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Statistics and indicators for the post-2015 development agenda



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The working group on monitoring and indicators was created by the UN System Task Team on the Post-2015 UN Development Agenda to initiate thinking about the challenges of designing an appropriate monitoring framework for the post-2015 agenda. This document represents the collective thinking of over 50 UN entities and is intended to support the multiple discussions taking place about the post-2015 agenda and the identification of sustainable development goals.

http://www.un.org/en/development/desa/policy/untaskteam_undf/them_tp2.shtml.

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Statistics and indicators for the post-2015 development agenda

A report from the Working Group on Monitoring and Indicators

“It is indispensable to resist any unnecessary complexity.”
(“Realizing the Future We Want for All,” para. 102)

Overview

Global monitoring since the Millennium Declaration

- i. The monitoring process for the Millennium Development Goals (MDGs) taught important lessons on how to maintain focus on internationally agreed development goals and targets, while keeping the world informed of achievements, problem areas and emerging issues.
- ii. The global statistical community, led by the United Nations Statistical Commission and guided by the United Nations Fundamental Principles of Official Statistics, has played an authoritative and leadership role in strategic and technical guidance for monitoring the MDG indicators, pursuant to General Assembly resolution 57/270B,¹ and must continue to occupy a strategic, oversight position on statistics and indicators for monitoring.
- iii. One key lesson learned is that there is clear need for a broad-based technical but inclusive monitoring group, and for a succinct annual report for the public on progress and challenges. The Inter-Agency and Expert Group on

¹ Throughout this document, UN documents are referred to by their document “symbol”. These can be found by visiting the United Nations Official Document System (ODS), available from <http://documents.un.org>.

MDG Indicators (IAEG) has been critical for the coordination, credibility and sustainability of global monitoring and reporting and should be maintained in some form post-2015.

iv. Another finding has been the importance of investment in country capacities for data collection and reporting, leading to progress in disaggregation as well as towards the development of new indicators.

v. Finally, the monitoring process has brought to the fore the necessity of having well-defined, objectively measurable indicators that can be used to track progress across countries and be aggregated to represent regional and global trends.

Numerical target-setting

vi. While goals themselves may be aspirational, numerical targets should balance ambition with realism. They should challenge preconceptions of what is possible to achieve, and inspire concerted public efforts to meet them within a reasonable time period. They should be results-oriented in terms of well-being and sustainability, and sufficiently specific so as to clearly relate to public and policy concerns.

vii. Numerical targets should reflect a clear consensus and understanding of objectives among policymakers, civil society and the public.

viii. To be effective, global development targets need to be specified in clear, concise, and objectively measurable terms. They should specify an easy-to-understand numerical scale for measurement and be capable of aggregation to represent global and regional trends.

ix. Global targets are agreed at the global level for global monitoring. It is up to each country to determine its own targets, consistent with its own comprehensive, broad-based development agendas. Assistance to countries for this purpose should be part of the new global development agenda.

Integrating population dynamics in target-setting

x. Forward-looking development targets must factor in the need to improve the living conditions of a growing global population over the next decades. Target-setting and indicators must be informed by population data and projections, for example targets on employment and social protection. Targets must take into account growing populations and changing age compositions. Targets must also account for population mobility, growth of cities and changes in the spatial distribution of people—in coastal and other regions vulnerable to climate change, for example.

Criteria for indicators

xi. Indicators of progress towards targets may take various forms; changes in rates, ratios, percentages and differences are the most common.

xii. Indicators should be mainly “outcome” indicators to keep the focus on long-term results. They should be clearly linked to the targets, measurable over time using data collected in countries in a cost-effective and practical manner, helpful in informing policy, and clear and easy to communicate to the general public and civil society.

xiii. Capacity or potential capacity for data collection and analysis to support the indicator must exist at both national and international levels.

xiv. Time scales and benchmark dates for targets and indicators should take account of the rates of change currently observed and the present and potential availability of data to measure and compare levels and trends. When indicators are used to show which data coverage is still incomplete, the time and resources needed to implement new national and international statistical infrastructure should be specified.

xv. The number of indicators for global monitoring should be kept strictly limited. The development of indicators and indicators to support national monitoring should fit within and not distort countries’ own statistical development strategies. Indicators for national monitoring should also be limited in number and consistent with internationally agreed standards and, to the extent possible, with definitions used in each country.

xvi. High priority must be given to continuity and consistency over time of statistics to be used for indicators and to their scientific and technical soundness, using international guidelines and standards and subject to peer review for indicators and data sources. Small-scale and ad hoc statistical sources which have not been tested over time cannot be relied on for trend analysis or representativeness.

xvii. Innovation is critical in developing new topics and methods of data collection. Application of innovation must be based on adequate testing in countries, and necessary national and international support, time and resources must be allocated to develop new programmes.

xviii. MDG indicators have been useful tools in analyzing the realization of the social and economic rights conveyed in the Universal Declaration of Human Rights. Methodologies and data have also been developed on issues of civil and political rights, such as personal security, political participation and administration of justice. Target-setting and the formulation of indicators in these fields should be consistent with norms set in international human rights treaties and other country-agreed instruments.

Development indicators that go beyond the MDG framework

Measuring inequalities

xix. There has been substantial research and discussion of comprehensive inequality measures based on dispersion, such as the Gini coefficient of distribution, but there is no technical consensus on an appropriate measure which can be calculated across countries to provide a global or regional measure of trends.

xx. Other measures available to measure income and consumption inequality use comparisons of income, consumption or wealth for various quantiles, such as bottom 20 or 40 per cent of the population, top 10, 5 or 1 per cent, and so on, and these can be used over time to show trends. These measures capture many aspects of distribution and trends which are of concern.

Indicators of population groups

xxi. The principle of non-discrimination and equality is enshrined in international human rights instruments adopted by States. This principle supports the need for more systematic statistics to inform on racial discrimination, gender equality, rights of the child, rights of migrant persons, and rights of persons with disabilities, as well as statistics on other vulnerable populations which may be excluded from mainstream sources of indicators such as household surveys.

xxii. Indicators should be disaggregated to the extent possible by wealth quintile, geographical location, sex, rural/urban, and other relevant characteristics to track progress in addressing inequalities. However, data by sex are not meant to replace specific indicators that will address gender equality and women's empowerment.

Indicators linking sustainability and development

xxiii. Natural resource concerns appropriate for global monitoring have been established in the outcomes of the global environment conferences and in treaties and international agreements related to the environment. These include the sustainability of forests, land and soil, water supply, oceans, coastal zones, land and water species and stocks, genetic resources, atmosphere and climate change and ecosystems. A genuine commitment to sustainability requires indicators that track increased efficiency in resource use and measure progress towards defined targets.

xxiv. Goals that integrate social, environmental and economic objectives for sustainable development pose new challenges for monitoring and assessment.

xxiv. Sustainability indicators should form a subset of poverty-social-environment indicators and be part of an integrated monitoring programme post-2015.

xxv. Some basic indicators for assessing sustainability are now available for many countries. These include population size, age structure and geographical location including projections, employment growth, consumption, energy consumption and CO₂ emissions per capita and per unit of gross domestic product, investment in research and applied technology in energy consumption and CO₂ emissions, intensity and productivity of land and energy use in agriculture and aquaculture, bio capacity, and value of ecological services.

xxvi. In order to integrate social, economic and natural resources targets with sustainability indicators, balance and tradeoffs in development, investment, natural resources and sustainability objectives must be taken into account in targeting sustainability to 2050 and beyond.

Subjective indicators of well-being

xxvii. Objective data on development can be supplemented by subjective indicators of well-being to provide a fuller picture, for example, regarding inclusive political processes, access to justice, corruption, peacebuilding, equitable social services, victimization, safety and security, health and work satisfaction.

xxviii. Surveys of population attitudes, expectations and satisfaction are well-established practice in studies conducted by research institutions and in the private sector in developed and many developing countries, in some cases in partnership with inter-governmental organizations. In official statistics there is growing interest in such measures but in developing countries especially, these series are usually privately sourced and have mostly not been taken up by national statistical services.

Composite indexes

xxix. Composite indexes comprised of several measures with different numeric scales are widely used for comparisons and trends, advocacy and as an intuitively appealing single measure of a complex concept but are controversial among official statisticians because they can lack a satisfactory theoretical basis for the selection of the component indicators and weights. They may also require estimates for missing data for one or more of the components, which undermines their transparency and accountability.

Indicators of governance, rule of law, peacebuilding, violence and conflict, human rights

xxx. Growing interest in quantitative measures of governance, rule of law, peacebuilding, violence and conflict and human rights at national and international levels has fostered a large number of data initiatives among official and non-official data producers. Work on standardization and harmonization of concepts and methods now underway provides a strong foundation for numerical target-setting and subsequent selection of indicators.

xxxii. Basic standard methodologies have been developed for example for victimization surveys, violence against women, homicide, mortality statistics by cause of death, human rights, rule of law, and there is considerable ongoing data development on governance (for example, election statistics, transparency and corruption, and business climate), security and violence, crime and criminal justice, which could be drawn on for numerical target setting.

Technology-based innovations in data collection and indicators

xxxiii. Access to new technologies is important to ensure full participation by all segments of the population in new opportunities in, for example, employment, education, health, governance and peacebuilding.

xxxiv. Internet, mobile and geographical coding technologies are rapidly changing the ways in which national and international statistical services collect, process and disseminate statistics. Working within the limitations of financing, human resource skills and legal responsibilities for data quality and confidentiality, statistical services are responding to these opportunities to work more efficiently and productively.

National capacities in statistics and indicators

xxxv. It is fundamental that the international data compilation for global monitoring be based to the greatest extent possible on official statistics produced by national services, and assistance be made available to national services as needed to produce their development statistics and indicators.

xxxvi. Developing countries continue to need assistance in improving their statistical systems so as to measure their development progress, participate effectively in their national monitoring programmes and help guide policy. A target for achieving sound statistical systems is needed to further support capacity development for basic statistics and analysis in these countries.

xxxvii. Where new topics and new approaches to development indicators are agreed for inclusion in the post-2015 framework, cost implications and data

quality and continuity must be considered. It will be essential to identify new resources to support the needed data collection in countries and compilation and well-documented dissemination in the responsible agencies. New work will also have to be undertaken on a step-by-step basis so that national skill pools and managerial capacities are not overwhelmed.

xxxvii. While national capacities have developed substantially since the MDG framework and indicators were established in 2001, with considerable new international support provided for the development of national statistics, more work and resources are still needed to ensure full completion of and follow-up on the MDG agenda.

Gaps in national capacities

xxxviii. At the national level, some significant gaps have been identified in many if not most developing countries with respect to both the MDG framework and new fields under discussion, some of which are listed below.

Countries with special needs

xxxix. Most of the conflict and fragile countries—such as the g7+ members as well as the least developed and landlocked countries and small island developing States—continue to have significant problems in supporting many ongoing basic data collection programmes and dissemination, in adapting international methodologies to national circumstances and in developing programmes in new fields such as environment and natural resources.

xl. A concerted effort is needed if these countries are to achieve more effective national statistical services capable of implementing basic development monitoring statistics programmes in the next decade.

Vital statistics

xli. Reliable and comprehensive civil registration systems are a basic component of good governance and are essential for the production of vital statistics and of many health and population indicators. Vital statistics on births, deaths and cause of death have greatly expanded in coverage in the last decade in the middle-income developing countries but are still inadequate to support many needed indicators, particularly key health indicators such as maternal mortality and deaths from malaria and other critical diseases. In the lower-income developing countries, in spite of rapid increases in literacy and urbanization, coverage is particularly weak. A focused programme of support to improve these statistics will be essential to strengthening basic statistics for post-2015 indicators in many fields.

Coordination and harmonization of household surveys

xlii. Countries are making increasing use of household surveys as one of the most comprehensive sources for data on mortality, fertility and family planning, education, access to water and sanitation, use of preventive measures

for major diseases, and other important topics in the development agenda. However, currently available data on household income and consumption are inadequate in many developing countries to support reliable and timely indicators on poverty and inequality, especially for time series and international comparisons. Nor can they readily be used to measure interlinkages of poverty with issues measured through other surveys, such as those focusing on health, population, sustainable development, employment and hunger. A strong collaborative effort among concerned agencies and countries is needed to harmonize agreed international recommendations on methodologies and coordinate support, implementation, data collection and analysis in countries.

International capacities and collaboration

xliii. International statistical services have been strengthened in the fields covered by the MDG targets, driven especially by the international focus on the MDG indicators and trend assessment, and the impetus to greater coordination, harmonization, and peer group review.

xliv. Review of existing capacities in rapidly developing fields that might be added for post-2015 shows:

- a. Considerable infrastructure already in place for gender statistics, environment statistics and indicators, and for data on population group;
- b. Advanced development of methodology and testing in income distribution, peace and security fields including victimization and conflict, peace and human security;
- c. Rapid development of concepts, methods and testing for statistics and indicators relating to human rights and good governance;
- d. Considerable basic data and descriptive indicators relating to equity of special population groups, migration, urbanization and social protection.

Data quality control

xlvi. The framework for statistics and indicators in the post-2015 agenda should maintain data quality control mechanisms such as those already developed in the MDG indicators programme, including strategic, technical and policy review in the Statistical Commission and technical responsibility for data compilation and peer review in the IAEG.

xlvii. Data dissemination must encourage inputs and feedback from national offices and sources and calculations of indicators and estimates must be transparent, with public access to databases, including detailed data and metadata for specialists and researchers, and a commitment to international standards and recommendations for harmonization of statistical methods.

Partnerships among regional institutions

xlvi. Partnerships among regional institutions and their member States have played a growing, effective role in implementing the MDG framework at regional, sub-regional and national levels. They have assisted interested countries in adaptation of global goals, targets and indicators to their national circumstances and priorities, implementing needed basic data programmes, and compiling regional indicators and analyses attuned to regional concerns. They should continue to play a positive role in developing and implementing indicators for the post-2015 agenda.

