	8.5	5.9	9.3
Finland	5.3	[4]4.8	2.8	6.5	7.1	5.9	[4]4.2	1.5	4.4	9.3
France	3.8	4.1	5.2	5.5	6.1	4.3	3.5	5.8	6.5	7.9
Germany, Fed. Rep. of	2.8	2.4	3.8	5.1	5.8	2.6	1.2	2.9	3.8	6.2
Greece	1.6	[2]2.4	3.1	3.0	4.3	2.5	[2]2.1	3.2	5.2	3.8
Iceland	11.0	[1]12.7	13.1	6.4	[5]9.8	15.2	[1]7.9	15.9	2.0	[5]16.0
Ireland	4.2	4.5	8.3	8.9	8.7	3.9	3.5	7.6	7.4	11.8
Italy	4.9	2.5	4.9	4.8	5.7	4.6	1.9	4.3	4.0	6.3
Netherlands	3.5	3.6	4.4	7.6	7.8	4.0	2.8	4.3	4.2	6.6
Norway	4.1	6.2	10.6	6.3	7.2	4.5	6.6	12.9	6.0	7.2
Portugal	2.6	6.3	6.4	12.0	10.7	2.8	5.3	4.9	8.9	9.9
Spain	7.0	4.9	5.7	8.3	8.3	7.7	3.7	3.6	7.8	9.1
Sweden	3.6	3.8	7.1	7.4	6.0	5.3	3.5	8.5	9.2	9.1
Switzerland	3.2	3.5	3.5	6.6	6.7	2.9	3.4	2.6	6.4	6.5
United Kingdom	3.6	4.1	6.4	9.5	7.1	3.6	4.1	7.0	11.1	8.8
Yugoslavia	13.6	10.5	10.6	15.6	18.4	17.3	8.3	12.1	16.6	23.1
NORTH AMERICA										
Canada	1.6	4.0	3.4	2.9	4.8	2.2	3.8	2.3	1.1	7.6
United States	1.3	3.8	5.9	4.3	3.3	1.4	3.6	5.2	3.0	4.3
OCEANIA										
Australia	1.8	3.0	3.8	6.0	5.8	2.0	2.4	3.6	3.9	3.8
New Zealand	2.7	4.5	6.6	10.4	6.9	2.4	4.2	6.6	9.1	4.8
OTHER DEVELOPED COUNTRIES										
Israel	7.1	3.5	6.1	12.0	12.9	5.6	3.2	3.3	13.6	8.7
Japan	6.0	4.9	7.4	6.1	4.5	7.2	5.3	9.0	6.0	3.9
South Africa	2.1	2.9	5.2	6.1	6.5	2.6	2.6	4.4	4.8	7.1
Developing countries										
LATIN AMERICA										
Argentina	23.0	21.0	13.6	34.7	58.5	23.0	18.7	16.4	41.7	63.1
Bolivia	5.1	6.4	3.9	3.7	[4]4.0	2.1	8.5	4.6	4.0	[4]4.4
Brazil	60.0	31.0	19.1	21.1	[5]9.9	60.0	29.0	17.2	23.9	[5]11.1
Chile	27.0	25.0	32.5	20.1	77.8	30.0	23.0	35.4	23.8	115.2
Colombia	12.4	10.9	6.8	9.1	14.3	13.4	10.3	5.2	7.5	19.1
Costa Rica	2.3	2.0	4.7	3.0	4.7	2.2	2.8	7.6	3.7	1.2
Dominican Republic	2.7	0.1	1.2	2.3	8.6	2.5	— 1.3	4.1	5.1	6.1
Ecuador	4.0	[6]4.8	5.1	8.4	7.9	4.9	[6]6.4	3.2	6.5	11.1
El Salvador	0.2	0.6	2.9	0.3	1.8	1.1	1.6	4.9	0.3	1.1
Guatemala	0.1	1.3	2.4	— 0.5	0.5	0.1	1.1	4.0	— 1.9	0.1
Guyana	1.9	2.3	3.4	2.1	4.5	2.3	2.4	4.5	2.3	6.1
Haiti	3.7	1.9	0.7	10.3	3.2	4.1	2.3	1.4	6.1	10.0
Honduras	2.7	[7]2.2	2.8	2.3	5.2	3.2	[7]1.5	5.5	3.8	8.1
Jamaica	2.9	[1]2.5	9.7	6.7	5.8	2.4	[1]2.7	11.0	7.9	3.2
Mexico	1.9	3.2	5.1	3.2	6.4	1.6	3.3	5.8	1.9	6.3
Panama	[8]1.1	0.4	4.5	1.8	5.6	[8]1.4	1.5	2.9	2.4	4.6
Paraguay	...	1.8	0.9	5.0	9.2	...	0.8	— 2.1	8.6	11.1
Peru	9.4	[7]12.5	5.0	6.8	7.2	10.5	[7]11.0	3.1	6.9	7.4
Puerto Rico	2.2	3.3	3.4	4.3	3.1	3.0	4.2	3.7	5.7	3.6
Trinidad and Tobago	2.2	4.2	2.6	3.5	9.3	2.1	3.6	4.2	4.6	11.5
Uruguay	[8]16.2	70.0	16.4	23.9	76.5	[8]13.1	70.0	11.7	24.5	93.8
Venezuela	[8]1.7	1.4	2.1	2.7	3.4	[8]1.7	0.8	1.2	2.9	5.5

See notes at end of table.

