Food and Agriculture Organization of the United Nations

Hand-in-Hand Initiative

Papua New Guinea

Opportunities to Investment for High Value Agrifood Commodities

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Government of Papua New Guinea

14–18 OCTOBER 2024

FAO | WORLD FOOD FORUM | HAND-IN-HAND INVESTMENT

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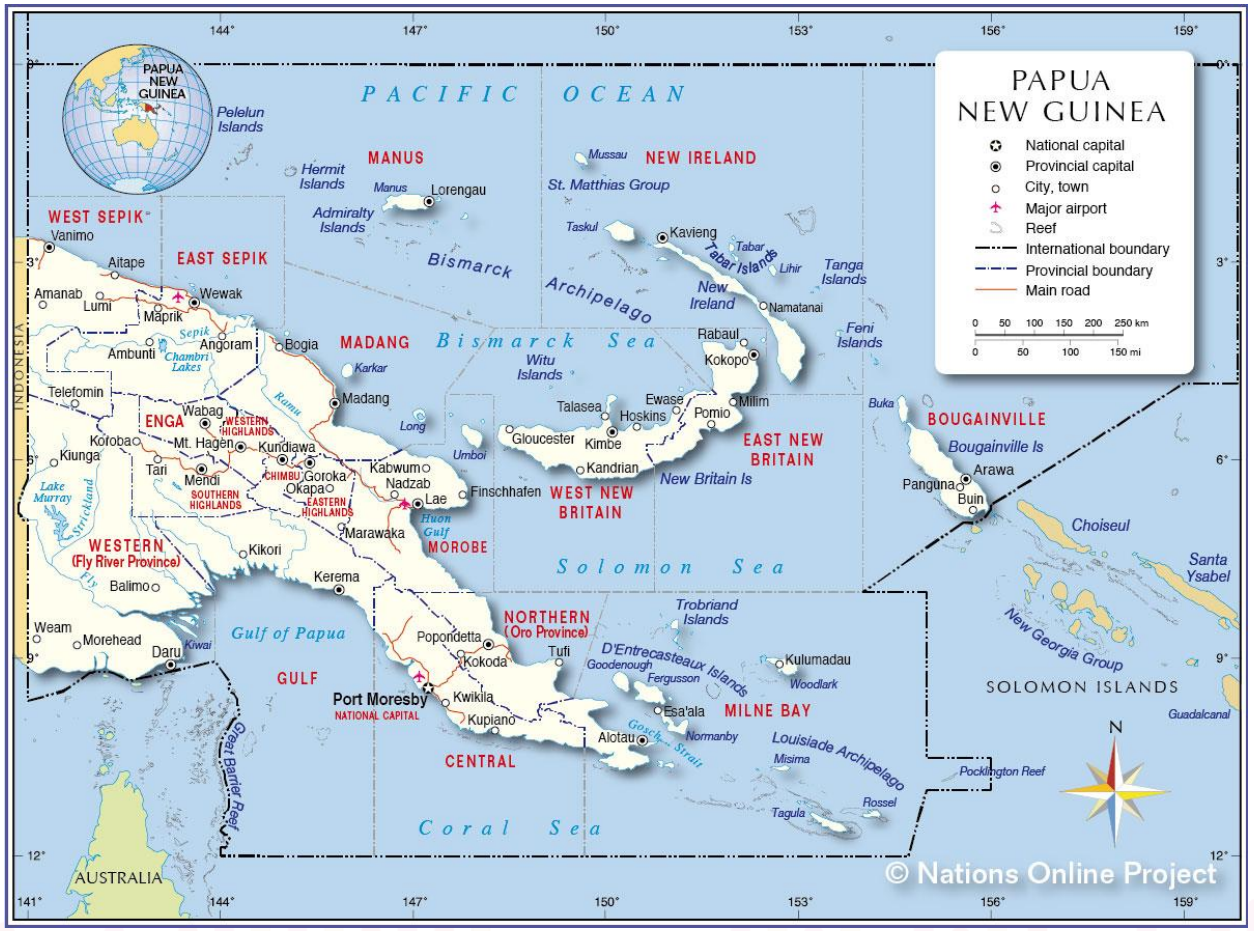
Papua New Guinea Overview

Current Status and Country Statistics

Overview



Global location:

Located in Western Pacific, the country is made up of Eastern half of New Guinea Island, New Britain, New Ireland, Bougainville and Maus islands plus 600 other smaller islands.