Introduction

1. In January 2013, the UN System Task Team on the Post-2015 UN Development Agenda established a Working Group on Monitoring and Indicators to (a) analyze lessons learned from experience with the Millennium Development Goals (MDGs) monitoring framework, in close collaboration with the Inter-Agency and Expert Group on MDG Indicators (IAEG), and (b) develop recommendations on how the priorities identified in the UN Task Team Report *Realizing the Future We Want for All* might be captured in the monitoring framework, with the objective of informing the formulation of the post-2015 development agenda on the design and criteria of numerical aspects of target-setting, and the selection of robust monitoring indicators. In view of these objectives set by the Task Team, the present report is organized as follows.

2. The function and experience of the MDGs indicators monitoring process are described in chapter I. The chapter documents how the MDG indicators were developed and how the monitoring process was set up with the IAEG, and lessons learned from this formative process up to the present. These lessons include the importance of:

- a. National participation;
- b. The technical experience and collaborative spirit brought together in the IAEG;
- c. Strengthened capacities and support at national and international levels for the MDG indicators, and underlying basic data;
- d. Limited capacities in countries with special needs to collect data for their development programmes and MDG indicators;
- e. Quality assurance;
- f. Timeliness;
- g. Timeline for monitoring and periodic review of the selected indicators.

3. Short additional sections in chapter I touch on the role of regional institutions and, as requested by the Task Team, political sensitivities. Annex I complements chapter I, showing allocation of responsibilities among the agencies in the IAEG for compilation and analysis of the indicators for unified global monitoring.

4. Chapter II reviews the development of national capacities since 2000 in statistics supporting the MDG indicators, national selection and adaptation of targets and indicators, monitoring at national levels and lessons learned. Chapter III looks at numerical specification in targets and target-setting and an accompanying figure in this chapter shows the different approaches to numerical target-setting actually used in the MDG framework, and lessons learned. The final sections of chapter III review specification and criteria for indicators and lessons learned up to the present, in the light of experience documented by the IAEG.

5. Chapter IV looks at some of the international statistical infrastructure currently in place which post-2015 indicators might draw on for statistics and indicators on new themes, outlined in annex II, in addition to that already in use for the MDG indicators, summarized in annex I. New and cross-cutting themes which have been discussed for the post-2015 development agenda, listed in para. 68, are considered in terms of sources, methods and data compilations that exist and can be further developed.

6. It is a central theme of this paper that considerable “statistical infrastructure” is needed to support implementation of any list of targets and indicators, but the present paper is limited to discussion of statistics and indicators for the goals and targets of the current MDG framework, based on the Millennium Declaration, plus those additional fields discussed for post-2015 in various international forums. Thus, while the present report devotes considerable attention to information and development of national and international capacities, this should not be taken as a review of needed statistics and capacities for statistics generally for designing, monitoring and implementing national development programmes, or for supporting the design and implementation of international development assistance. Pursuant to the Millennium Declaration, MDG targets and indicators were generally limited to a short, consensus list of what were regarded as outcomes, or “results,” in terms of well-being. They were never intended to be a complete prescription for a development programme or to set limits on what could or should be included.

7. A fuller consideration of the statistics needed for the broad scope of development planning, implementation and monitoring is considered in the Busan Action Plan for Statistics (PARIS21, World Bank, et al., December 2012).

8. The term “statistical infrastructure” is used here to denote the whole of professionally staffed statistical services in a government or organization, a body of practice and documentation on statistical methods used in collecting and processing the data including standard concepts, definitions and classifications, and practical experience in data compilation and dissemination. As noted in the working group terms of reference, the review of national and international capacities “will help to ensure an informed discussion on monitoring and indicators at a later stage and will also help to outline possible strengths and weaknesses at a very early stage”.

9. Chapter V considers some innovative and less traditional types of indicators and data sources not usually found in official statistics or in the MDG indicators list, which can be considered for use in the post-2015 monitoring framework. These have been suggested for further development in the global statistical community, often utilizing new information technologies. New types of data sources considered in the first section of chapter V include “big data”, community-level surveys, private polling and social and other interactive media. New indicators for cross-cutting themes are considered in the second section of this chapter and the conclusions for the chapter are summarized in the third.

I. Function and experience in developing and implementing indicators to monitor achievement of the Millennium Development Goals

A. Setting up the monitoring programme for the Millennium Declaration

10. When the General Assembly approved the Millennium Declaration in 2000 (A/RES/55/2), it requested the Secretary-General to prepare a road map towards its implementation. The road map, including a list of indicators for the development and environment chapters of the Declaration, was developed by the Executive Office of the Secretary-General in consultation with the United Nations Development Programme, United Nations Statistics Division, Organisation for Economic Co-operation and Development, World Bank and statisticians from other concerned specialized agencies and international organizations (A/56/326). The road map was accepted by the General Assembly in 2001 as a guide for monitoring implementation of the Declaration (A/RES/56/95).

11. Two inter-agency and expert group meetings were organized by the office of the Secretary-General and the Statistics Division in March/April 2002 to review the list of indicators in terms of technical feasibility and availability of data, agree on methods of data compilation for the indicators, recommend a programme for annual reporting on progress in implementation of the Declaration as requested by the General Assembly, and determine the allocation of responsibilities among the organizations for reporting and analyzing the data. It was agreed there would be an annual statistical report comprising regional estimates for the indicators, focusing on policy-relevant trends, with statistics and analysis of trends provided by each responsible agency and collaborating agencies, to be compiled by the Statistics Division and reviewed by the group prior to publication.

12. To implement this programme, the expert/agency group agreed to meet twice a year, including national statisticians to the extent possible, in February/March to review and finalize the data and analyses for the annual report issued mid-year, and in October/November to take up technical issues of methodology and planning and review the next year's reporting timetable. This group became the Inter-Agency and Expert Group on MDG Indicators, or IAEG, led by the United Nations Statistics Division. The detailed country data and regional estimates, including both the official MDG indicators and related background statistics, would be provided by the responsible agencies to the Statistics Division to compile in an annual report on trends in the MDG indicators and for an MDG indicators database on the Statistics Division Web site. This site provides databases updated annually for the indicators and related series at the national level and global and regional estimates for the MDG indicators,

as well as comprehensive files and contact information for methodologies used for each indicator, files of all the annual printed reports and charts on progress in achieving the MDGs, and all of the legislative documentation starting with the Secretary-General's report to the Millennium Summit, *We the Peoples: The Role of the United Nations in the Twenty-First Century* (A/54/2000), and the Millennium Declaration itself (A/RES/55/2).

13. The first report on global and regional MDG trends was contained in an annex to the Secretary-General's 2002 report to the General Assembly (A/57/270) on implementing the Millennium Declaration. Beginning in 2006 this annex was moved to the Secretary-General's Report on the Work of the Organization (A/61/1 and following). In 2003 the IAEG agreed that a concise report on MDG trends should also be prepared for wide distribution, with an attractive format and graphics to provide an easy-to-understand narrative for policymakers and public debate. The first issue of the *Millennium Development Goals Progress Report* was issued in 2005, accompanied by a chart depicting progress in each region for a selection of the indicators from 1990-2005, using green, orange and red graphics to show "progress sufficient to meet the target in 2015", "insufficient progress to meet the target", and "no or negative change".

B. Lessons learned on the monitoring process

1. National participation

14. From the first technical meetings in 2002, national statisticians were invited to participate in the IAEG in an unofficial capacity. Relatively few were able to take advantage of this opportunity due to limited external funding, but the views of those who did were critical in ensuring a global reporting process that took pragmatic account of national statistical capacities and priorities across a range of developing countries. National participants were enthusiastic about the scope, purpose and content of the MDG indicators international reporting, but anxious to ensure national circumstances and priorities were considered, including the capacities of their national offices to collect and analyse the needed basic data. At the same time, because of their participation, they were able to engage more forcefully with their home Governments in setting up national reporting programmes supported by the United Nations Development Programme (UNDP). Based on these experiences, it is clear that there would be greater advantage in increased provision for the inclusion of national statisticians in the international monitoring process post-2015.

15. The annual sessions of the United Nations Statistical Commission have also provided an opportunity for national participation in the development of the indicators monitoring programme through the Commission's consideration of reports on development indicators and monitoring in the context of follow-up to the outcomes of the global conferences and the Millennium Declaration. In recent years Statistical Commission sessions have been attended by 70 or more developing countries, usually represented by their chief

statistician. Developing countries were instrumental in linking improved data collection for MDG indicators to the need for increased technical cooperation for statistics, as expressed in Economic and Social Council resolution 2006/6, Strengthening national capacities. Cooperation with developing countries has also helped to strengthen capacities for analysis and communication, as in UNDP's support for national progress support (see sect. 2 of chap. III below) and UNICEF's DevInfo, a database system provided to countries for monitoring human development indicators, with extensive functions for data analysis and presentation in reporting (www.devinfo.org).

2. Common purpose and technical collaboration in the Inter-Agency and Expert Group

16. The IAEG was comprised of experienced professionals in their respective fields of statistics. They were able to establish an unprecedented degree of common purpose, professionalism and shared technical experience to bring to the task of implementing a well-integrated and harmonized reporting process in the global statistical system. This peer group interaction was critical to avoid strictly "stove-piping" the process and to maintain integrated and harmonized reporting outputs which could both attract and focus the wide attention which the MDGs attracted, and hold up to critical outside scrutiny from development agencies, civil society, non-governmental organizations, research institutions and governments.

17. The commitment in the MDG framework and IAEG to reporting trends also ensured a high degree of continuity and sufficient time frame critical to ongoing assessment and improvement of data quality and timeliness. This peer group function served to balance the specialists' concern with detail in each field with the overriding need of the MDG framework to measure and report a few trends in a concise and easy-to-understand format, and to recognize cross-cutting questions not usually addressed in specialized fields. It also encouraged the participating agencies to consider more comprehensive, easy-to-understand indicators in their fields, and to give higher priority to public reporting and analysis of statistics and indicators.

3. Strengthened capacities for the MDG indicators at national and international levels

18. National, regional and international capacities for collecting, compiling and analyzing harmonized statistics for agreed indicators were the critical ingredients in the MDG indicators monitoring programme once the targets and indicators were decided.

19. The underlying focus on agreed priorities was developed over decades, in many cases alongside the policy-oriented discussion and elaboration of thematic goals, targets and indicators. Such interaction and debate were key aspects of clarifying political objectives and concerns sufficiently for them to be measured. Hence the history of work and policy debate and consensus in each field played an important role in considering the development of the MDG goals, targets and indicators, in strengthening international statistical

cooperation in supporting national statistical programmes, and in harmonization of statistical standards, recommendations and guidelines in established and emerging areas of thematic concern.

20. A list of the agreed agencies providing the data for each indicator is provided in annex I, along with their main printed publications containing the indicators and source data. As described in the section above, the success of this collaboration provided considerable incentive, continuity and positive peer review that will continuously strengthen this infrastructure. It also provided the basis for harmonizing data reported by different agencies, to facilitate greater exploration of interlinkages and cross-cutting themes, for example among forests, energy and employment.

21. Through these efforts, the IAEG has led the way in achieving significant improvements in the quality, harmonization of data and methods, and an opportunity to carefully examine trends covering 1990-2015, in the fields covered by the MDGs. Still, the scope for further work based on the current goals and targets should not be underestimated. The final 2015 report of the IAEG will provide an opportunity to carefully examine what remains to be achieved at national, regional and international levels, and related statistical issues.

4. Countries with special needs

22. Most of the conflict and fragile countries still have significant problems in supporting many basic data collection programmes and compilation and in new fields which are now developing, and in adapting international methodological standards and recommendations to national circumstances. These include population censuses, household surveys covering income consumption and employment, environment, vital statistics, national accounts with sufficient detail to serve national planners and the private sector effectively, and more sophisticated derived indicators, such as poverty and inequality, population dynamics (especially at sub-regional levels), sustainability and subjective indicators.

23. These countries include most of the least developed countries, small island developing States, countries affected by conflict, and many of the landlocked developing countries, among others. They are characterized by pervasive poverty, dependence on development assistance, geographical isolation and vulnerability, and, in the g7+ countries, conflict and fragility.

5. Quality assurance and timeliness

24. Quality and timeliness are continuous preoccupations of national and international statisticians. Major ongoing statistical programmes are routinely analyzed and compared with follow-up surveys to check for accuracy and representativeness, consistent with documented international standards, recommendations and guidelines. Standard concepts, classifications and definitions are particularly important in theory and in practice to ensure reliability over time and unbiased data collection, and are periodically reviewed in the light of experience in application (United Nations Statistics Division, Methods and Classifications, <http://unstats.un.org/unsd/methods.htm>).

25. Peer group analysis and review also extends to users in the public, academic and private sectors of civil society, whose feedback in using the statistics is critical to ensuring that the statistics are “fit for purpose”—in other words, that they measure what is wanted in a transparent and unbiased fashion and are not easily misrepresented or misinterpreted. Consultation with user groups is a common feature of official national statistics programmes, such as population censuses, trade statistics, household surveys, national accounts, civil registration, administrative data, and so on. In general, broad public and academic dissemination encourages public review and comment. Such discussion has grown rapidly as national statistical services around the globe increasingly use the Internet for public dissemination of statistics.

6. Periodic review of MDG indicators and methods at the global level

26. The IAEG meetings have provided important opportunities for agencies and experts to exchange views on technical problems encountered in methodologies and data compilation, including concepts and definitions and their harmonization, availability, frequency and timeliness of data, and use of estimates and models. The IAEG meetings have also been successfully supplemented by more specialized consultations among agencies and experts concerned with specific targets at a very detailed level. These collaborative processes have resulted in continuous refinement and improvement in the underlying data and hence in the global indicators, while at the same time undertaken in the spirit of strict adherence to the original set of consensus goals, targets and indicators in the Secretary-General’s road map.