ANNEX TABLE 11. – ANNUAL CHANGES IN CONSUMER PRICES: ALL ITEMS AND FOOD (*concluded*)

	All items					Food				
	1960 to 1965	1965 to 1969	1969 to 1970	1970 to 1971	1971 to 1972	1960 to 1965	1965 to 1969	1969 to 1970	1970 to 1971	1971 to 1972
	Percent per year									
FAR EAST										
India	6.1	[2]8.9	[5]5.1	3.3	6.3	6.5	[2]9.8	[5]5.3	1.5	6.4
Indonesia	...	...	12.3	4.3	6.5	...	...	9.2	2.6	10.4
Khmer Republic	4.3	2.7	10.2	71.4	25.4	2.7	3.6	14.4	94.4	28.4
Korea, Rep. of	15.4	11.2	16.0	13.5	11.7	18.3	10.4	21.6	18.9	13.3
Laos	38.0	7.4	0.4	1.3	25.2	39.0	7.7	6.9	0.7	34.9
Malaysia, West	0.5	1.2	1.3	1.5	[10]2.6	0.6	1.2	—	1.0	[10]3.0
Nepal	...	4.3	14.3	— 2.0	[11]7.7	...	4.7	17.4	— 3.5	[11]8.3
Pakistan	2.6	4.3	5.4	4.7	8.8	3.8	4.1	7.4	5.2	12.0
Philippines	4.8	3.6	5.4	...	[5]19.9	6.8	5.2	9.8	...	[5]22.4
Sri Lanka	1.7	3.8	5.9	2.6	6.4	1.3	4.5	6.7	2.0	6.0
Thailand	1.5	3.0	0.8	2.0	4.0	2.0	5.2	0.2	0.6	6.4
NEAR EAST										
Cyprus	0.3	[10]0.6	2.4	4.1	4.9	0.2	[11]1.1	1.4	4.8	6.8
Egypt	3.2	[14]4.7	3.7	3.1	[4]1.5	6.5	[14]4.6	6.8	5.4	[4]0.2
Iran	2.0	[2]0.7	1.7	4.1	6.5	3.1	[2]0.2	0.6	0.7	8.6
Iraq	...	3.3	4.4	3.6	5.2	...	2.9	3.9	4.2	5.2
Jordan	...	[7]3.7	6.8	4.2	8.1	...	[7]9.0	7.8	6.2	11.1
Lebanon	...	[6]2.5	—	1.6	4.9	...	[6]3.7	— 0.4	2.6	8.7
Libyan Arab Republic	...	6.1	...	[8]— 2.7	— 0.9	...	8.3	...	[8]—11.1	[8]— 8.9
Sudan	3.3	3.4	...	[5]1.3	11.8	4.2	2.7	...	[5]0.8	10.4
Syrian Arab Republic	[8]1.3	3.2	1.5	4.9	0.8	[8]1.3	4.9	0.7	3.8	—
Turkey	3.6	[15]5.6	8.1	16.3	12.9	4.8	[15]5.6	7.8	14.0	11.0
AFRICA										
Ethiopia	...	[6]0.8	10.2	0.5	— 6.1	...	[6]0.1	15.3	— 0.2	— 12.0
Gabon	[2]4.4	2.7	4.3	3.4	3.6	[2]3.3	2.7	2.4	6.4	5.2
Ghana	11.8	3.9	2.9	2.6	[10]13.6	14.0	2.8	3.1	2.7	[10]15.8
Ivory Coast	2.6	4.1	8.6	— 0.8	0.4	2.8	4.2	12.8	— 1.8	1.1
Kenya	2.0	1.6	2.3	[12]1.9	3.7	1.9	1.8	2.5	[12]2.4	4.0
Liberia	...	5.3	0.7	0.2	3.9	...	4.0	1.2	— 9.2	—
Madagascar	...	2.1	2.9	5.4	5.7	...	2.0	3.0	5.3	6.2
Malawi	...	...	9.5	8.1	3.9	...	...	16.1	11.2	4.3
Mauritius	[9]1.0	3.4	1.5	0.3	5.4	[9]0.6	3.4	1.3	0.1	6.2
Morocco	4.0	0.4	1.3	4.1	3.7	4.6	0.1	1.1	6.3	5.1
Mozambique	[13]1.9	3.4	4.7	15.6	7.7	[13]0.7	4.5	5.6	13.6	14.7
Niger	...	4.5	1.0	4.3	[10]8.7	...	6.2	— 2.4	5.5	[10]14.9
Nigeria	3.2	3.8	13.2	13.5	3.0	2.0	5.4	23.6	26.2	1.5
Sierra Leone	[13]3.9	3.5	7.6	— 2.3	[10]3.1	[13]0.6	2.6	14.1	— 5.7	[10]6.2
Somalia	7.4	[7]2.5	0.7	0.3	[10]—3.8	7.5	[7]2.3	2.4	— 0.6	[10]—4.5
Tanzania	1.2	3.0	3.0	3.7	9.9	1.2	1.5	3.6	5.0	10.7
Togo	...	[6]1.2	4.7	6.3	7.7	...	[6]2.2	3.8	6.8	8.3
Tunisia	[8]4.5	3.4	1.0	5.7	2.2	[8]4.8	3.6	1.5	10.3	2.5
Uganda	5.4	2.6	9.8	15.7	[10]4.1	7.3	1.2	13.2	24.7	[10]—5.7
Zaire	[14]15.6	29.0	3.2	4.9	15.1	[14]19.0	27.0	3.2	10.5	17.6
Zambia	2.4	7.1	...	[5]6.1	5.2	2.4	6.9	...	[5]6.6	4.6