Country Land Mass: 462, 840 km^2
Land Covered area: 452,860 km^2
Water Covered Area: 9,980 km^2
Population: 10 million
Rural Population: 8 million
Population Growth Rate: 3.1 %
Official Languages: English
Common Spoken Language: Tok Pisin
GDP: 25 Billion USD
Culture: Diverse with over 800 tribes and languages
National Poverty Line: 40% *(World Bank, 2022)*

Papua New Guinea Overview

Current Status and Agriculture

Agriculture

Unique Agricultural Territories: Diverse with cool high-altitude valleys to coastal plains and pristine riverine ecosystems
Soil type: Highly productive uplifted calcareous/volcanic ash soils.
Natural Disasters: El Nino, La Nino, Earthquakes, Volcanic eruption, Tsunami
Climate: Tropical monsoon; high humid temperatures in coastal areas, Cool temperatures in highlands
Three farming systems:

- smallholder subsistence agriculture ,
- smallholder semi-commercial (cash crops, livestock)
- commercial (plantations, livestock)

Agriculture, forestry and fisheries together make up to 23% of GDP
Land access: 3% state and private, 97% customary land (accessible to 85% of population)
Sectorial employment: 37.7% of working population in farming sector; 8.9% in industry.
Livelihood: 85% dependent of agricultural production.
Rural Exports: Crude Palm Oil, Cocoa, Coffee, Copra, Spice, Rubber, and tea.
Agriculture Contribution to GDP: 28% of total exports.
Contribution to food security (domestic cultivation for home consumption): USD1.4 billion annually.
Contribution to the export trade economy: USD1.2 billion


Subsistence


Semi-Subsistence


Commercial


Commercial

Enabling Environment

Polices and Sector Strategies

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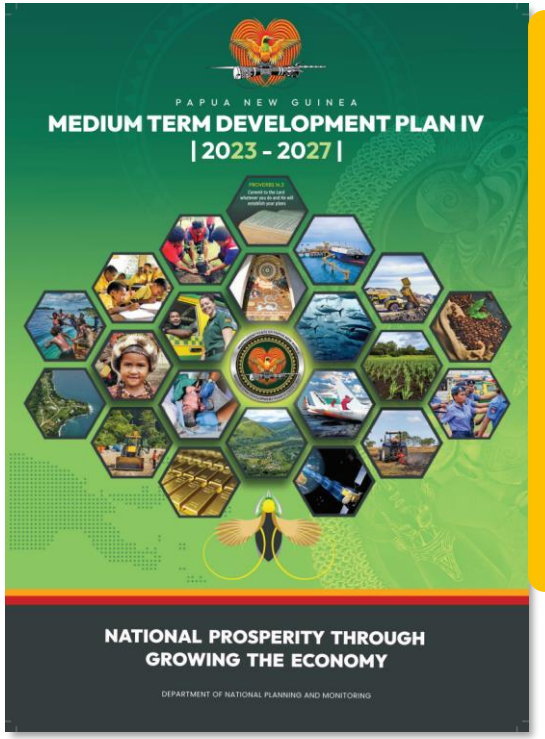
Enablers

Papua New Guinea Government's Strategic Development Plan to diversify economy away from extractive industries.