27. For example, the Food and Agriculture Organization of the United Nations (FAO) is responsible for monitoring indicator 1.9 for MDG target 1.C on hunger, which is defined as the proportion of population below the minimum level of dietary energy consumption, also referred to as “prevalence of under-nourishment”. In recent years, FAO has undertaken to clarify and address the limitations of this indicator and the underlying data and methodology, as described in *The State of Food Insecurity in the World 2012*. These refinements have brought in new data from other agencies and have yielded improved indicators which have allowed a reassessment of food insecurity and hunger trends.

28. Inevitably, technical issues, new inter-governmental initiatives and major social and economic developments give rise to proposals for additions and refinements in the targets and selection of indicators. In its outcome document for the 2005 World Summit (A/RES/60/1), the General Assembly approved four new MDG targets: full and productive employment; access to reproductive health services; access to HIV/AIDS treatment; and biodiversity. In response, the IAEG prepared changes and additions to the list of indicators, which the General Assembly approved in 2007 and which were implemented in 2008.

29. Such a review process could be considered at, say, five-year intervals but must be strictly limited to resolving major issues of data quality, achieving

greater clarity in the goals, targets and indicators, and responses to high-level legislative initiatives. One of the most important strengths of the MDG framework has been the consistency and continuity it has provided over time, which are essential to reliable trend analysis. However, given the number of new fields, themes and methodologies under consideration for the post-2015 development agenda, and their varying stages of consensus and statistical development, specific allowance might be made for their further development and consideration for inclusion in the core list of goals and targets according to a longer, phased timetable.

7. Regional institutions

30. Regional progress reports on the MDGs have been issued for Africa, the Arab States, Asia and the Pacific, Europe and the Commonwealth of Independent States, and Latin America and the Caribbean, and at the sub-regional level for the Pacific. These are prepared by various regional institutions including the United Nations economic and social commissions and regional development banks, in cooperation with the United Nations Development Programme, and are available on the UNDP MDG reports website (<http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/>). In the use of indicators, these have largely followed the MDG targets and indicators as a benchmark, with varying adjustments to national and regional circumstances and priorities. One of the most common features of national reports is disaggregation to sub-national levels, in some cases quite detailed, to show geographical inequalities for policy analysis.

31. Regional institutions have also been active in every region in organizing and sponsoring numerous regional workshops for national statisticians on the MDG indicators, to strengthen national capacities in data collection and analysis for the MDG indicators.

8. Political sensitivities

32. The design of targets should take into account the availability of methodologies that have been tested and documented in a variety of country circumstances, comprising concepts and definitions, data collection and compilation. The more developed, tested and documented these methodologies, the better the foundation for an informed public debate to reach consensus on measurable targets.

33. Potential difficulties in reaching political and civil consensus on measurable targets for post-2015 are difficult to gauge. In the MDG framework, the inclusion of the target on universal access to reproductive health (part of goal 5, to improve maternal health), was not agreed until 2005. Some other targets comprised indicators for numeric measurement, but lacked desired end points or desirable thresholds for lack of political consensus to include them explicitly in the MDG targets (reduction in CO₂ emissions and official development assistance as a percentage of gross national income, for example).

34. Clearly, in preparing for post-2015, there needs to be political consensus on goals and targets; but knowledge of what can be measured and how

targets are set has, in turn, an influence on how the goals are chosen. One of the purposes of the MDGs was to increase accountability for the execution of policies. Unless there is a clear commitment to accounting for outcomes, there is little rationale for considering the selection of monitoring indicators.

35. Since 2000, a number of monitoring bodies in various fields of environment have agreed on substantive numeric targets. The Conference of the Parties to the Convention on Biological Diversity, in Decision XI/3, adopted an indicator framework for the Strategic Plan for Biodiversity 2011-2020 and the “Aichi Biodiversity Targets”. Headline indicators and most relevant operation indicators have also been developed for all 20 targets. Still, where assessments of future population growth, economic growth and environmental resources availability are needed to assess “sustainability” there is wide scope for disagreement. Numeric targets for sustainability necessarily involve a component of projections and forecasting to assess what is considered “sustainable”. Public confidence in such forecasting varies widely among fields and countries. Demographic projections and forecasts are widely supported while climate change or resource availability forecasts are widely contested.

36. From the experience with the MDGs, the acceptance of targets and indicators at the national level can be strengthened through greater national participation at the technical level in indicator development. This poses particular challenges for what might be called transboundary indicators—for example, concerning water use, oceans, international migration, protected areas and species and international governance—where several countries may be involved at once and statistical work may take second place to diplomatic negotiation. However, enhanced North-South and South-South cooperation are nonetheless providing ground for expert dialogue and agreement on technical aspects of measurement and improved statistics.

II. Challenges and lessons learned at the national level

A. National capacities and data availability

37. There is no question that the focus and attention generated by the MDG indicators have led to increased resources for statistics, both nationally and globally, and improved availability of statistics for indicators. Since 2006, the United Nations Statistics Division has monitored the availability of data compiled by international agencies for the global and regional Millennium Development Goals assessment of achievement. The latest review is contained in the report of the Secretary-General to the Statistical Commission, Indicators for monitoring the Millennium Development Goals (E/CN.3/2013/21, 2012).

38. For the 71 MDG indicator series currently adopted in the MDG framework, the country or other basic counting units are as follows:

- a. Fifty-one reported series relate to 163 countries in the developing regions;
- b. Seven (in goal 8), pertain to the 23 donor countries of the Organisation for Economic Co-operation, Development Assistance Committee;
- c. One relates to the least developed countries at the aggregate level (8.6);
- d. One is for 31 landlocked countries and one for 52 small island developing states (official development assistance (ODA) received, 8.4, 8.5);
- e. Three pertain to the 40 countries that are part of the Heavily Indebted Poor Countries Initiative (HIPC);
- f. For one series, no data are reported to the MDG Database (access to essential drugs) and four are relevant only at aggregated levels (all developing countries, market access for trade, 8.6, 8.7);
- g. Two series (malaria) are excluded from the analysis as reporting did not begin until 2010.

39. All of the OECD/DAC ODA indicators are compiled by the OECD Development Co-operation Directorate in cooperation with donor countries. The HIPC indicators are compiled by the World Bank and International Monetary Fund. These time-series are made available to the MDG Database annually for all the relevant countries and coverage in these fields can be considered complete (<http://mdgs.un.org/unsd/mdg/Default.aspx>).

40. The 2012 Statistics Division assessment also looks in more depth at 22 indicators where there is continuity in definitions and methods of reporting since the MDG Database was instituted in 2003. This assessment provides a limited but still valuable indication of the capacity of countries to produce the necessary data for reliable reporting of trends. It shows that the number of countries for which trend data are available for a large number of series has increased significantly. Trend data for 16 to 22 indicators are now available for 106 countries, compared to none in 2003 and 84 in 2006, while the number of countries with trend data for only 0 to 5 series has fallen from 47 in 2003 to only 9 in 2012.

41. Examining a larger subset of 55 indicators in the 2011 database, there are trend data for 41 to 55 indicators for 49 out of 163 developing countries and for 31 to 40 indicators in 51 countries. The number of indicators which are reported by countries and not adjusted or estimated by international agencies is now 53 per cent, a considerable improvement from 2003, but still an issue in reconciling national and international numbers. Where country data are adjusted at the international level (11 series), this is usually to ensure international comparability in definitions and procedures have been widely adopted by agencies to review adjustments with national statistical services. However, discrepancies and disagreements may remain for agency estimates

and modeled indicators, where national sources and analytical capacities are weakest.

42. Adoption of the MDG indicators list in 2001 prompted considerable effort at international, regional and national levels to develop national capacities for data collection. Where the indicators were based on extensive data collection programmes, such as the Multiple Indicators Cluster Surveys (MICS), supported by UNICEF, and Demographic and Health Surveys (DHS), supported by the United States, cooperative arrangements were greatly strengthened to harmonize and coordinate data collection activities. In many cases, specialized global monitoring groups were set up to share data, harmonize estimates within the United Nations system, improve methods for estimation, report on progress towards the Millennium Development Goals and promote country capacities to produce timely and properly assessed estimates. Examples include the Joint Monitoring Programme for Water Supply and Sanitation, the Inter-agency Group on for Child Mortality Estimation, and the Maternal Mortality Estimation Inter-agency Group.

43. As a general peer group forum, the IAEG itself and its working groups have greatly contributed to improved coordination in data compilation and harmonization in many fields not covered by a formal monitoring group. Where international estimates based on national data are used, agencies have strived continuously to strengthen consultation with countries to arrive at consensus estimates, as urged by the Statistical Commission.

44. Support to national statistical services from international agencies and donor countries in connection with these and other data initiatives has grown considerably, from \$US 1.0 billion in 2006 to \$US 2.3 billion in 2010-2012, with the European Commission, United Nations Development Programme, United Nations Population Fund, United Kingdom, United States and World Bank being the largest donors, and Afristat, the OECD Paris 21 initiative, United Nations Statistics Division among others playing major roles (*Partner Report on Support to Statistics, PRESS, 2012 Round* (PAPIS21, 2012)). A significant portion of this support for national statistics has been channeled through regional institutions such as Afristat and the Secretariat of the Pacific Community. UNICEF's MICS household survey programme and the United States Demographic and Health Surveys programme have greatly contributed to strengthening national level capacities to collect timely and high quality data on a wide range of development indicators including more than 20 MDG indicators.

45. PARIS21 has worked with many countries to prepare national strategies for the development of statistics and currently 80 countries are planning or have adopted a strategy (PARIS21, March 2013). The Busan Action Plan for Statistics notes that "Rigorous monitoring of global initiatives requires collaboration between national and international statistical organizations" (PARIS21, 2011) and a fully formulated strategy should take monitoring requirements into account in the context of the overall national statistics programme.

B. National selection and adaptation of targets and indicators

46. MDG targets and indicators were established for global monitoring and an impressive number of countries have successfully adapted them for use in country reporting, with varying degrees of selection and adaptation to national circumstances. The United Nations Development Programme has provided extensive support for this process, including governmental and civil society consultations within the countries. Some countries have also complemented MDG indicators with governance and human rights indicators. Malaysia's report, for example, focused on regional disparities and inequalities among rural and ethnic groups and Ecuador added indicators on the rights of women, indigenous peoples and Afro-descendants.

47. Some countries, however, particularly where resources for statistics are limited, have seen the MDG framework for global monitoring as setting up a new international reporting burden, adding to an already long list of international requests for development information and statistics, even though the IAEG from the beginning has sought to compile indicators only from agencies already collecting the necessary data from countries. Where there are major gaps at the country level, some countries feel their priorities are being set by the MDGs without considering national priorities and circumstances. Again, improved consultation with national offices and further strengthening of support to national statistical services are needed to ensure a collaborative, not top-down approach, and to support national leadership.

C. Monitoring at national and sub-national levels

48. As noted above, the United Nations Development Programme has worked with a large number of developing countries in the preparation of national MDG reports (<http://www.undp.org/content/undp/en/home/librarypage/mdg/mdg-reports/>). A full analysis of the adaptations and country practices in their reports is beyond the scope of the present paper, but it can be noted that virtually all of them provide for sub-national disaggregation and analysis, most commonly major and often minor administrative regions. The extent of disaggregation which is possible by geographical areas and cities, special population groups, ethnic and minority groups, and so on, varies considerably across countries according to the details of coverage in their data sources.

49. All national household surveys, including MICS, DHS, labour force, and the World Bank's Living Standard Measurement Study, are based on countries' master sampling frames and usually provide for disaggregation by urban and rural, provinces, gender, age groups, and many others according to nationally defined ethnic or other groups. Coverage of metropolitan areas and sub-provincial levels is much less common and may not be possible for some characteristics with the population sample used. Samples may also be insufficient to derive indicators on the most vulnerable/marginalized groups, such

as the homeless, those in institutions, mobile populations, or in areas deemed too risky to be included in the survey frame. Incompatibility in sampling frames and definitions also hinders disaggregation along many dimensions across differently designed surveys. Income and expenditure surveys often use their own samples and cover a smaller set of population characteristics, while health-related surveys seldom cover income and consumption. Forestry and agricultural surveys are much less common in developing countries, but other systems—such as remote sensing surveys and registration data for projections and trends in natural resources, vulnerability and effectiveness—are often available.

50. Finally, agricultural and business establishment surveys, and administrative sources of economic statistics may be limited in their population coverage and not encompass socio-economic dimensions, even gender, that are needed for indicators. Developed countries' statistical services have a long history of working to harmonize definitions and coverage among their basic data sources, and of balancing sector needs with the benefits of integration. But it is understandable that in most developing countries the costs of integration and harmonization across disparate data sources and responsibilities are high and the immediate benefits in meeting current demands are less compelling.

51. A proactive, theme-specific approach to global monitoring has been taken by UNAIDS, following the United Nations adoption of the Declaration of commitment on HIV/AIDS (United Nations General Assembly, 2001). Indicators for the goals and targets of the Declaration have been developed and progressively refined for UNAIDS's biennial reporting, with the main emphasis on standardizing country data for national-level reporting (UNAIDS, 2013).

52. As the scope of work and interest on the MDG indicators has widened, national statistical offices in developing countries in particular face an ever-increasing need for national coordination among ministries and other data sources, even where national statistical offices are given clear, central responsibility and more so where coordinating responsibilities have not been clearly agreed or implemented.