[1] 1965-67. – [2] 1965-68. – [3] Only February, May, August and November. – [4] January-April. – [5] New series. – [6] 1966-69. – [7] 1967-69. – [8] 1962-65. – [9] 1960-62. – [10] January-September. – [11] January-October. – [12] January-August. – [13] 1961-65. – [14] 1963-65.

ANNEX TABLE 12. – MAIN FEATURES OF CURRENT DEVELOPMENT PLANS

	Currency	Duration of plan	Scope[1]	Investment		Foreign exchange component of total investment	Share of agriculture		Planned growth rate of:						
									GNP	Agricultural production		Export earnings		Employment	
				Total	Public		Total investment	Public investment		Total	Cereals	Total	Agricultural	Total	Agricultural
				Million currency units		*Percent*			*Percent per year*						
LATIN AMERICA															
Argentina	Pesos	1971–75	C	126 173	55 010	4.0	...	...	[2]7.0	4.4	...	9.6	10.1	4.4	— 0.2
Barbados	EC $	1972–76	C	...	...	...	...	...	...	...	...	...	...	...	...
Bolivia	Pesos	1971–75	C	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	Cruzeiros	1972–74	C	179 240	[3]53 517	...	8.7	[3]11.2	[2]9.0	7.5	...	10.0	...	3.1	1.2
Cuba	Pesos	1971–75	C	...	...	...	...	...	[4]11.1	10.0	...	...	...	...	...
Dominican Rep.	Pesos	1970–74	C	...	530	...	...	...	[2]6.6	5.6	...	12.4	...	4.5	...
Ecuador	Sucres	1973–77	C	[3]78 922	[3]31 743	15.7	17.6	15.4	[2]9.9	5.3	...	8.7	3.9	...	...
El Salvador	Colones	1973–77	C	...	876	47.9	...	...	6.9	5.0	...	...	...	...	...
Guatemala	Quetzales	1971–75	PS	1 828	403	29.7	...	14.7	[2]6.2	4.8	...	3.6	...	...	...
Guyana	Guy $	1972–76	C	...	...	...	...	...	...	...	...	...	...	...	...
Haiti	Gourdes	1972–76	PS	...	453	47.0	...	21.0	[2]7.7	...	...	...	...	...	...
Nicaragua	Cordobas	1972–76	PS	...	...	...	...	...	...	...	...	...	...	...	...
Panama	Balboas	1971–75	PS	...	526	...	...	8.0	8.0	...	...	...	...	...	...
Paraguay	Guaranis	1971–75	C	82 145	31 647	24.5	16.3	8.7	[2]6.0	5.0	...	8.2	...	...	...
Peru	Soles	1971–75	C	270 000	140 000	...	12.0	7.6	[2]7.5	4.2	...	4.1	2.8	6.7	4.3
Surinam	Guilders	1972–76	C	...	335	83.3	...	19.4	[2]8.3	7.1	...	...	...	...	...
Trinidad and Tobago	TT $	1969–73	C	1 016	375	39.0	...	17.0	[2]4.5	5.0	...	...	...	2.9	...
Uruguay	Pesos	1973–77	PS	...	...	...	...	...	[6]4.0/5.0	[6]3.8/4.6	...	10.0	...	...	1.9
Venezuela	Bolivares	1970–74	C	60 919	24 311	12.2	7.6	6.8	[2]6.3	6.1	10.2	4.1	14.0	4.0	0.9
FAR EAST															
India	Rupees	1969/70–1973/74	C	248 820	159 020	21.8	[7]15.3	[7]24.0	[2]5.5	4.5	5.0	7.0	...	...	...
Indonesia	Rupiahs	1969/70–1973/74	C	1 420 000	1 059 000	...	26.0	35.0	5.0	...	...	...	...	...	...
Korea, Rep. of	Wons	1972–76	C	4 524 500	...	20.9	11.8	...	8.6	4.5	6.7	24.3	22.5	2.3	— 1.0
Laos	Kips	1969/70–1973/74	C	20 579	5 729	...	...	...	...	...	...	...	...	...	...
Malaysia	M $	1971–75	C	12 150	4 307	15.0	...	32.3	6.8	8.3	7.1	4.8	10.2	[8]3.2	[8]1.7
Nepal	Rupees	1970–75	C	2 930	2 280	65.0	32.9	26.1	4.0	...	3.0	...	...	...	...
Philippines	Pesos	1971–74	C	23 550	4 638	10.0	—	[9]16.7	5.6	6.2	6.2	8.5	...	4.0	...