Medium Term Development Plan IV (2022-2027)



Strategic Priority Areas (SPAs) & Deliberate Investment Programs (DIPs)

Scan QR code for Government documents

Strategic Priority Areas and Deliberate Investment Programs

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Gov Priorities

MTDP IV STRATEGIC PRIORITY AREAS AND DELIBERATE INTERVENTION PROGRAMS (2022 - 22027)

SPA 01 Strategic Economic Investment
- DIP 1.1: Commercial Agriculture and Livestock Development
- DIP 1.2: Mining and Petroleum Development
- DIP 1.3: Fisheries and Marine Resources
- DIP 1.4: Forestry
- DIP 1.5: Banking and Finance
- DIP 1.6: Micro, Small Medium Enterprise
- DIP 1.7: National Tourism, Arts and Culture Development
- DIP 1.8: Trade and Investment
- DIP 1.9: Manufacturing
- DIP 1.10: Land Development
- DIP 1.11: Downstream Processing

SPA 02 Connect PNG Infrastructure
- DIP 2.1: Connect PNG—Road Transport
- DIP 2.2: Connect PNG—Water/Sea Transport
- DIP 2.3: Connect PNG—Air Transport
- DIP 2.4: Connect PNG—Telecommunication and ICT Connectivity
- DIP 2.5: Connect PNG—Electrification Rollout
- DIP 2.6: Connect PNG—WaSH
- DIP 2.7: Connect PNG—Housing
- DIP 2.8: Connect PNG—Urban Town District Growth Centres

SPA 03 Quality and Affordable Health Care
- DIP 3.1: Primary Health Care
- DIP 3.2: Specialized Health Care
- DIP 3.3: Health Infrastructure
- DIP 3.4: Specialized Training and Accreditation
- DIP 3.5: HIV-AIDS

SPA 04 Quality Education and Skilled Human Capital
- DIP 4.1: Early Childhood Education
- DIP 4.2: Quality Basic Primary and Secondary Education
- DIP 4.3: Tertiary Education
- DIP 4.4: Technical Vocational Education and Training
- DIP 4.5: Quality Training and Accreditation

SPA 05 Rule of Law and Justice
- DIP 5.1: National Policing and Crime Prevention
- DIP 5.2: Effective Judiciary System
- DIP 5.3: Correctional Services Rehabilitation and Reintegration
- DIP 5.4: Community Peace and Restorative Justice

SPA 06 National Security
- DIP 6.1: National Defence and Cooperation
- DIP 6.2: Immigration
- DIP 6.3: Cyber Security
- DIP 6.4: Biosecurity
- DIP 6.5: National Business Protection
- DIP 6.6: National Intelligence

SPA 07 National Revenue and Public Finance Management
- DIP 7.1: Tax Revenue Administration
- DIP 7.2: Customs Administration
- DIP 7.3: Non-Tax Revenue Administration
- DIP 7.4: Public Finance Management
- DIP 7.5: Payroll Administration

SPA 08 Digital Government, National Statistics and Public Service Governance
- DIP 8.1: Integrated Digital Government System
- DIP 8.2: National Statistical System
- DIP 8.3: National Identification Registration
- DIP 8.4: Electronic Electoral System
- DIP 8.5: Censorship
- DIP 8.6: Public Service Administration
- DIP 8.7: Public Service Governance
- DIP 8.8: Central Agencies Coordination

SPA 09 Research, Science and Technology
- DIP 9.1: Medical Research
- DIP 9.2: Environment and Bio-Science Research
- DIP 9.3: Agriculture Research
- DIP 9.4: Engineering and Technology Research
- DIP 9.5: Socio-Economic Policy Research
- DIP 9.6: Food Security

SPA 10 Climate Change and Environment Protection
- DIP 10.1: Climate Change Mitigation and Adaptation
- DIP 10.2: Environment Protection
- DIP 10.3: National Disaster Management

SPA 11 Population, Youth and Women Empowerment
- DIP 11.1: Sustainable Population
- DIP 11.2: Youth Development and Labour Mobility
- DIP 11.3: Sports Development
- DIP 11.4: Women Empowerment
- DIP 11.5: Family and Social Protection

SPA 12 Strategic Partnerships
- DIP 12.1: Foreign Relations
- DIP 12.2: Development and Economic Cooperation
- DIP 12.3: Private Sector
- DIP 12.4: Civil Society and Churches
- DIP 12.5: National Volunteer Services