D. Lessons learned: challenges and responses

53. While there have been clear gains in availability of data to support the MDG indicators, with the growth of support to countries and cooperation at all levels, countries have drawn attention to challenges and concerns that remain:

- a. Some countries argue that the MDG framework has been imposed by agencies and donors without adequate consultation or follow-up support with national statistical services. Related to this is the concern that international emphasis on the MDG indicators has adversely affected attention and resources to basic fields of statistics not connected to the MDGs, such as a broad range of economic and business statistics. A broader, more inclusive global work programme for technical cooperation in statistics post-2015 should take account

of this concern, drawing on the work of PARIS21 in developing individual strategies with countries for the development of national statistics (discussed below) and greater support for implementation of these strategies;

- b. The relation between the agreed targets and indicators for global monitoring and possible regional and national modifications to these has not been clear; countries have sometimes seen global targets and indicators as mandates. Countries should be encouraged to continuously review their own goals, targets and indicators through intragovernmental and civil society consultations, with the global post-2015 agenda as a useful benchmark but not a prescription for their own national reporting programmes. National level consultations should also take into account agreements entered into through international law and ratified human rights treaties;
- c. Consultation on agency estimates has been questioned and methods of estimation are considered opaque by some countries, while donor support has focused too exclusively on data collection with inadequate attention to strengthening national capacities for follow-up reporting, analysis and development of indicators. Greater attention should be given in capacity-building and data collection programmes to analytical techniques and dissemination post-data collection, including methods of estimation to fill data gaps and for populations of marginal and vulnerable groups, such as nomadic populations, migrant workers, the homeless and the institutionalized;
- d. It would be useful at an early stage to comprehensively examine data gaps and compilation limitations country by country and theme by theme, with a view to addressing them systematically in national statistical services;
- e. Agency work with countries is still stove-piped to agency counterparts in countries which are often outside national statistics offices, such as labour, education, health and environment ministries, leaving little opportunity for strong coordination at the national level in MDG indicators compilation. Countries should consider strengthening their national statistical offices to ensure well-coordinated support and collaboration for their post-2015 monitoring framework, reinforcing an integrated approach to economic, social and environmental facets of sustainability;
- f. There is a need for a well-defined mechanism to coordinate agencies and donors in supporting development of statistics used for MDG monitoring. Donor coordination is inadequate both to prevent overlap and duplication and to promote effective harmonization of collection programmes. Strengthened participation of donors in whatever mechanism might be set up to compile statistics in the post-2015 agenda should also be considered.

54. For many major data collection programmes which have contributed the most to MDG indicators availability—including population censuses, Multi-Indicator Cluster Surveys and Demographic and Health Surveys—coordination and harmonization mechanisms are well developed. In other areas there are more data gaps and inconsistencies, coverage limitations, and lack of harmonization, even within countries and time gaps. These same problems are also encountered in countries which do not participate in MICS and DHS and hence do not have the advantage of benefiting from participation in their coordination mechanisms. Again, national participation in the successful technical joint monitoring groups which have developed in support of MDG indicators should be considered, as data gaps, inconsistencies and lack of harmonization are principal features of their agendas. Formation of new joint monitoring groups should be considered (in the areas of income, expenditure and income/consumption inequality, for example).

55. In the course of the current MDG monitoring process, international agencies have frequently carried out estimations or imputations on missing data for indicators using various statistical methods. Although this work was usually done with national partners and with the purpose of achieving internationally comparable data, this was often a source of concern to many national statistical offices, particularly in developing regions. In arrangements for monitoring the post-2015 development agenda, transparency, accountability and national involvement in any estimation which is not derived from reported data should be enhanced. The methods should be replicable and easily understood by users and national stakeholders.

56. Where international agencies use their own methods of estimation and modeling to improve comparability and fill in data gaps, countries should likewise participate in the development and application of these methodologies.

57. PARIS21 (www.PARIS21.org) was founded in November 1999 to coordinate the assistance provided by developed countries in statistics and to advocate for strengthening statistics in developing countries with a view to monitoring the international development goals under development at that time (IMF, OECD, United Nations, World Bank Group, 2000). The Marrakech Action Plan for Statistics (World Bank, 2004) was an important international statement of the need for good statistics to monitor development outcomes including MDGs. It established a program of national strategies for the development of statistics in developing countries that was supported through donor trust funds and overseen by PARIS21. It also provided the basis for technical assistance to countries in carrying out the 2010 round of censuses and for regional workshops on the MDGs, and led to the creation of the International Household Survey Network and its off-shoot, the Accelerated Data Program, which established standards for documentation and preservation of surveys and helped to recover hundreds of “lost” surveys. The Marrakesh Action Plan and its successor, the Busan Action Plan for Statistics, called for greater donor coordination in support of national statistical plans—one of the important lessons learned from over a decade of working to build statistical capacity in developing countries.

III. Numerical aspects of target-setting and criteria for indicators

A. Numerical aspects of target-setting and lessons learned

58. The targets of the Millennium Declaration and road map were based on political consensus developed over nearly three decades of global conferences on development and environment. In the background to these conferences there was considerable new statistical work to support policymaking and target selection. Among the earliest and most influential of these relative to formulation of the MDGs were: WHO International Conference on Primary Health Care (1978); WHO Assembly's follow-up Global Strategy for Health for All by the Year 2000 (1980); UNESCO's World Conference on Education for All (1990); UNICEF's World Summit for Children (1990); world conferences on women, held quinquennially from 1975 to 1995. Even earlier, in 1972, the United Nations Conference on the Human Environment called for targets to be established for access to safe water supply and hygienic waste disposal.

59. The figure below shows the different types of targets adopted in the MDG framework. Sixteen target indicators state or imply numerical targets of 100 per cent or 1 to 1 equality. The gender goal for example uses wording such as "universal access," "boys and girls alike". Only six target indicators give a numerical target on a numeric scale. Two of these date to the 1990 World Summit for Children (under-five mortality and maternal mortality), but there is no record of how the target numbers were arrived at. For the poverty target, the United Nations Summit for Social Development in 1995 called for "eradicating poverty by a target date to be specified by each country in its national context". Later, 50 per cent reduction in poverty was specified in the OECD Development Assistance Committee report *Shaping the 21st Century* (OECD/DAC 1996) and applied to the target of extreme poverty in the Millennium Declaration.

60. The remaining indicators call for or imply desirable directions of change, based on measured rates, ratios, percentages and the like. Where these have related to reversing undesirable trends, as in "reverse the loss of environmental resources" and "have halted and begun to reverse the spread of HIV/AIDS, malaria and tuberculosis", they have set up significant milestones for monitoring achievement. It is notable, for example, that of the environmental resources targeted, "reverse the loss" has been achieved at the global level for only one—proportion of terrestrial and marine areas protected, itself a programmatic indicator for species protection.

61. The concept of "access" in target setting puts a greater burden on the statistician to select appropriate indicators, as neither the target addressed nor numeric scale is clearly formulated. "Access" has been interpreted as "take-up", or use of a service, with the implicit assumption that 100 per cent

use is the aspirational target. This can lead to ambiguity as to the exact content of the indicator and what realistic time-bound targets might be. It has been difficult to operationalize, for example, the target “access to affordable essential drugs”.

62. In summary, for quantitative interpretation of a target the minimum criterion for target wording is to identify the desired direction of change. Targets described as “universal” or “equal” can be measured if a numeric scale is specified. Reversing a direction of change has also been an effective wording for several targets. Vaguer but still operational if a numeric scale is specified are targets described in terms such as “universal” or “equal”. While this latter approach runs the risk of being perceived as more aspirational than practical, ambitious targets which are numerically clear can set a high bar that inspires more highly focused and dedicated efforts to show some significant rate of progress.

Box 1

Types of targets in the MDG framework

One hundred per cent

- 1.B. Full and productive employment and decent work for all
- 2.A. Universal primary education
- 5.B. Universal access to reproductive health
- 6.B. Universal access to treatment for HIV/AIDS for all those who need it
- 8.10 Countries attaining HIPC decision and completion points

Equality

- 1.B. Full and productive employment and decent work for all *including women and young people*
- 2.A. Boys and girls *alike* to complete a full course of primary education
- 3.A. Eliminate gender disparity in all levels of education
- 3.2. Share of women in wage employment in the non-agricultural sector
- 3.3. Proportion of seats held by women in national parliament

Percentage or ratio change specified

- 1.A. Halve the proportion of people whose income is less than one dollar per day

(cont'd)

Box 1 (cont'd)

- 1.C. Halve the proportion of people who suffer from hunger
- 4.A. Reduce by two thirds the under-five mortality rate
- 5.A. Reduce by three quarters the maternal mortality ratio
- 7.C. Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

Change in rate of change

- 5.B. Significant reduction in the rate of biodiversity loss

Directional (of percentage or proportion)

- 6.A. Reverse the spread of HIV/AIDS
- 6.C. Reverse the incidence of malaria and other major diseases
- 7.A. Reverse the loss of environmental resources
 - Proportion of land area covered by forest
 - CO₂ emissions, total, per capita and per \$1 GDP (PPP)
 - Proportion of fish stocks within safe biological limits
 - Proportion of total water resources used
 - Proportion of terrestrial and marine areas protected
 - Proportion of species threatened with extinction
- 7.D. By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers
- 8.A–8.D (develop a global partnership for development) are open ended as to specification of indicators. Twelve quantitative indicators were developed in the road map in the areas of official development assistance, market access and debt sustainability, all with implied desirable direction of change.
- 8.E. Access to affordable essential drugs in developing countries
- 8.F. Make available the benefits of new technologies, especially information and communication
 - Fixed telephone lines per 100 inhabitants
 - Mobile cellular subscriptions per 100 inhabitants

63. In examining the implementation of the MDG framework targets, the following lessons on numerical target-setting have been identified:¹

- a. Targets must relate clearly to each goal and be expressed in clear and easy-to-understand language for policymakers, Governments, civil society and the public;
- b. It is highly desirable that targets be numerical but should at least specify as precisely as possible content which experience has shown can be quantifiable in order to guide the design of appropriate indicators;
- c. Countries should select and adapt global targets and the related indicators to their own circumstances and priorities as appropriate, and global target-setting should draw on country experiences;
- d. Data limitations in most of the least developed and other fragile and conflict countries are particularly acute and should be explicitly addressed in the new development framework in order to facilitate the monitoring process;
- e. Numerical targets should be ambitious enough to focus policymakers and public attention and effort but not so ambitious or vague as to sound more aspirational than realistic;
- f. Numerical targets can specify absolute or relative change desired, taking into account the range of situations in countries;
- g. Targets must indicate at least a desired direction of change, and preferably the extent of change sought or numerical status to be achieved;
- h. Targets should have an appropriate time frame, allowing for lags in data compilation and a typical rate of change in the variable measured;
- i. Targets should relate to a common reference period, such as 2010-2025. The experience of the MDG indicators shows that for many indicators, relatively long initial time periods were needed to compile and verify available data, refine data collection procedures, and ensure enough annual data points to identify trends with some assurance. In the case of new indicators for post-2015, consideration could be given to compiling available data from 2000, but benchmarking progress targets to 2010;
- j. Targets should take account of different demographic structures across countries and regions and within countries, for example the changing weights of youth and older persons or different rates of fertility and mortality;
- k. Targets need to take a forward-looking view of population patterns and trends. For example, future targets on education cannot only

¹ Based on the Report of the Task Team on Lessons Learned from MDG Monitoring of the IAEG-MDG (United Nations Inter-agency and Expert Group on MDG Indicators, March 2013) and the views of the Task Team Working Group on Monitoring and Indicators.

focus on the number of pupils in primary, second or tertiary school today but also should consider changes in the size of the school-age populations of the future. The same consideration applies to employment, especially youth employment, and the labour force, especially women's participation. A combination of absolute and relative targets will be needed to take shifting demographics into account;

- l. In principle, targets should be specified in terms of desired outcomes and results, not processes and programmes, but it is recognized that political and scientific consensus on widely recognized support programmes may make target-setting for these programmes, broadly defined, very useful, for example, access to antimalarial and AIDS/HIV drugs, use of bednets;
- m. Targets must be clear as to their scope, and, to the extent possible, enumerate sub-concerns to be covered by indicators.

B. Criteria for indicators and lessons learned

64. In examining implementation of the MDG framework indicators, the following criteria for indicator selection have been identified:²

- a. Indicators must be clearly linked to the target, be easy to understand and unambiguous for interpreting positive and negative change relative to the benchmark and target by policymakers, Governments, civil society and the public;
- b. Capacity or potential capacity for data collection and analysis to support the indicator must exist at national and international levels, with requisite levels of long-term support;
- c. Indicators for global monitoring must be strictly limited in number, following globally agreed priorities expressed in the goals and targets. From 50 to 75 indicators was considered a practical limit in establishing the MDG framework, to achieve maximum and sustained impact among governments, civil society, and the public;
- d. Most developing countries have limited internal resources, human or financial, to support compilation and analysis of indicators, or of innovative studies, but are keen to take advantage of innovations that have been proven effective, such as UNICEF's DevInfo;
- e. Indicators where methods and data are at an early stage of development will require at least 3-4 years to implement for global monitoring, at least in most developing countries, and necessary resources must be available;
- f. Pilot projects are needed and must be supported with necessary resources to test new indicators and data collection methods and their methods and results fully documented;

2 Ibid.

- g. International organizations must fully support the development of indicators at national and international levels within their spheres of competence while recognizing the value and importance of indicators in their fields for cross-sector use and analysis of interconnections. Inter-agency monitoring groups to develop and reach agreement on methods and results in areas where several agencies have common concerns have been very effective in harmonizing and improving methods, availability and consistency of results and trend analysis for a number of targets and indicators;
- h. Indicators and data collection must be built using harmonized, recognized international recommendations and guidelines, where they exist, as benchmarks, and new recommendations and guidelines developed where needed, to ensure general harmonization and consistency among the indicators, international comparability and reliability over time to assess trends. These methodologies and best practices, comprising data sources, methods of computation, treatment of missing values, regional estimates, and so on, must be fully documented and readily available;
- i. Indicators should be “actionable,” that is, go beyond advocacy to policy, providing support for the debate, implementation and assessment of policy;
- j. Indicators of trends cannot be based on ad hoc data collection or data which are not statistically representative of an entire country;
- k. For global monitoring a competent agency or agencies must be agreed for each indicator and for drafting the related analysis, including the compilation of country-level data, regional aggregates, development and dissemination of concepts, methods and analyses used to assess progress made globally and in regions. In addition, the agency should provide guidance and assistance to concerned countries to strengthen their capacity to collect and compile data relevant to the indicator.