Sri Lanka	Rupees	1972–76	C	15 000	7 038	19.3	20.0	24.0	6.0	4.9	7.1	6.2	...	3.4	2.5
Thailand	Bahts	1971/72–1975/76	C	100 000	69 000	...	...	...	7.0	5.1	...	7.0	...	...	...
NEAR EAST															
Afghanistan	Afghanis	1973–77	C	33 400	27 700	...	...	39.0	4.8	3.9	...	...	...	...	...
Egypt	E pounds	1973–82	C	8 400	...	...	12.0	...	6.0	3.8	...	...	...	3.0	...
Iran	Rials	1973–78	C	2 400 000	1 520 000	...	14.0	20.0	11.4	5.4	...	...	...	...	...
Iraq	Dinars	1970–74	C	1 144	859	...	19.7	24.5	7.1	7.0	...	2.7	...	4.5	4.1
Jordan	Dinars	1973–75	C	179	100	...	15.5	23.7	[2]8.0	6.4	4.5	16.0	20.0	5.9	2.6
Lebanon	L pounds	1972–77	C	7 200	1 740	...	...	22.0	7.0	5.0	...	7.3	5.5	3.4	...
Libyan Arab Rep.	Dinars	1973–75	PS	...	1 965	...	...	21.0	...	...	...	...	...	...	...
Sudan	Sd pounds	1971–75	C	370	200	...	27.9	37.2	7.6	10.0	11.4	10.6	10.6	2.0	1.6
Syrian Arab Rep.	S pounds	1971–75	C	8 000	6 450	...	31.5	39.0	8.2	5.1	...	6.5	...	4.7	2.8
Turkey	Liras	1973–77	C	291 200	...	...	12.0	...	[2]7.9	4.6	...	9.4	3.0	...	...
AFRICA															
Algeria	Dinars	1970–73	PS	—	27 740	—	—	18.0	9.0	4.5	...	9.5	...	...	...
Botswana	Rands	1970–75	PS	130	...	...	...	...	15.0	...	...	...	...	8.0	...
Cameroon	CFA francs	1971–76	C	280 000	145 300	...	10.5	15.5	6.7	4.0	...	9.4	...	...	...
Ethiopia	Eth $	1968/69–1972/73	C	2 865	1 484	...	10.9	7.0	6.0	3.1	...	...	...	...	...
Gabon	CFA francs	1971–75	C	150 000	65 000	...	1.2	1.2	...	...	...	...	...	...	...
Ivory Coast	CFA francs	1971–75	C	505 000	210 000	...	11.0	22.0	7.7	4.1	...	6.8	3.0	5.5	4.0
Kenya	K £	1970–74	PS	—	192	—	—	21.0	6.7	4.5	...	...	...	5.0	4.5
Lesotho	Rands	1970/71–1974/75	C	60	28.8	...	...	23.0	5.0	3.1	...	...	...	...	...
Mauritania	CFA francs	1970–73	C	47 135	...	...	15.0	...	...	...	...	...	...	...	...
Mauritius	Rupees	1971–75	C	1 052	536	...	20.0	21.0	7.0	...	...	...	...	6.0	5.0
Morocco	Dirhams	1968–72	PS	5 050	3 000	...	46.0	...	5.0	...	...	...	...	...	...
Niger	CFA francs	1971–74	PS	47 631	...	...	15.0	...	...	...	...	...	...	...	...
Nigeria	N £	1970–74	C	1 595	780	...	...	17.0	[2]6.6	3.0	...	...	...	...	...
Senegal	CFA francs	1969–73	C	145 400	124 900	65.0	29.0	32.0	5.4	5.9	...	3.6	...	...	...
Swaziland	Rands	1969–74	PS	—	23	...	...	14.0	...	...	...	...	...	...	...
Tanzania	T £	1969–74	C	404	296	...	13.5	23.0	6.7	4.5	...	...	...	5.0	—
Togo	CFA francs	1971–75	C	75 889	56 203	—	15.0	10.0	7.7	6.6	...	...	...	...	...
Tunisia	Dinars	1969–72	C	617	449	58.0	21.0	19.0	[2]6.1	5.1	...	14.0	13.5	...	...
Uganda	U shillings	1972–76	C	7 890	3 927	...	...	...	5.6	4.8	...	4.8	...	...	...

NOTE: Where possible, data refer to net investment. In many cases, however, no distinction is made in the plan, and data may refer to gross investment or may include some elements of recurrent expenditure. The agricultural sector includes animal production, fisheries, forestry, irrigation, land reclamation, community development and agricultural extension.