SPA 1.0 Strategic Economic Investment

DIP 1.1
Commercial Agriculture & Livestock Production

- 1.1.1 Palm Oil
- 1.1.2 Coffee
- 1.1.3 Cocoa
- 1.1.4 Coconut
- 1.1.5 Rubber
- 1.1.6 Tea
- 1.1.7 Rice
- 1.1.8 Livestock
- 1.1.9 Spices
- 1.1.10 Fresh Produce

Expected Agriculture Sector Output K30 Billion Revenue

Prioritise investment in agriculture production, downstream processing and value addition

Investment Climate

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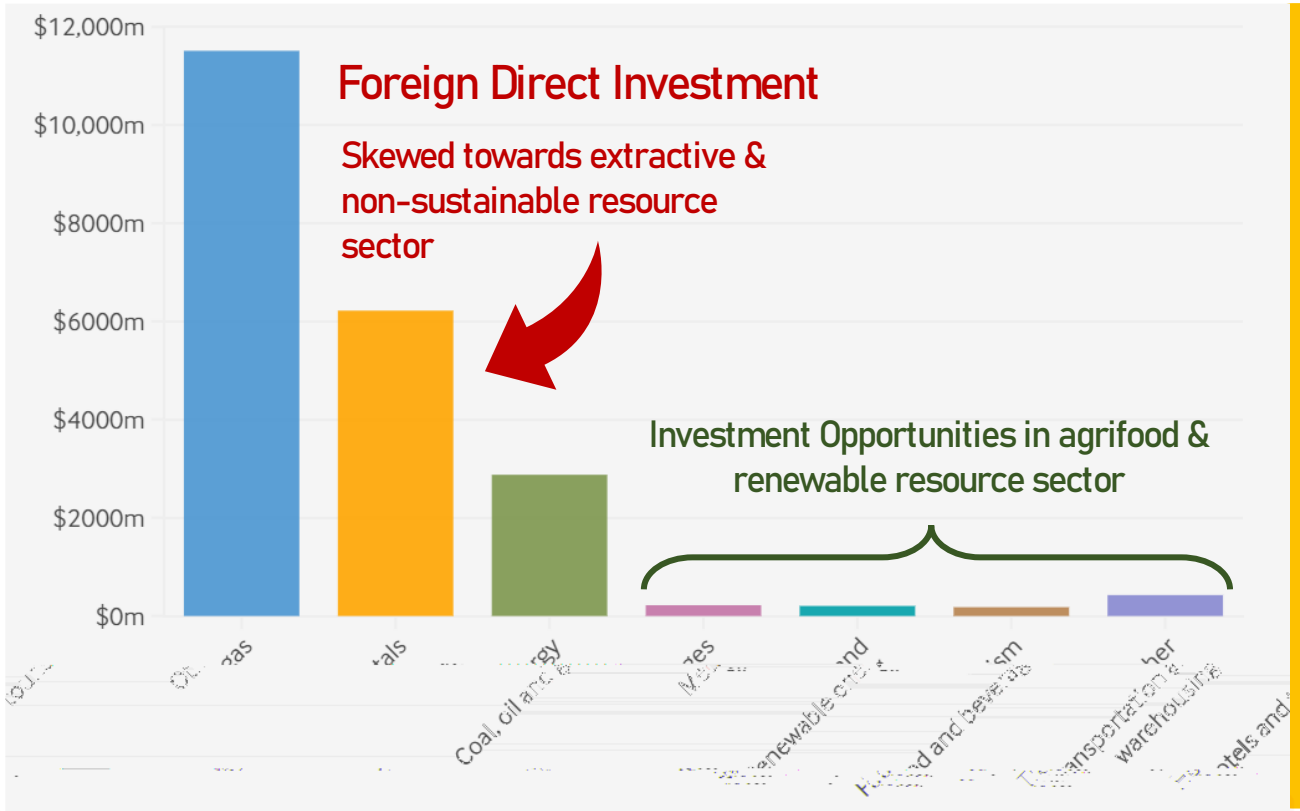
Investment Promotion Authority (IPA) Act (1992)

Promote and facilitate investment in Papua New Guinea.