IV. International statistical infrastructure for new themes

65. International statistical infrastructure is defined here as the global system of statistical services in international organizations. These services in general are responsible for international compilation and publication of data from countries, in their areas of competence, for use by their own organizations, governments, civil societies and general public, establishing harmonized international guidelines, recommendations and standards for statistics through intergovernmental bodies, and assisting developing countries in establishing national statistical programmes through official development aid and technical cooperation. In addition, in the last few decades the non-profit

and private sectors have come to play an increasing role in international statistics, where data are compiled and analyzed in research institutions and in some cases by the private sector, non-governmental donors are supporting thematic research and data collection and where data collection and processing are subcontracted from national offices to private firms. In all such cases, it is necessary to assure that international statistical standards are understood and adhered to in a transparent and accountable way.

66. Private and non-profit participation in international statistics was not considered in establishing the MDG framework but is now under active discussion within the official international statistics community and United Nations Statistical Commission. Some instances and possibilities are considered in chapter V below on innovations in data collection and indicators. In the present section existing established and developing international capacities are noted.

67. In the discussion of new goals and targets for the post-2015 framework it is important to take into account potential sources of data, and allocation of responsibility for data collection, at national and international levels—that is, assess the present and potential infrastructure available for building upon. Necessary infrastructure and consensus on responsibilities and therefore accountability in data compilation and analysis at national and international levels will require that time and resources be allocated for new themes. Most existing infrastructures drawn on for the MDG indicators have been decades in the making. While innovative methods built on modern information technologies hold out hope to speed up this process, experience with the MDG process confirms that it will still require several years at least, as well as significant new resources, to put agreed new programmes in place, achieve and begin to test and benchmark the results, and follow up with regular data collection and reporting to support global monitoring.

68. The UN System Task Team report to the Secretary-General on the post-2015 UN development agenda, *Realizing the Future We Want for All*, and the Task Team thematic think pieces identify a number of new themes that might be included in the post-2015 framework, depending on measurability and policy relevance, including:

- a. Rising inequalities
- b. Population dynamics, including changing proportions of youth and older persons in societies, variations and changes in rates of growth, fertility, morbidity and mortality, migration and urbanization
- c. Governance and human rights
- d. Rule of law and corruption
- e. Sustainability aspects
- f. Social inclusion, including migrants
- g. Countries with special needs

- h. Culture
- i. Disaster risk and resilience
- j. Science, technology and innovation for sustainable development
- k. Macroeconomic stability
- l. Peace and security
- m. Social protection
- n. Peacebuilding and state building.

69. It is not within the scope of the present report to recommend new themes for which targets should be developed, nor even to suggest which themes would be most amenable to rapid development of data for indicators once targets are established. However, two points deserve emphasis. First, there was considerable skepticism at the beginning of the work on the MDG indicators, following adoption of the Millennium Declaration, that sufficient data were available for sound indicators in many of the fields. Nevertheless, the IAEG agreed that while data availability must be considered, it should not be a controlling criterion in the selection of indicators. Experience showed that this comparative optimism turned out to be well-founded. Through concerted and intensive collaboration and discussion, the IAEG participants were able to promote improvements in data compilation and analysis such that many indicators at first considered unlikely to prove widely feasible are now an established part of MDG monitoring, and these positive results have encouraged considerable new and innovative work to further improve them.

70. Second, while the new themes listed above would pose significant challenges to any global monitoring programme to follow up the MDG indicators monitoring, there exists within the competent international agencies, working with national services, a reservoir of expertise and commitment to statistics and indicators on emerging themes which should not be underestimated, to the extent additional resources and political commitment are provided. In this spirit, annex II presents selected citations to international work on statistics in these fields. Included are civil and political rights priorities, such as personal security, justice administration, and political participation not included in the original MDG monitoring framework. In all of these areas, impressive and ground-breaking work on methodologies and data collection is well-advanced. Further assessment of these long-term capacities and responsibilities at national and international levels should be an important step in considering the development of post-2015 targets and indicators.

71. It should also be noted that household sample surveys have been for several decades a powerful and flexible instrument for data collection on a wide range of households and members' characteristics, and with great potential for integrating statistics across different themes. The MICS of UNESCO and DHS of the United States, already mentioned, and Living Standards Measurement Study surveys of the World Bank, the World Health Survey of the World Health Organization, labour force surveys assisted by the International

Labour Organization, and private surveys of Gallup and L'Institut Français d'Opinion Publique (IFOP), noted below, comprise a formidable array of household surveys and data to draw from for new indicators, where necessary coordination among countries and of concepts, methods and definitions can be achieved, as recommended in United Nations Economic and Social Council resolution E/2000/6 and the Busan Action Plan for Statistics (PARIS 21, 2013). The World Bank has also set up the International Household Survey Network to promote coordination, harmonization and utilization of surveys at a technical level across countries. Household surveys represent potentially the most efficient ways of integrating data for cross-cutting themes, such as income and labour force characteristics, and may have the ability to integrate data on special groups as well.

72. As household surveys are likely to continue to be one of the most valuable sources of information for many of the areas covered in the post-2015 development agenda, an international programme to give further impetus to their coordinated development, capacity-building and donor support in all regions is highly desirable, especially in the least developed and conflict-affected and vulnerable g7+ countries.

V. Innovations in data sources and data collection, and indicators for post-2015 cross-cutting themes

A. New data sources and information technologies in official statistics

73. In recent years considerable research has been undertaken on applying technical innovation based on new information technologies in data collection, compilation and analysis. Data source research has included: tapping big data, that is, deriving indicators from the huge flows and stores of data on the Internet, including social media, and administrative data stores in government and the private sector; interactive data collection using mobile technologies, emphasizing the potential of very local data; expanding privately run public opinion surveys into new fields and including their coverage and data in national targets and indicators. There has been experimental work in national and international statistical and research services, in non-profit research organizations, in academic research, and in the private sector.

74. Many of these issues are addressed in the United Nations Draft Report of the Joint UNECE/Eurostat/OECD Task Force on Measuring Sustainable Development (2012), the United Nations Statistical Commission High-Level Forum on Official Statistics' Response to the Rio+20 Mandate for Broader Measures of Progress (2013) and The Report by the Commission on Measurement of Economic Performance and Social Progress (Stiglitz/Sen/Fitoussi report, 2010).

75. As described at the Statistical Commission High-Level Forum, *Challenging the Limits of Official Statistics* (2012) producers of official statistics are keen to create new efficiencies in costly data collection programmes at a time of fiscal austerity and as a source of resources for new programmes, while users are keen to have data provided with less time lag and on new topics.

76. National statistical services historically have demonstrated considerable experience and enthusiasm for IT-based innovation. In developed countries they were pioneers in the development and practical applications of computers and automated computing, particularly for population censuses, and international technical cooperation among statistical services was responsible for introducing modern computing into many if not most of the developing countries for their population censuses from the 1950s to the 1990s. With the rapid spread of low-cost personal computers beginning in the 1980s, and their less demanding human skills requirements for efficient and effective operation, developing countries were able to speed up their adoption of computers throughout government services with less outside support, and quickly adopted the Internet as their most important data dissemination vehicle.

77. Countries are actively pursuing applications of mobile phones for a variety of data collection, including population censuses and civil registration of births and deaths. Brazil's 2010 population census, for example, successfully employed handheld devices and the Internet in enumeration of the population; innovative approaches are underway in African countries to integrate birth registration with health services and to use mobile phone technology for reporting births outside of health facilities.

78. "Big data" sources have been described in the United Nations Global Pulse project as an umbrella term for the explosion in the quantity and diversity of high frequency digital data consisting, for example, of call logs, mobile banking transactions, online user-generated content such as blog posts and Tweets, online searches, satellite images. One use of some of these sources is also often referred to as "crowd sourcing".

79. A study of big data and official statistics by the United Nations Conference of European Statisticians concludes that there is potentially much to be gained in national statistical services incorporating big data sources into their programmes, and they are well positioned to measure their accuracy, ensure their consistency with established concepts and definitions, and provide interpretation while improving relevance and timeliness. It concludes that, "It is clear that during the next two years there is a need to identify a few pilot projects with few countries that will serve as proof of concept and to address significant issues and potential limitations including legislation on data access and use, privacy, costs, management, and statistical and technical methods" (United Nations Conference of European Statisticians, 2013). It has been suggested, for example, that the huge volumes of Internet data could be tapped, through public-private partnerships, to measure patterns and trends in income and consumption (for example, monitoring automated financial transactions), satisfaction and attitudes, civil unrest, and provide

early detection and warning systems. Statistical challenges in using these data sources include “the three VVVs”—volume, velocity and volatility—and representativeness. At the same time, national statistical offices have raised concerns as to personal privacy and private ownership of data, accountability and transparency, and different legislation governing private data institutions and national statistical services. Applications of big data to MDG monitoring have been suggested for early identification of new trends and trend shifts, for example, but as noted above, research and experimentation for use in official statistics is at an early stage.

B. Indicators for new and cross-cutting themes

1. Inequality measures

(a) Income and consumption inequality

80. In the MDG framework, poverty and inequality in income and consumption are measured using three indicators: the World Bank’s \$US 1.25/day extreme poverty threshold to measure the number and proportion of poor; mean income of those below the poverty line (“depth of poverty”); and share of the poorest quintile in national consumption. Food insecurity also uses the threshold concept to distinguish those affected by food insecurity and the rest of the population. As a related indicator, population below the nationally set poverty line is also included in the MDG Indicators database at mdgs.un.org, though it is not comparable across countries.

81. Many other non-monetary targets are set, at least implicitly, in one hundred per cent terms, such as decent employment, universal primary education, universal access to reproductive health, thus highlighting the inequality between those who satisfy the criterion and those who do not.

82. One common but limited approach to measuring income inequality within a population is to focus on specific quantiles of population by income, as with the current MDG indicator 1.3, share of poorest quintile in national consumption or income. This indicator is relatively easily understood and, as an ordinal ranking, provides an unambiguous measure of the relative welfare of the poorest across countries and over time. However, aggregation of this indicator to obtain a global measure or for different groups of countries is beset with methodological problems. This limits its functionality for MDG monitoring beyond the country level. And, unlike the Gini coefficient, for example, this indicator does not convey information about the entire income distribution. There are a number of more refined measures of inequality in distribution in a selected population. The Gini coefficient is widely used but difficult to communicate and translate into policy terms (UN Economic Commission for Europe/Conference of European Statisticians, 2012), but is nevertheless the principle indicator used by the United Nations to monitor the trend of income and consumption inequality in Latin America and the Caribbean (United Nations Economic and Social Commission for Latin America and the Caribbean, *Social Panorama* (annual)).

83. The Gini coefficient has many desirable properties—such as mean independence and population size independence—but cannot easily be decomposed to show the sources of inequality. A disadvantage of both the Gini coefficients and other indices widely studied such as the Theil index, is that they vary when the distribution varies, no matter if the change occurs at the top or at the bottom or in the middle. If we are most concerned about the share of income of the people at the bottom, a better indicator to monitor over time would be a direct measure, such as the growth in the average income of the poorest two quintiles. Similarly one can focus on the richest quintile or ten per cent in relation to the poorest 40 per cent, or the median relative to the mean, and so on. It is also common to consider the share of a top or bottom quintile in the total.

84. A number of measures and graphic displays of income distribution are analysed with examples from national data in the United Nations *ECE Handbook* (UN Economic Commission for Europe, 2011). Finally, it is also the case that the Lorenz distribution curves which underlie measures of dispersion are particularly sensitive to the concepts and definitions used for the data being analysed. Hence international comparability for this kind of indicator is difficult to ensure in the absence of generally applied standard methodologies.

85. Indicators of the extent of inequality in distribution are also feasible in some other fields where numeric scales are available, such as years of schooling, life expectancy and disability-adjusted life years. However, simple measures of inequality using the ratio, rate or proportion differences between selected populations are more common and easy to apply. All of these can readily be adapted for global monitoring and for indicators on special population groups, where data are available.

(b) Inequalities among population groups

86. Across populations, the principal focus is on population groups of special interest, notably women and men, youth, the elderly, disabled, metropolitan/urban/rural or other geographical areas, ethnic origin, immigrants, refugees and internally displaced persons, indigenous populations, and so on. There are different ways to treat these groups when developing indicators. The principle of non-discrimination and equality is established in international human rights instruments adopted by States. This principle supports the need for systematic statistics on racial and gender equality, rights of children, migrants and persons with disabilities, as well as statistics on other vulnerable populations.

87. One approach is to prepare an independent list of indicators for each group or related groups of interest, such as women and men, urban and rural, following a standard list of themes, such as that in the MDGs. For example, independent indicator sets have been proposed for gender, youth, ageing, and migrants.³ An advantage here is that the indicators can be more flexibly

³ “General comment No. 20: Non-discrimination in economic, social and cultural rights,” of the United Nations Committee on Economic, Social and Cultural Rights (E/C.12/GC/20), provides an illustrative listing of prohibited grounds of discrimination which may require the disaggregation of data (on the ground of race, colour, sex, age, language, religion, political or other opinion, national or social origin, property, birth, physical or mental disability, health status (including HIV/AIDS), sexual orientation and civil, political or other status. See the listing of human rights instruments in annex III.

tailored to the needs and priorities of each group. An alternative is to designate indicators for each group within each theme in an overall, consolidated list. A third approach is to have a stand-alone goal for a group within a single list, such as “Promote gender equality and empower women”, and design a set of indicators for each goal that may draw on the other themes but be tailored and limited to priorities for that group.