[1] PS = public sector; C = comprehensive. – [2] Gross domestic product. – [3] Capital expenditures. – [4] Gross material product. – [5] 1972 sucres. – [6] Low and high hypotheses. – [7] Includes flood control expenditure. – [8] West Malaysia only. – [9] Water resource development only.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE

Western Europe	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
Austria	1960	1 174	17	691	11	589	20	22	1.49
	1965	1 045	14	856	8	819	6	19	1.61
	1970	831	11	1 007	7	1 212	5	12	1.91
Belgium	1960	732	8	677	6	925	9	25	1.10
	1965	570	6	842	5	1 477	10	20	1.65
	1970	469	5	1 020	4	2 175	10	16	1.74
Denmark	1960	827	18	833	14	1 007	63	25	3.36
	1965	661	14	1 119	11	1 693	54	18	4.18
	1970	595	12	1 236	8	2 077	41	13	4.47
Finland	1960	1 599	36	890	18	556	...	17	1.89
	1965	1 291	28	1 291	16	1 002	5	13	2.08
	1970	1 187	25	1 242	12	1 046	5	12	2.29
France	1960	10 096	22	5 494	9	544	18	40	2.57
	1965	7 655	16	6 933	7	906	19	27	2.68
	1970	7 255	14	8 839	6	1 218	17	18	2.42
Germany, Fed. Rep. of	1960	4 859	9	4 322	6	889	4	39	1.90
	1965	4 547	8	4 620	4	1 016	3	29	1.85
	1970	3 506	6	5 542	3	1 581	4	22	2.15
Greece	1960	4 642	56	760	22	167	81	19	0.83
	1965	4 574	54	1 271	22	278	78	19	0.84
	1970	4 134	46	1 592	17	385	51	13	0.67
Ireland	1960	1 032	36	396	22	384	67	25	1.41
	1965	920	32	491	18	534	62	22	1.42
	1970	792	27	541	14	683	51	16	1.45
Italy	1960	13 125	26	4 524	13	345	18	39	1.14
	1965	12 171	24	7 033	12	578	13	32	1.24
	1970	9 735	18	8 343	9	857	8	23	1.23
Malta	1960	33	10	8	6	242	24	42	0.35
	1965	29	9	10	7	345	24	35	0.53
	1970	26	8	13	6	500	13	27	0.62
Netherlands	1960	1 228	11	1 120	11	912	33	26	0.89
	1965	1 030	8	1 375	8	1 335	30	19	0.95
	1970	835	6	1 838	6	2 201	30	17	0.99
Norway	1960	674	19	412	9	611	33	17	1.23
	1965	645	17	570	8	884	21	12	1.32
	1970	516	13	685	6	1 328	15	9	1.58
Portugal	1960	3 853	44	578	23	150	38	28	1.10
	1965	3 594	39	708	20	197	27	27	1.22
	1970	3 523	37	943	15	268	21	20	1.24
Spain	1960	12 758	42	2 276	22	179	54	29	1.89
	1965	11 852	35	3 649	17	308	50	24	1.86
	1970	11 222	34	3 891	12	347	36	19	1.43
Sweden	1960	1 051	14	969	7	922	29	18	3.43
	1965	1 004	13	1 250	6	1 245	5	15	3.60
	1970	756	9	1 304	4	1 725	3	12	4.04
Switzerland	1960	611	11	...	...	...	6	26	0.71
	1965	570	10	...	...	...	6	20	0.70
	1970	462	7	...	...	...	7	15	0.84

See notes at end of table.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE (*continued*)

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
United Kingdom	1960	2 094	4	2 131	3	1 018	10	53	3.49
	1965	2 184	4	2 968	3	1 359	8	38	3.68
	1970	1 538	3	3 556	3	2 312	8	28	4.72
Yugoslavia	1960	10 324	50	[1]1 601	26	155	47	22	0.92
	1965	9 147	47	[1]1 590	25	174	28	27	0.91
	1970	9 577	47	[1]2 388	19	249	21	14	0.78
Eastern Europe and U.S.S.R.									
Albania	1960	1 146	71	...	...	...	...	...	...
	1965	1 113	59	...	...	...	...	...	...
	1970	1 322	62	...	...	...	...	...	0.37
Bulgaria	1960	3 823	49	...	32	...	...	...	...
	1965	4 675	57	...	33	...	...	...	1.24
	1970	3 084	36	...	23	...	...	...	1.34
Czechoslovakia	1960	3 495	26	...	16	...	...	...	2.25
	1965	2 272	16	...	13	...	7	28	2.22
	1970	2 243	15	...	11	...	...	...	2.32
German Democratic Republic	1960	3 026	18	...	17	...	...	...	...
	1965	3 047	19	...	14	...	...	...	1.54
	1970	2 109	12	...	12	...	...	...	2.28
Hungary	1960	3 694	37	...	23	...	...	...	1.59
	1965	2 912	29	...	21	...	24	19	1.93
	1970	2 484	24	...	18	...	23	16	2.09
Poland	1960	11 103	38	...	26	...	...	...	1.44
	1965	11 229	36	...	23	...	19	25	1.42
	1970	9 940	30	...	17	...	13	17	1.52
Romania	1960	11 861	64	...	33	...	...	...	0.92
	1965	11 359	60	...	29	...	...	...	0.92
	1970	10 503	52	...	[2]24	...	...	...	0.93
U.S.S.R.	1960	90 233	42	...	20	...	...	...	...
	1965	73 270	32	...	23	...	14	28	3.30
	1970	77 322	32	...	22	...	...	22	2.95
North America									
Canada	1960	2 346	13	2 360	6	1 006	36	16	20.19
	1965	1 765	9	2 578	5	1 460	22	12	24.59
	1970	1 712	8	3 935	5	2 298	13	10	25.35
United States	1960	11 925	7	20 361	4	1 707	26	36	12.94
	1965	11 675	6	20 763	3	1 778	24	24	15.37
	1970	8 192	4	29 087	3	3 551	18	18	21.30
Oceania									
Australia	1960	1 176	11	1 794	11	1 525	80	13	26.24
	1965	1 138	10	2 075	9	1 823	81	8	33.26
	1970	1 046	8	2 562	7	2 449	52	7	42.47
New Zealand	1960	346	15	739	[3]20	2 136	97	11	1.91
	1965	343	13	801	15	2 335	93	9	2.38
	1970	330	12	706	[4]5	2 139	...	...	2.30