PNG have range of direct and indirect tax incentives for investors willing to invest in large businesses.

IPA

SPECIAL ECONOMIC ZONE AUTHORITY



Special Economic Zone Authority (SEZA) Act (2019)
Conducive SEZ Policy Designated to Agribusiness

Special Economic Zone Authority (SEZA) Act (2019). aim to harness and drive **sustainable economic development** that benefits all Papua New Guineans.

SEZ –Biggest driver of sustainable and inclusive economic growth

PNG SEZ policy offers tenants **5 to 20-year corporate income tax** holiday, depending on the size of the investment, and exemptions from other levies including customs duties and withholding taxes.

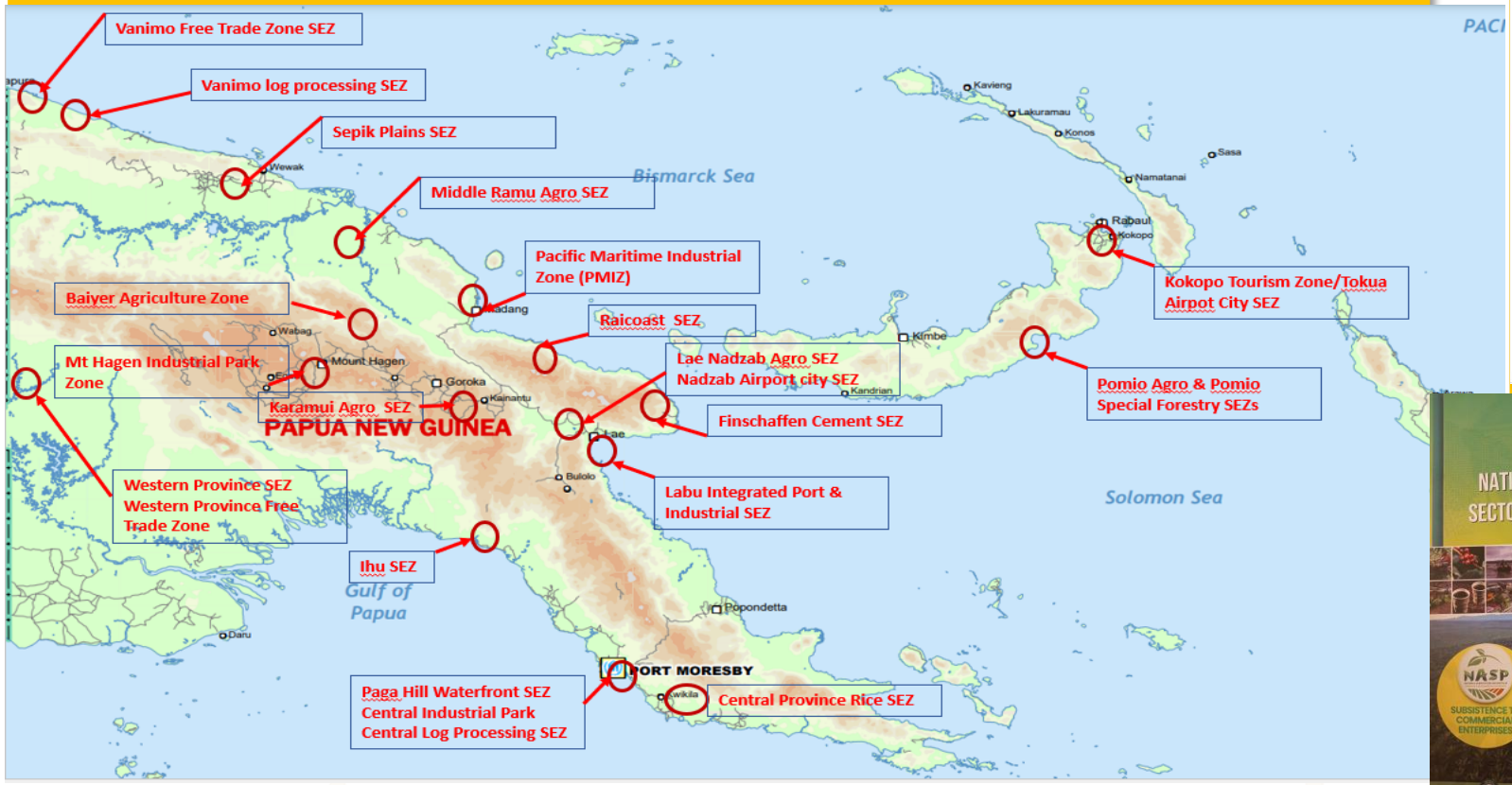
Government's Strategic Implementation Plan