88. A twin-track approach was followed in the MDG framework for indicators of gender equality. A specific goal was adopted on gender equality and women’s empowerment, goal 3, while goal 5 addresses one critical gender issue, maternal mortality. Other goals include targets and indicators against which sex-disaggregated data can be compiled and monitored, such as goal 1 (poverty, employment and hunger), which specifically mentions women and young people, and goal 2, target 2A, on primary education for “boys and girls alike”, while goal 3 was framed exclusively as gender equality and empowerment of women. The twin-track approach of having a separate gender equality and women’s empowerment goal and adding gender targets into other goals was effective in promoting accountability and ensuring that gender equality was visible throughout the framework. However, the narrow focus on the indicators for MDG 3, comprising a single target and three indicators on parity in education and two indicators on parity in wage employment in the non-agricultural sector and representation in parliament, has been extensively criticized as being too limited.

89. For population groups generally, the option of a goal or goals focusing on population groups, however identified, each comprising targets and indicators for each group, is limited by the total number of indicators that can be accommodated in a global set of targets and indicators. The additional option of a separate reporting mechanism for each identified group is limited by the capacity of national and international statistical services to monitor and disseminate data and analysis for various indicator sets, but could be expanded with further resources.

90. Once the numeric measurements to be used in any given set of indicators have been established, there are two common approaches to measuring inequality. One approach, used in the MDG indicators, is to compare a given rate for a special group either to that in the population as a whole, or to some other appropriate population, such as urban and rural, or women and men. Narrowing the difference then can then be taken as the target. However, when setting the target or monitoring achievements, care must also be taken to ensure that the result is being achieved through progress by worse-off groups (levelling-up) and not through regress by better-off groups (levelling-down).

91. The second approach looks at inequality across themes by comparing the distribution of one indicator, say secondary school enrolment or child mortality, according to income or consumption quintiles, as is done in numerous examples in *The Millennium Development Goals Report 2012*. In either case, for any population group, including geographical subsets, it is crucial to develop consensus on priority, actionable targets which can inform the development of appropriate indicators.

92. The full utilization of household surveys for monitoring inequalities is still far from fully realized. However, the sample size in surveys may limit the number of groups that can be covered. Population censuses and civil registration should cover the whole population but are limited in the number of characteristics and indicators that can be examined. Other administrative sources can also be used for analysing the inequalities among population groups and geographical areas.

93. Population groups can also be considered from the environmental point of view by examining ecosystem benefits and the access to and use of these benefits by population groups for equitable human well-being. Forest, for example, provides monetary and non-monetary contributions and benefits to different groups of society, and forest accounting has been growing at national and international levels with the increasing use of the United Nations System of Environmental-Economic Accounting. Frameworks for natural resource accounting provide useful methodological approaches to addressing socio-economic data gaps.

94. In the case of prospective indicators referring to human rights, which are very often linked with special population groups, it is important to consider not only ratification or adherence to international rights conventions but also the actual accomplishment and enforcement of such conventions, through agreed, accountable and transparent monitoring bodies and methodologies.

95. The role of measuring inequalities among vulnerable groups is strongly linked to the definition of a set of minimum guarantees of income security and essential health services to improve the living standards of the poor. This is the goal of the United Nations initiative on a social protection floor. The metrics of this can be achieved through indicators focusing on specific household groups and coverage of different groups in the household, including those of working age, children and the elderly. The roles of cash transfers or employment guarantees are in the spotlight of many stimulus packages and these could be key factors in achieving sound measurement in the post-2015 development agenda. International agencies including the International Labour Organization, United Nations Children's Fund, United Nations Development Programme, World Bank, International Social Security Association, Organisation for Economic Co-operation and Development, and Overseas Development Institute of the United Kingdom are working to establish possible standards in social protection indicators.

96. Indicators on inequalities among population groups need to take a forward-looking view of trends in population dynamics because population groups change their size and composition over time as a result of fertility, mortality and migration dynamics. For instance, demographic ageing of populations leads to changes in relative and absolute size of population of children, youth and the elderly. Size and composition of migrant populations in countries of destination are determined by international migration dynamics and their characteristics.

2. Integrating population dynamics in target-setting

97. Demographic changes—including population growth, population ageing, urbanization and migration, and coastal migration—shape and are shaped by human social and economic development and the pathways taken towards sustainable development. How population dynamics unfold over the next decades, and the impact of policies on these dynamics, may compound development challenges or help facilitate solutions.

98. The cross-cutting nature of population dynamics for monitoring and indicators of the post-2015 agenda includes calls for indicators of universal access to sexual and reproductive health services for all, fiscal policies, social protection and non-financial support systems for families which influence decision about family size, the built environment and land and waters management, and general social and economic development policies.

99. Wide differences in rates of population growth, fertility and migration give rise to great variations in the growth and relative size of children, youth, the elderly, the labour force, migrant and ethnic populations among regions, countries, sub-national areas and cities—all of which must be taken into account in determining targets and indicators.

3. Sustainability measures

Sustainability: What rate of population change, with what levels of living, investment and technology development, can be supported over multiple generations with the Earth's natural resources?

(a) “Limits to growth” models

100. The three dimensions of sustainable development set out in Agenda 21, economic, social and environmental, were reaffirmed in the outcome of the United Nations Conference on Sustainable Development, Rio+20, The future we want (A/CONF.216/L.1, 2012), which also adopted “A 10-year framework of programmes on sustainable consumption and production patterns” (A/CONF.215/5). Much of the measurement work to date on sustainability has related to sustainability of the environmental and natural resources base. Since the 2002 World Summit on Sustainable Development and the Johannesburg Declaration on Sustainable Development (A/CONF.199/20), work on development and application of sustainable consumption patterns and resource efficiency/productivity indicators in both developed and developing countries has expanded. There are clear links to hunger and poverty targets through the provision of key ecosystem and global goods and services and methods and experience in measurement of these links is growing. However, there remains a need to collate, analyse and synthesize this experience and lessons learned in the areas of resource use, waste management, soil and biodiversity and climate change mitigation, adaptation, risks and resilience coupled with other socio-economic output and outcome indicators.

101. Bringing the combined pressures of population growth and economic growth into a long-term sustainable balance with environmental resources is the challenge addressed by Rio+20 looking forward to post-2015. Research is needed to develop an array of statistics and indicators to determine what key interrelated targets in population, economic growth and environment might be identified that will measure progress toward sustainability in the post-2015. Several targets and indicators in the current MDG list of indicators identify environmental and natural resources which are critical to sustainability, based on the conclusions of Agenda 21 and Rio+20: forest area, the Earth's ozone layer, emissions, climate change, fish stocks, water resources, land and soil resources and species, biodiversity and ecosystem services. The MDG target for these resources is "reverse the loss". Underlying these targets, however, measurement of performance and effectiveness of regeneration, condition of the forest resources, and their health and resilience in providing ecosystem services contributing to well-being is needed. For sustainability indicators the choice of benchmark and target dates is critical.

102. The United Nations Environment Programme suggests that linked sustainability targets would particularly need to be applied to the most closely linked themes, including agriculture, population, economic growth, water and energy. UNIDO notes that sustainability cannot be separated from production activities, which directly impact the environment and natural resources. Monitoring efficient use of natural resources in production, and disaggregating per capita resource use to determine the distribution of socio-economic benefits to different stakeholders, including minimal direct impact on the environment, should be an integral part of monitoring sustainability.

103. In the case of forestry, for example, FAO's *Global Forest Resources Assessment*, carried out at 5-10 year intervals, constitutes the most comprehensive international data sources for forests and is the best source of traditional forestry data, but many of the socio-economic aspects of forests are not covered.

104. For population, the critical relationship is between population and environment, depending in turn on agricultural potential, based largely on land and water use, and economic growth, which is most critically limited by the intensity of CO₂ per dollar of economic activity. Ways to reconcile environmental sustainability and economic growth need to be better understood, through the adoption of new impact assessments addressing, for example, production/consumption patterns, poverty eradication, protective gains and the risk to the environment, and involving communities and businesses (including those of small and medium scale) to participate and manage sustainable approaches. To reverse total annual CO₂ emissions will require substantial continuing increases in energy and emissions efficiency and concomitant changes in current population trajectories if sustainability is to be achieved for the reference period 1990 (the benchmark date for the Kyoto treaty) to 2050 (from which date present climate forecasts become much more uncertain). There are of course many other factors which affect the interrelation of the three basic dimensions. In other words, what level of income, consumption and investment,

and for what size population, can the earth support over a given long term, assuming some constant rate of improvement in best practice efficiencies in use of environmental resources?

105. Given the improvements in concepts, methods and compilation of environmental and natural resources statistics since the MDGs were formulated, substantial refinements can be made in the existing list of MDG indicators on environment and natural resources, based on emerging concepts of sustainability. One such measure is the ecological footprint, defined as “a resource accounting tool that measures how much nature we have, how much we use, and who uses what...documenting whether we are living within our ecological budget or consuming nature’s resources faster than the planet can renew them” (www.footprintnetwork.org, and *Human Development Report 2013*, figure 1.7).

106. Critical indicators have been identified in extensive modeling studies reported in *2052, A Global Forecast for the Next Forty Years* (Randers, 2012), which commemorates the 40th anniversary of the Club of Rome’s *The Limits to Growth* (1972). These indicators are:

- a. Total population and population change
- b. Global gross income
- c. Energy intensity per capita
- d. Energy intensity per unit of gross income
- e. CO₂ emissions per unit of energy
- f. CO₂ emissions per unit of gross national income (emissions are found to be depend most critically on use of renewable sources and use of coal)
- g. Investment as a percentage of gross national income
- h. Percentage of global biocapacity utilized and non-energy footprint (hectare of average biological productivity)
- i. Ecological services

107. How these variables can be expected to develop to 2050, taking their interactions into account in his models, is graphically demonstrated in the figures to chapters 4-6 in this book. The author uses these models to derive, on balance, the targets needed to achieve sustainability by 2050, and assesses the likelihood and effects of falling short.⁴

108. Since 2000, indicators related to environmental goals with specific targets have been successfully developed in many countries. Still, environment statistics is a relatively new field of official statistics. Key United Nations statistical guidance includes the Framework for the Development of Environment Statistics and the revised System of Environmental-Economic Accounting

⁴ Achieving sustainability post-2050 is shown to be much more difficult and less predictable, given the “overshoot” which has already occurred in CO₂ emissions relative to what is needed to prevent longer-term climate change catastrophes much broader than those expected up until 2050.

(United Nations Statistics Division, forthcoming). Environment statistics relies especially on partnerships with a range of agencies involved in collecting environmental data.

(b) *The Joint UNECE/Eurostat/OECD Task Force model*

109. The Draft Report of the Joint UNECE/Eurostat/OECD Task Force on Measuring Sustainable Development (December, 2012) proposes several sets of indicators for measuring sustainable development, taking into account data availability in those organizations' members, using alternative thematic and conceptual categories. The conceptual classification takes into account sustainability by adding a dimension on the effect on future generations. A short set of 24 indicators is presented according to the thematic categorization. For the short list a table is also provided assessing data availability across 111 countries for each indicator (tables 7.1-7.3, 8.1-8.3 and 9.4). This source provides a rich menu for indicator selection within two different general frameworks for the statistics and could provide one basis for considering numerical targets.

(c) *Setting sustainability targets*

110. Whatever the approach and data availability, setting targets for sustainability poses rather starkly the necessity of reconciling the dynamics of population and development with environmental constraints. The statistics supporting the present MDG environment and natural resources targets and indicators can and should be extended and developed (see the proposals in *Global Environmental Outlook 5* (United Nations Environment Programme, 2012), and this is a process well underway in many specialized fields. There has also been considerable progress in the development of standards concepts for integrating environmental and national accounts statistics (United Nations Statistics Division, forthcoming). However, it has been the experience thus far that sustainability targets going beyond descriptive measures will be hard to achieve in this politically fraught area. Even the selection of benchmark and target dates for sustainability indicators is controversial, as environmental damages have accrued over a long period and their long-term trajectories, say to 2050 and beyond, may be much more critical, even catastrophic, than a trend over 5-10 years would suggest.

4. *New monetary and trade aggregates*

111. Established programmes of national accounts and trade statistics provide a wide-ranging store of statistics on economic development in countries and regions and at the international level. The Stiglitz/Sen/Fitoussi report contains a number of examples and proposals for important indicators of income, consumption, expenditure, wealth and inequalities which do not so much involve new data as intensive analysis and harmonization of existing data and sources and consensus on desired indicators. For example, the MDG trade indicators on developing country market access in goal 8 did not require new data but rather new research by the International Trade Centre, UNCTAD

and World Trade Organization to specify them precisely in technical terms and compile them from existing large databases on trade statistics and policies.

112. These established frameworks can be utilized, extended and refined to yield new monetary indicators of policy and public concern, including household accounts and uncounted household production, distribution of household income and consumption, tourism accounts, environment accounts, trade capacity-building, subtraction or exclusion from national income of socially negative or neutral goods and services costs which do not contribute to well-being, such as from pollution or defense. This work is ongoing in both academic and research settings and in official statistics.

5. Governance indicators

113. Governance issues were not addressed in the MDG framework but governance deficits and weak institutions are considered to be among the main challenges to optimal development outcomes. Rio+20 affirms that effective governance at local, sub-national, national, regional and global levels representing the voices and interests of all is critical for advancing development.

114. Governance indicators can highlight this important area through better monitoring of key government processes and outcomes in development. Governance issues are cross-cutting with relevance to a range of issues to be incorporated in the development agenda. A set of agreed-upon values or dimensions of good governance is needed to guide the definition of targets and indicators for the post-2015 development agenda. While data series and coverage of certain aspects of governance in terms of accountability, transparency and rule of law are fairly well established, indicators for linkages of governance with economic effectiveness and social inclusion are needed.