See notes at end of table.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE (*continued*)

Latin America	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
Argentina	1960	4 170	20	1 812	15	435	95	10	4.95
	1965	4 510	20	2 454	15	544	94	17	6.44
	1970	3 697	15	2 495	11	675	84	7	6.45
Barbados	1960	61	26	20	25	328	85	35	0.54
	1965	60	25	27	26	450	74	34	...
	1970	55	23	...	...	...	...	...	...
Bolivia	1960	2 253	61	100	29	44	...	...	...
	1965	2 731	63	139	23	51	4	22	...
	1970	2 714	58	178	19	66	...	...	...
Brazil	1960	36 155	52	2 606	18	72	88	17	0.82
	1965	40 383	50	3 470	18	86	83	21	...
	1970	40 635	44	4 486	13	110	72	11	...
Chile	1960	2 293	30	261	11	114	...	...	2.56
	1965	2 438	28	464	10	190	6	25	1.92
	1970	2 484	25	466	7	188	...	...	...
Colombia	1960	7 929	52	1 246	32	157	70	12	0.77
	1965	9 010	50	1 346	29	149	75	14	...
	1970	9 652	45	2 335	27	242	...	...	0.54
Costa Rica	1960	636	52	111	24	175	96	14	0.92
	1965	745	50	149	25	200	85	10	...
	1970	802	45	236	25	294	78	11	0.97
Dominican Republic	1960	2 055	66	195	27	95	91	10	0.58
	1965	2 177	60	248	26	114	87	32	...
	1970	2 610	61	303	22	116	...	...	...
Ecuador	1960	2 502	57	349	37	139	96	11	...
	1965	2 985	58	384	34	129	97	13	0.98
	1970	3 264	54	477	31	146	...	...	0.87
El Salvador	1960	1 547	62	182	32	118	94	18	0.43
	1965	1 670	57	231	29	138	81	18	...
	1970	1 963	57	274	27	140	69	...	0.22
Guatemala	1960	2 556	67	292	28	114	...	...	...
	1965	2 878	64	386	29	134	86	12	...
	1970	3 203	63	509	27	159	...	...	...
Haiti	1960	3 424	83	152	50	44	...	...	...
	1965	3 517	80	194	51	55	...	...	...
	1970	4 033	77	[3]207	47	51	...	...	0.09
Honduras	1960	1 360	70	154	41	113	93	13	0.78
	1965	1 418	65	191	37	135	81	12	...
	1970	1 803	67	236	33	131	...	...	...
Jamaica	1960	635	39	73	11	115	44	25	0.40
	1965	788	44	101	11	128	41	27	0.39
	1970	540	27	101	8	187	...	...	...
Mexico	1960	19 883	55	1 927	16	97	...	...	1.23
	1965	22 200	52	2 954	15	133	57	9	...
	1970	23 636	47	3 723	11	158	...	...	...
Nicaragua	1960	927	62	97	27	105	94	9	...
	1965	1 012	58	168	28	166	90	11	...
	1970	1 129	56	213	25	189	...	...	...

See notes at end of table.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE (*continued*)