Growth

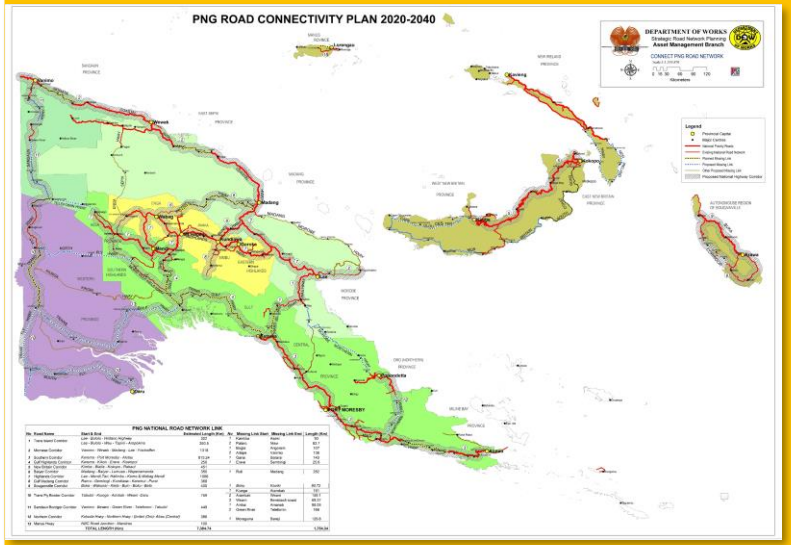
1. Special Economic Zone Authority (SEZA) Act (2019)

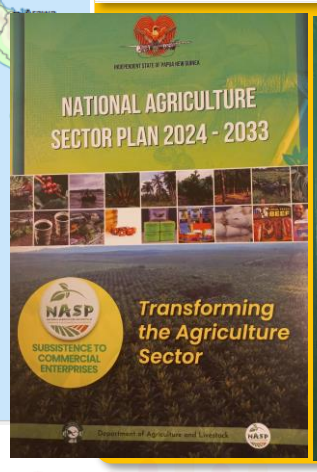
Conducive Policy Designated to Agribusiness

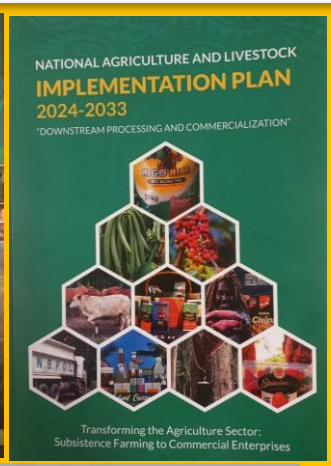
12 designated SEZs dedicated to developing agriculture industry and downstream processing and value adding.