6. Rule of law indicators

115. The rule of law is an essential part of the full realization of human rights and fundamental freedoms, sustainable development, inclusive economic growth and the eradication of poverty and hunger. The rule of law is a principle of governance in which all persons, institutions and public and private entities, including the State itself, are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated, and that are consistent with international human rights standards and norms.

116. There are established measures that can be used to describe the level and trends of some of the key elements of the rule of law. These are based on administrative records of crimes which come to the attention of the authorities or data collected through population and business surveys which cover the experience and perception of persons or businesses towards rule of law institutions, in particular the police, judiciary and prisons.

117. Corruption erodes the rule of law, distorts the functions of economic actors and markets and prevents universal impartial treatment in the distribution of public services, feeding inequality. Indicators which are available for monitoring in the post-2015 development agenda focus on three aspects: state

response to corruption, the experience of private entities in paying bribes and the perceptions people have of the level of corruption. Perception based indicators is widely used in opinion polls but indicators based on the actual experience of corruption are considered more solid, relevant and useful. The United Office on Drugs and Crime, the United Nations Development Programme and World Bank are providing significant support to national statistical services to implement experience-based corruption surveys and produce standardized statistical indicators.

7. Peacebuilding and conflict indicators

118. The Millennium Declaration, the 2005 World Summit outcome, the Declaration on the Rule of Law and other intergovernmental agreements recognize the interdependencies and mutual reinforcing relationship among development, peace, security, human rights, the rule of law and democracy. In 2008, the General Assembly adopted resolution A/RES/63/23, “Promoting development through the reduction and prevention of armed violence”.

119. The United Nations has compiled data on suicide and violent victimization rates provided by countries from various national sources for a number of years and much progress has been made in measuring violence and insecurity, particularly regarding the indicator the number of violent deaths, comprising the number of conflict-related deaths and the number of homicides. In conflict-affected settings, official data on violent deaths are often unreliable and partial at best, but a number of academic and independent research institutions are actively collecting annualized data from various ad hoc sources. Prominent examples of conflict death databases include those of the Uppsala (Sweden) Conflict Data Programme and the Peace Research Institute Oslo.

120. The g7+ group of conflict-affected States, together with development partners and international organizations, have come together in the International Dialogue on Peacebuilding and Statebuilding and proposed five peacebuilding and statebuilding goals in the new Deal on Engagement in Fragile States at the fourth High Level Forum on Aid Effectiveness, held in Busan November/December 2011. An interim list of 34 indicators on political settlements and conflict resolution, people’s security, injustice and access to justice, employment and livelihoods, and government revenues and services has been developed.

8. Composite indicators

121. As described in the Draft Report of the Joint UNECE/Eurostat/OECD Task Force on Measuring Sustainable Development, composite indicators are typically calculated as a weighted average of a number of more specific indicators. The best-known of these is the Human Development Index compiled by the UN Development Programme in its annual *Human Development Report*. HDI is based on three indicators covering education, health and gross national income. The *Human Development Report 2013* also features an inequality-adjusted human development index, a gender inequality index, and a multidimensional poverty index. Many other indexes have been developed in recent

years based on aggregations of various indicators, such as transparency, corruption, good governance. FAO is working to build some aggregated measures in the food security domain. The objective, however, is to delegate the choice of weighting systems to external parties, as through discussion within multi-stakeholder forums, where experts from the public sector, the private sector and civil society can contrast opinions.

122. Composite indexes are controversial among official statisticians because the selection, scaling and weighting of the included indicators are necessarily subjective and may give rise to inconsistencies over time and relative to other countries, including from data gaps. They are nevertheless popular with many policy makers, academia and development advocates as they lend themselves to communicating with the public and press in making “first approximations” of development and well-being in countries and in country comparisons. Because of the weighting issues, the UNECE/Eurostat/OECD Task Force does not include a composite indicator in its proposals on measuring sustainable development.

9. Indicators of satisfaction, perceptions and attitudes

123. As described in the Stiglitz/Sen/Fitoussi report, “Quality of life includes the full range of factors that make life worth living, including those that are not traded in markets and not captured by monetary measures. ... recent advances in research have led to new and credible measures for at least some aspects of quality of life. These ... provide an opportunity to enrich policy discussions and to inform people’s view of the conditions of the communities in which they live.”

124. Both the Stiglitz report and OECD’s work on new measures of progress consider satisfaction measures as complementary to traditional measures of income, health, education, etc., and a useful way of considering public priorities and strategies in policy making. The Stiglitz report concludes that, “today, they have the potential to move from research to standard statistical practice” on the basis of long experience in academia and the private sector. For example, business and consumer confidence are commonly-reported “subjective” indicators in many countries and are widely referred to in economic reporting.

125. Many other subjective indicators have been developed in recent years relating to public perceptions of, for example, good governance, corruption, public safety, political institutions and processes. Within the statistics community these have mainly been discussed in terms of applications of the “big data” concept, where public attitudes measures are taken from, for example, social media, or in terms of the expanded use of public opinion surveys and their use in official statistics. In the private sector, they have become major components of the world polling of the Gallup Poll and the French polling institute IFOP (Paris). FAO is establishing an additional indicator for the hunger target based on use of international polls to elicit individual food insecurity from self-reported experiences. Nevertheless it is often the case that quality of life polls implemented by private enterprises often have small samples and are not nationally representative.

126. In developing countries, these series are mostly privately sourced but have been taken up by national statistical services in only a few instances. A few countries have conducted victimization surveys including questions on respondents' perceptions of their personal security.

127. The use of private sources as official measures for target-setting raises questions of data ownership, quality and accountability and confidentiality. Such measures nevertheless can provide important benchmarks in identifying priorities and subjectively based trend measurements of well-being.

10. Technology-based innovations in data collection and indicators

128. Access to new technologies is important to ensure full participation by all segments of the population in new opportunities in employment, education, health, governance, peacebuilding and so on.

129. Internet, mobile and geographical coding technologies rapidly changing the ways in which national and international statistical services collect, process and disseminate statistics. Within the strict limitations of financial resources, skills and legal responsibility for data quality and confidentiality, statisticians are responding to these new opportunities to work more efficiently and productively.

C. Indicators prospects for new data sources and themes

130. For inequalities including income and consumption, decent employment, sub-national inequalities, gender (including violence against women), special population groups, quality of education, public health, reproductive health, migration, access to new technologies, and environmental resources, there has been sufficient research and experience to lay out a general agenda in the near term for refining and expanding existing data collection programmes and analyses that will provide data and indicators for new targets in these fields.

131. Other fields which have been discussed include conflict, violence, human rights, crime and justice, good government, peacebuilding, personal satisfaction and happiness. These are areas where there has been extensive research and data compilation in concerned agencies, some countries, NGOs and academic institutions, but outside the mainstream of official statistics as represented by the agenda of the Statistical Commission. This experience can be reviewed, and options for bringing this data into the mainstream of accepted official country-level statistics can be considered.

132. New fields under consideration for post-2015 will to a large extent require the development of new data sources with national representativeness and sound benchmarking, some along more traditional lines, such as household surveys, some with methods outside the official statistics mainstream,

such as opinion and satisfaction surveys, big data and crowd sourcing, and local reporting. Most developing countries' statistical services are skeptical that they will be able to mobilize human skills, financial resources and government support to incorporate work outside the mainstream into their regular official programmes and responsibilities in the medium-term future.

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Annex I. MDGs global monitoring indicators providers and sources

This list shows agency responsibilities for data compilation for global monitoring of the MDG targets and indicators, and the agencies' print periodical publications which include them (if published). It gives an idea of the existing agency infrastructure which underlies the global monitoring framework. All print publications are annual unless otherwise indicated. Web URLs are given where there is no corresponding print publication.

Goal 1. Extreme poverty and hunger

1.A. Halve the proportion of people whose income is less than \$1/day

World Bank. World Development Indicators. Available from <http://data.worldbank.org/data-catalog/world-development-indicators> (accessed 11 June 2013).

1.B. Achieve full and productive employment and decent work for all, including women and young people

International Labour Organization (biennial). Key Indicators of the Labour Market. Available from <http://www.kilm.ilo.org>. Geneva.

1.C. Halve the proportion of people who suffer from hunger

Food and Agriculture Organization of the United Nations (2012). The State of Food Insecurity in the World. Rome: FAO.

United Nations Children's Fund. The State of the World's Children reports. Available from <http://www.unicef.org/sowc/> (accessed 11 June 2013).

United Nations High Commissioner for Refugees. UNHCR Global Trends. Available from <http://www.unhcr.org/pages/49c3646c4b2.html> (accessed 11 June 2013).

World Health Organization. World Health Statistics. Available from http://www.who.int/gho/publications/world_health_statistics/en/index.html (accessed 11 June 2013).

Goal 2. Achieve universal primary education

2.A. Ensure that children everywhere, boys and girls alike, will be able to complete a full course of primary schooling

United Nations Educational, Scientific and Cultural Centre, Institute for Statistics (UIS). Data Centre, stats.uis.unesco.org. Also published in United Nations Educational, Scientific and Cultural Organization. Education for All, Global Monitoring Report. Available from <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/efareport/> (accessed 11 June 2013).

Goal 3. Promote gender equality and empower women

3.A. Eliminate gender disparity in all levels of education

United Nations Educational, Scientific and Cultural Centre, Institute for Statistics (UIS). Data Centre, stats.uis.unesco.org. Also published in United Nations Educational, Scientific and Cultural Organization. Education for All, Global Monitoring Report. Available from <http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/efareport/> (accessed 11 June 2013).

International Labour Organization (biennial). Key Indicators of the Labour Market. Available from <http://www.kilm.ilo.org>. Geneva.

Inter-Parliamentary Union. Women in National Parliaments. Available from <http://www.ipu.org/wmn-e/world.htm> (accessed 11 June 2013).

3.B. Gender disparities in employment

International Labour Organization, as for target 1.B.

Goal 4. Reduce child mortality and Goal 5. Improve maternal health

4.A. Reduce child mortality

United Nations Children's Funds and others (2012). Levels & Trends in Child Mortality. New York: UNICEF.

United Nations Children's Fund. The State of the World's Children reports. Available from <http://www.unicef.org/sowc/> (accessed 11 June 2013).

World Health Organization. World Health Statistics. Available from http://www.who.int/gho/publications/world_health_statistics/en/index.html (accessed 11 June 2013).

5.A. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

World Health Organization, United Nations Children's Fund, United Nations Population Fund and World Bank (quinquennial). Trends in Maternal Mortality. Geneva and New York: WHO.

World Health Organization. World Health Statistics. Available from http://www.who.int/gho/publications/world_health_statistics/en/index.html (accessed 11 June 2013).

5.B. Achieve universal access to reproductive health

United Nations Children's Fund. The State of the World's Children reports. Available from <http://www.unicef.org/sowc/> (accessed 11 June 2013).

United Nations, Department of Economic and Social Affairs, Population Division (biennial). *World Contraceptive Use*.

United Nations, Department of Economic and Social Affairs, Population Division (biennial). *World Fertility Data*.

United Nations Population Fund (2010 and 2013). *How Universal is Access to Reproductive Health? A review of the evidence*. New York: UNFPA.

World Health Organization. *World Health Statistics*. Available from http://www.who.int/gho/publications/world_health_statistics/en/index.html (accessed 11 June 2013).

Official development assistance to health:

Organisation for Economic Cooperation and Development, Development Assistance Committee (OECD/DAC) (annual). *Development Cooperation Report*. New York; and compiled for UNSTATS MDG Indicators Database from OECD-DAC's Creditor Reporting System (Paris).

Goal 6. Combat HIV/AIDS, malaria and other diseases

6.A. Have halted and begun to reverse the spread of HIV/AIDS

UNAIDS (biennial). *AIDS Epidemic Update*. Geneva: UNAIDS.

UNAIDS (biennial). *Report on the Global AIDS Epidemic*. Geneva: UNAIDS.

World Health Organization. *World Health Statistics*. Geneva: WHO.

6.B. Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it

UNAIDS (biennial). *AIDS Epidemic Update*. Geneva: UNAIDS.

UNAIDS (biennial). *Report on the Global AIDS Epidemic*. Geneva: UNAIDS.

United Nations Children's Fund. *The State of the World's Children reports*. Available from <http://www.unicef.org/sowc/> (accessed 11 June 2013).

World Health Organization. *World Health Statistics*. Geneva: WHO.

6.C. Have halted and begun to reverse the incidence of malaria and other major diseases

United Nations Children's Fund. *The State of the World's Children reports*. Available from <http://www.unicef.org/sowc/> (accessed 11 June 2013).

World Health Organization. *World Malaria Report*. Geneva: WHO.

World Health Organization. *Global Tuberculosis Report*. Geneva: WHO.

World Health Organization. *World Health Statistics*. Geneva: WHO.

Goal 7. Ensure environmental sustainability

7.A. Integrate the principles of sustainable development into country policies and programmes. Not quantified for monitoring

7.B.

Food and Agriculture Organization (biennial). *Forest Resources Assessment*. Rome: FAO.

Food and Agriculture Organization. General Situation of World Fish Stocks,. Available from <http://www.fao.org/newsroom/common/ecg/1000505/en/stocks.pdf>.

Food and Agriculture Organization. Review of the state of world marine fishery resources. Rome: FAO.

United Nations Framework Convention on Climate Change. Available from <http://www.unfccc.int>.

United Nations Environment Programme-World Conservation Monitoring Center (2008). *The World's Protected Areas: Status, Value and Prospects in the 21st Century*. Nairobi: UNEP.

United Nations Environment Programme-World Conservation Monitoring Center, with the Convention on Biological Diversity, International Union for Conservation of Nature, Biodiversity Indicators Partnership and Birdlife International, indicators compiled annually for UNSTATS MDG Indicators Database.