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
Panama	1960	539	51	96	23	178	94	15	1.11
	1965	541	43	158	24	292	56	12	...
	1970	632	43	231	22	366	76	8	0.69
Paraguay	1960	969	56	100	36	103	...	...	1.96
	1965	1 035	51	163	37	157	...	...	0.91
	1970	1 281	53	190	32	148	...	..	0.64
Peru	1960	5 258	52	521	25	99	...	...	0.39
	1965	5 825	50	616	20	106	55	18	0.47
	1970	6 189	46	919	17	148	55	...	0.42
Surinam	1960	87	30	14	13	161	...	...	...
	1965	146	48	21	13	144	...	...	0.61
	1970	105	27	[3, 6]31	12	295	...	...	0.37
Trinidad and Tobago	1960	174	21	59	11	339	13	18	1.09
	1965	197	20	59	8	299	9	13	...
	1970	171	17	90	7	526	8	10	...
Uruguay	1960	525	21	283	18	539	...	...	5.77
	1965	470	17	247	14	526	...	...	4.20
	1970	482	17	259	11	537	...	...	3.95
Venezuela	1960	2 713	35	460	6	170	1	19	2.23
	1965	2 800	30	590	7	211	1	16	...
	1970	2 823	26	814	8	288	...	...	1.61
Far East									
Bangladesh	1960	40 850	76	...	[7]63	...	...	...	...
	1965	...	...	...	[7]58	...	...	...	...
	1970	52 700	70	...	[7]55	...	...	...	...
Burma	1960	15 178	68	475	32	31	93	17	...
	1965	15 334	62	565	32	37	85	15	1.04
	1970	17 675	64	[5]820	38	46	...	...	1.05
China	1960	486 011	75	...	...	...	...	...	...
	1965	481 000	63	...	...	...	...	...	...
	1970	514 150	66	...	...	...	...	...	...
India	1960	320 668	74	14 852	47	46	44	29	0.51
	1965	340 655	70	21 247	42	62	38	30	0.48
	1970	364 823	68	22 089	45	61	36	28	0.44
Japan	1960	30 964	33	5 603	13	181	12	43	0.26
	1965	23 290	24	8 857	10	380	5	36	0.25
	1970	21 564	21	13 834	7	642	3	23	0.23
Khmer Republic	1960	4 455	82	286	45	64	...	...	0.71
	1965	4 688	75	365	42	78	91	8	0.63
	1970	5 426	76	[3, 5]445	38	82	...	...	0.52
Korea, Rep. of	1960	15 086	61	1 394	37	92	...	...	0.09
	1965	15 607	55	1 158	39	74	25	26	0.14
	1970	17 132	53	2 279	28	133	16	22	0.13
Pakistan	1960	35 437	76	1 719	[7]47	49	...	...	...
	1965	...	...	2 220	[7]40	...	...	...	...
	1970	43 810	70	3 280	[7]37	79	...	...	0.65
Philippines	1960	20 352	74	1 817	27	89	...	...	0.56
	1965	18 738	58	2 273	25	121	60	24	0.44
	1970	26 489	69	4 171	30	157	44	12	0.25

See notes at end of table.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE (*continued*)

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
Sri Lanka	1960	5 542	56	534	38	96	97	41	...
	1965	6 174	55	613	36	99	97	52	0.34
	1970	6 591	52	714	33	108	...	...	0.14
Thailand	1960	2 210	84	1 024	40	46	89	11	0.13
	1965	23 980	78	1 394	35	58	82	9	0.48
	1970	27 663	76	2 009	32	73	...	6	0.35
Viet-Nam, Rep. of	1960	11 238	80	564	37	50	...	...	...
	1965	13 705	85	554	28	40	98	40	0.21
	1970	13 338	74	1 048	31	79	72	...	0.20
Near East									
Cyprus	1960	241	42	49	17	203	36	26	1.85
	1965	232	39	77	20	332	54	19	1.88
	1970	215	35	83	16	386	53	16	2.01
Egypt	1960	15 099	58	1 038	31	69	81	32	0.17
	1965	16 164	55	1 602	29	99	71	32	0.17
	1970	18 545	55	[12] 049	30	110	67	27	0.15
Iran	1960	11 588	54	1 178	27	102	...	...	0.96
	1965	12 195	49	1 583	24	130	8	18	...
	1970	13 130	46	2 137	19	163	...	...	1.22
Iraq	1960	3 691	53	270	16	73	...	...	2.65
	1965	4 043	55	474	19	117	5	24	1.89
	1970	4 516	47	[2]565	18	125	4	18	2.21
Israel	1960	304	14	179	9	589	38	27	[8]1.51
	1965	310	12	245	7	790	28	20	1.29
	1970	305	11	267	5	875	25	16	1.10
Jordan	1960	743	44	41	15	55	...	...	[8]1.70
	1965	630	33	108	23	171	59	31	1.79
	1970	897	39	90	17	100	...	...	1.26
Lebanon	1960	1 116	53	...	18	...	...	...	...
	1965	1 265	55	138	12	109	59	33	0.24
	1970	1 320	41	134	9	102	...	...	0.18
Libyan Arab Republic	1960	770	55	[9]43	9	56	84	14	...
	1965	1 000	60	72	5	72	5	14	...
	1970	841	43	[2]106	3	126	...	...	2.82
Saudi Arabia	1960	4 272	71	...	...	...	...	...	...
	1965	3 240	72	162	7	50	...	...	0.12
	1970	4 683	60	[10]214	6	46	...	...	0.16
Syrian Arab Republic	1960	2 474	54	163	21	66	...	...	2.48
	1965	2 877	55	350	29	122	88	24	2.09
	1970	3 017	49	345	20	114	71	29	1.87
Turkey	1960	21 498	78	2 165	38	101	88	12	1.22
	1965	23 052	74	2 837	32	123	88	11	1.15
	1970	24 560	69	3 456	27	141	...	...	1.01
Sudan	1960	10 087	86	633	57	63	...	...	...
	1965	10 426	77	[11]680	[11]54	65	99	25	...
	1970	12 606	80	[2]538	32	43	98	...	0.56

See notes at end of table.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE (*continued*)

Africa	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
Algeria	1960	7 214	67	[12]678	21	93	...	...	...
	1965	7 145	60	[4]490	17	69	...	...	0.95
	1970	7 805	56	[4]490	12	63	...	...	0.80
Cameroon	1960	4 200	88	[2]245	48	58	...	...	...
	1965	4 392	84	280	47	64	73	14	...
	1970	4 732	82	[4]357	40	75	...	...	1.42
Ethiopia	1960	18 226	88	[8]604	62	33	...	...	[8]0.61
	1965	20 202	89	788	58	39	99	8	0.62
	1970	21 189	85	[2]840	52	40	[10]98	[10]8	0.61
Gabon	1960	386	85	35	27	91	...	...	0.55
	1965	384	83	53	26	138	23	16	...
	1970	346	72	57	17	165	18	14	0.16
Ghana	1960	4 168	62	767	51	184	75	19	1.35
	1965	4 645	60	[11]891	51	192	73	13	0.55
	1970	4 946	55	957	38	193	77	19	0.16
Ivory Coast	1960	3 047	89	245	43	80	...	...	...
	1965	3 612	86	340	35	97	67	19	0.66
	1970	3 495	81	428	29	122	62	14	2.23
Kenya	1960	6 963	86	252	40	36	78	8	...
	1965	7 821	84	340	34	43	57	14	...
	1970	8 761	84	488	31	56	58	11	0.17
Liberia	1960	803	81	...	40	...	51	17	...
	1965	861	80	80	27	93	25	17	4.77
	1970	864	74	[2, 13]79	20	91	21	17	4.46
Malawi	1960	3 187	92	73	55	23	...	...	1.06
	1965	3 159	80	82	55	26	92	16	0.40
	1970	3 887	87	156	48	40	[13]89	[13]14	0.68
Morocco	1960	7 415	64	575	32	78	...	...	1.32
	1965	7 330	55	633	33	86	53	39	1.08
	1970	9 406	61	1 039	...	110	[13]56	[13]21	0.79
Nigeria	1960	30 406	71	1 983	59	65	89	14	...
	1965	46 200	79	2 357	50	51	63	10	...
	1970	36 900	67	3 287	52	89	37	9	0.59
Rhodesia	1960	2 508	69	152	18	61	...	..	...
	1965	3 360	75	180	17	54	44	14	...
	1970	3 196	63	233	16	73	...	...	0.57
Senegal	1960	2 598	84	[13]177	30	68	...	...	...
	1965	2 616	75	215	28	82	88	40	...
	1970	2 965	76	[2, 5]194	26	65	[10]83	[10]42	1.88
South Africa	1960	5 128	32	886	12	173	42	10	1.72
	1965	5 181	29	1 103	10	213	38	7	...
	1970	5 974	30	1 564	9	262	30	7	1.94
Tanzania	1960	9 228	89	332	61	36	83	8	...
	1965	11 090	95	370	42	33	83	9	1.09
	1970	11 370	86	512	40	45	76	10	0.94
Togo	1960	1 166	80	63	55	54	...	...	1.65
	1965	1 292	79	81	46	63	62	18	1.67
	1970	1 394	75	[5]121	42	87	69	18	1.52

See notes at end of table.

ANNEX TABLE 13. – BASIC DATA ON NATIONAL AGRICULTURE (*concluded*)

	Period	Population in agriculture		Agricultural GDP			Share of agriculture in value of total trade		Arable land per person in agriculture
							Exports	Imports	
		Thousands	*Percent of total*	*Million U.S. dollars*	*Percent of total*	*U.S. dollars per caput*	..... *Percent*		*Hectares per caput*
Tunisia	1960	2 135	56	167	21	78	...	...	...
	1965	2 671	60	189	20	70	48	18	1.65
	1970	2 355	46	164	13	70	32	30	1.92
Uganda	1960	5 975	89	272	61	45	88	6	[2]0.51
	1965	6 870	91	361	54	53	80	14	0.55
	1970	7 372	86	706	55	96	93	13	0.51
Zaire	1960	11 820	84	...	33	...	...	...	...
	1965	11 266	70	[4]116	19	10	...	...	...
	1970	13 646	78	172	8	13	...	...	0.53
Zambia	1960	2 532	79	56	11	22	...	...	...
	1965	3 008	81	73	8	24	3	11	...
	1970	2 979	69	[2]104	6	35	1	10	1.61

[1] Gross material product. – [2] 1969. – [3] 1959. – [4] 1967. – [5] World Bank. – [6] GNP. – [7] Percentage of GDP at factor cost. – [8] 1961. – [9] 1962. – [10] 1968. – [11] 1964. – [12] 1958. – [13] Organisation for Economic Co-operation and Development.

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