7.C.

United Nations Children's Fund and World Health Organization (biennial). *Progress on Sanitation and Drinking Water*. Geneva and New York: WHO.

World Health Organization. *World Health Statistics*. Geneva: WHO.

7.D.

United Nations Habitat (UN-HABITAT) (biennial). *State of the World's Cities*. Nairobi: UN-Habitat.

Goal 8. Develop a global partnership for development

8.A-D

Official development assistance (ODA):

Organisation for Economic Cooperation and Development, Development Assistance Committee (OECD/DAC) (annual). *Development Cooperation Report*. New York; and compiled for UNSTATS MDG Indicators Database from OECD-DAC's Creditor Reporting System (Paris).

Market access:

World Trade Organization. *World Trade Report*. Geneva; and compiled for UNSTATS MDG Indicators Database.

Debt sustainability:

World Bank and International Monetary Fund. In *World Development Indicators*. Washington, D.C.: World Bank.

United Nations High Commissioner for Refugees. *UNHCR Statistical Yearbook, Trends in Displacement, Protection and Solutions*. Geneva.

8.E.

World Health Organization, country data not available. Cf. United Nations, Department of Economic and Social Affairs (2011). *MDG Gap Task Force Report 2011: Millennium Development Goal 8, The Global Partnership for Development: Time to Deliver*. Sales No. E.11.I.11.

8.F.

International Telecommunications Union. *Measuring the Information Society*. Geneva.

Annex II. International resources for indicators on new themes

I. Rising inequalities, especially income inequality

Deaton, Angus (1997). *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*. Baltimore, Maryland: The Johns Hopkins University Press.

International Labour Organization (2012). *Decent Work Indicators, Concepts and Definitions: ILO Manual*. Geneva.

United Nations Economic Commission for Europe (2011). *Canberra Group Handbook on Household Income Statistics*. Geneva.

United Nations Economic Commission for Latin America and the Caribbean (1983). *Measurement of Employment and Income in Rural Areas*. Santiago.

United Nations (2006). Report of the United Nations Permanent Forum on Indigenous Issues on the fifth session (15-26 May 2006), *Report of the meeting on indigenous peoples and indicators of well-being, Ottawa, 22-23 March 2006*. E/CN.19/2006/CRP.3.

United Nations (2012). Report of the Secretary General on gender statistics. 26 February to 1 March 2013. E/CN.3/2012.

World Bank (2013). *A unified approach to measuring poverty and inequality: theory and practice*. Washington, D.C.: World Bank.

II. Population dynamics, including changing weights of youth and older persons in societies, different rates of fertility, morbidity and mortality, and urbanization

African Population and Health Research Center (2002). *Population and health dynamics in Nairobi's informal settlement: Report of the Nairobi cross-sectional slums survey (NCSS) 2000*. Nairobi.

International Organization for Migration (n.d). *Beyond the MDGs: Monitoring the Impact of Migration on Development*, IOM Background Note for the UN System Task Team Working Group on Monitoring and Indicators (draft). Geneva.

International Organization for Migration (forthcoming). *World Migration Report 2013: Migration and Development*. Geneva.

Food and Agriculture Organization of the United Nations (forthcoming). *State of the World's Forests 2014: Enhancing the socio-economic benefits of forests*. Rome.

- United Nations Human Settlements Programme (UN-Habitat) (2012). *State of the World's Cities 2012/2013: Prosperity of Cities*. Nairobi: UN-Habitat.
- United Nations High Commissioner for Refugees. *UNHCR Statistical Yearbook, Trends in Displacement, Protection and Solutions*. Geneva.
- United Nations, Department of Economic and Social Affairs, Population Division (2012). *Changing Levels and Trends in Mortality: the role of patterns of death by cause*. ST/ESA/SER.A/318.
- United Nations, Department of Economic and Social Affairs, Population Division (forthcoming). *World Fertility Report 2012*.
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- United Nations, Department of Economic and Social Affairs, Population Division (biennial). *World Population Prospects*.
- United Nations, Department of Economic and Social Affairs, Population Division (biennial). *World Urbanization Prospects*.
- United Nations, Department of Economic and Social Affairs, Population Division and United Nations Children's Fund (2012). *Migration Profiles - Common Set of Indicators*. Available from <http://esa.un.org/MigGMGProfiles/MPCSI.htm>.
- United Nations, Department of Economic and Social Affairs, Statistics Division. *Population and Vital Statistics Report*, Statistical Papers, Series A (quarterly).
- World Bank, and others. *Wealth Accounting and the Valuation of Ecosystem Services (WAVES)*. Available from <http://www.wavespartnership.org/waves/>. Washington, D.C.

III. Governance and human rights

- International Labour Office, International Programme on the Elimination of Child Labour (2004). *Manual for child labour data analysis and statistical reports*. Geneva.
- International Labour Office, Special Action Programme to Combat Forced Labour (2012). *ILO Global Estimate of Forced Labour, Results and Methodology*. Geneva.
- International Labour Organization. NORMLEX Database on international labour standards. Available from <http://www.ilo.org>.
- International Labour Organization. NATLEX Database on national labor, social security and related human rights legislation. Available from http://www.ilo.org/dyn/natlex/natlex_browse.home.
- United Nations Office of the High Commissioner for Human Rights (2012). *Human Rights Indicators: A Guide to Measurement and Implementation*. Geneva.

United Nations Office of the High Commissioner for Human Rights and Center for Economic and Social Rights (2013). *Who Will Be Accountable? Human Rights and the Post-2015 Development Agenda*. New York and Geneva.

United Nations Permanent Forum on Indigenous Issues. Report of the Meeting on Indigenous Peoples and Indicators of Well-Being, Ottawa, 22-23 March 2006 (New York, E/CN.19/2006/CRP.3).

World Bank. Actionable Governance Indicators Data Portal. Available from <https://www.agidata.org/site/SourceProfile.aspx?id=25>.

World Bank. *Worldwide Governance Indicators*. Available from <http://info.worldbank.org/governance/wgi/index.asp>.

IV. Rule of law and corruption

United Nations, Department of Peacekeeping Operations and the Office of the United Nations High Commissioner for Human Rights (2011). *The United Nations Rule of Law Indicators, Implementation Guide and Project Tools*. Geneva.

V. Sustainability aspects

Convention on Biological Diversity (2011). AICHI Biodiversity Targets. Montreal. Available from <http://www.cbd.int/sp/targets/>.

United Nations Environment Programme (2012). *Global Environmental Outlook 5*, especially table 16.1 Goals and targets on the road to 2050 (GEO-5). Nairobi.

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United Nations Environment Programme-World Conservation Monitoring Programme (2012). *AICHI Targets Passport, Beta Version*. Cambridge, United Kingdom.

United Nations, General Assembly (2010). Outcome document of the High-level Review Meeting on the implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States. 15 October. A/RES/65/2.

VI. Social inclusion, including migrants

European Centre for Social Welfare Policy and Research (2010). *Mainstreaming Ageing: Indicators to Monitor Implementation (MA:IMI)*. Vienna.

United Nations, Department of Economic and Social Affairs, Division for Social Policy and Development (2012). Report of the Secretary-General on proposed set of indicators for the world programme of action for youth. E/CN.5/2013/8.

United Nations, Department of Economic and Social Affairs, Secretariat for the Convention on the Rights of Persons with Disabilities and World Health Organization (2009). Report of the expert group meeting on mainstreaming disability in MDG policies, processes and mechanisms: Development for all. New York.

United Nations, Department of Economic and Social Affairs (annual). *The World's Women: Trends and Statistics*. New York.

VII. Countries with special needs

Organization for Economic Cooperation and Development (2010). *Annual Report: Resource Flows to Fragile and Conflict-Affected States 2010*. Paris.

United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (2010). Report of the Secretary-General on implementation of the Almaty programme of action: Addressing the special needs of landlocked developing countries. A/67/210.

United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and the Small Island Developing States (2012). Report of the Secretary-General, Implementation of the Programme of Action for the Least Developed Countries for the Decade 2011 to 2020. A/67/88.

VIII. Culture

UNESCO Institute for Statistics. A platform to collect and compare cultural statistics globally. Available from <http://www.uis.unesco.org/Culture/Pages/default.aspx>.

United Nations, Department of Economic and Social Affairs, Statistics Division. Allocation of time and time use. Available from <http://unstats.un.org/unsd/demographic/sconcerns/tuse/>.

IX. Disaster risk and resilience

International Federation of Red Cross and Red Crescent Societies (2012). *World Disasters Report 2012—Focus on forced migration and displacement*. Geneva.

X. Science, technology and innovation for sustainable development

Organisation for Economic Cooperation and Development. Main Science and Technology Indicators. Available from <http://www.oecd.org/sti/msti.htm>.

UNESCO Institute for Statistics. Monitoring the knowledge society. Available from <http://www.uis.unesco.org/Communication/Pages/default.aspx>.

UNESCO Institute for Statistics. A Global Perspective on Science and Technology, Available from <http://www.uis.unesco.org/ScienceTechnology/Pages/default.aspx>.

INSEAD and World Intellectual Property Organization (2012). *The Global Innovation Index 2012, Stronger Innovation Linkages for Global Growth*. Fontainebleu, France: INSEAD. Available from www.globalinnovationindex.org.

XI. Macroeconomic stability

World Bank. Various papers. Available from <http://elibrary.worldbank.org>.

International Monetary Fund. Various papers. Available at <http://www.IMF.org> and IMF eLibrary.

XII. Peace and security

American Association for the Advancement of Science. Human Conflict (2012). Special issue of *Science*, vol. 326, 18 May.

Human Security Report Project, Simon Fraser University (2012). *Human Security Report 2012, Sexual Violence, Education, and War: Beyond the Mainstream Narrative*. Vancouver, Canada: Human Security Press.

United Nations Office on Drugs and Crime (2011). *2011 Global Study on Homicide: Trends, Contexts, Data*. Vienna. Available from <http://www.unodc.org/unodc/en/data-and-analysis/statistics/crime/global-study-on-homicide-2011.html>.

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United Nations, Department of Economic and Social Affairs, Statistics Division (2010). Report on the meeting of the friends of the chair of the United Nations Statistical Commission on Statistical Indicators on violence against women, including a recommended set of core indicators. ESA/STAT.AC.193/L.3.

United Nations, Department of Economic and Social Affairs, Statistics Division (Forthcoming). Guidelines for producing statistics on violence against women: statistical surveys.

World Bank (2011). *Security and Development, World Development Report 2011: Conflict, security and development*. Washington, D.C.: World Bank.

XIII. Social protection

European Commission, Social Protection Committee, Indicators' sub-group. Organisation and work plan (Brussels, eu.europa.eu/social/main.jsp?catId=830&langId=en, accessed 23 March 2013).

International Labour Organization. The ILO Social Security Inquiry database. Available from www.ilo.org/gimi/gess/ResShowResources.do?ressourceId=20120.

XIV. Peacebuilding and state building

African Union Commission (2012). *Action Plan 2013-2018 for the Harmonization of Governance, Peace and Security Statistics in Africa*. Addis Ababa. Available from http://gaportal.org/sites/default/files/2012-12-18_STG%231_Action_Plan_and_Budget_ver2%202.pdf.

International Dialogue on Peacebuilding and Statebuilding. Peacekeeping and Statebuilding Indicators—Progress, Interim List and next steps, Third International Dialogue Global Meeting, Document 03 (Washington, D. C., 19 April 2013).

Annex III. International human rights normative framework

The Universal Declaration of Human Rights together with the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights form the International Bill of Human Rights. The other conventions adopted by the United Nations to address the situation of specific populations or issues in the promotion and protection of human rights are:

- The International Convention on the Elimination of All Forms of Racial Discrimination;
- The Convention on the Elimination of All Forms of Discrimination against Women;
- The Convention against Torture and Other Cruel;
- Inhuman or Degrading Treatment or Punishment;
- The Convention on the Rights of the Child;
- The International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families;
- The Convention on the Rights of Persons with Disabilities; and
- The International Convention for the Protection of All Persons from Enforced Disappearance.⁵

Among the rights guarantees to all human beings under these international instruments, including the Declaration on the Right to Development, without any discrimination on grounds such as race, colour, sex, language, political or other opinion, national or social origin, property, birth or other status, and potentially relevant to Post-2015 goals, targets and indicators are:

- the right to life (MDGs 1, 4 and 5)
- the right to adequate food (MDG 1 and 4)
- the right to liberty and security of person
- the right to water and sanitation (MDG 7)
- the right to the highest attainable standard of health, including environmental health (MDGs 4 – 8)
- the right not to be subjected to torture or to cruel, inhuman or degrading treatment or punishment
- the right to participate in public affairs (MDG 3)
- the right to education (MDGs 2 and 3)
- the right to adequate housing (MDG 7)
- the right to/at work (MDGs 1 and 3)
- the right to social security
- the right to freedom of opinion and expression
- the right to a fair trial
- the right to development (MDG 8)

⁵ The list of treaties is available from <http://www.ohchr.org/EN/ProfessionalInterest/Pages/CoreInstruments.aspx>.

The treaty bodies that review the implementation of these nine conventions have developed the normative basis of the standards reflected in the treaties and the obligations of the duty bearers that follow from those standards through treaty-specific general comments and recommendations. For example if we consider the right to adequate food, treaty bodies have specified that issues of nutrition, food safety and consumer protection, food availability and accessibility (i.e., physical accessibility, affordability and non-discrimination), have to be taken into account when developing strategies and indicators. More generally, the integration of the “3 A & Q” framework (i.e. Availability, Accessibility, Acceptability and Quality) has been called upon by treaty bodies in relation to the realization of human rights, especially economic, social and cultural rights. Other human rights mechanisms, such as the special procedures of the Human Rights Council, have also contributed to the normative understanding of human rights standards.