2. Connect PNG Infrastructure





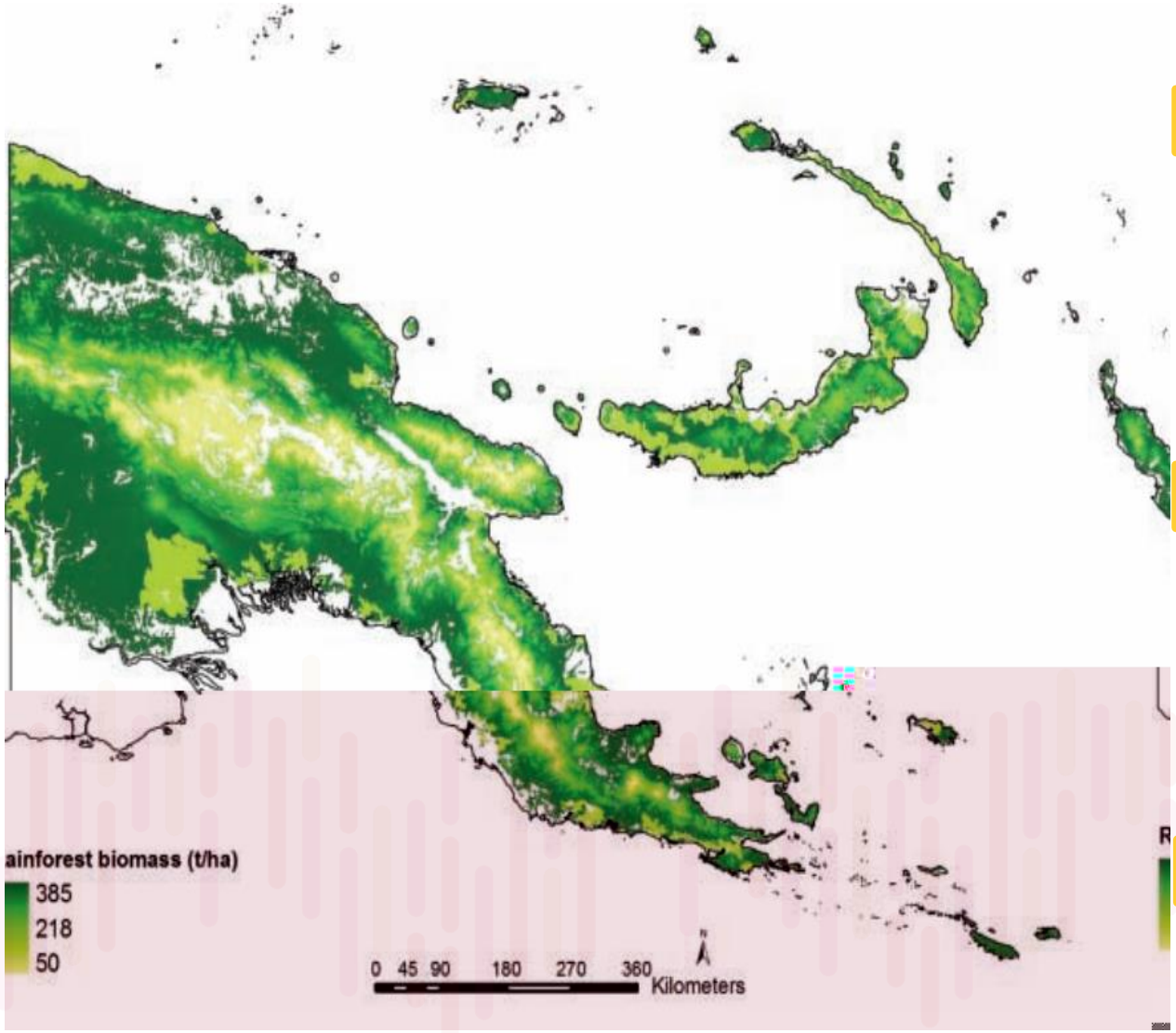


3. Agriculture Sector Strategic Plans

PNG Govt putting emphasis on agriculture production & downstream processing

Territories and HIH Typologies

PNG Land Cover and Carbon economy



Land Cover Ecology

- 3rd Largest World Tropical Rainforest
- Good rainfall for rainfed Agriculture production
- Land Area - 90 % Forested, 10 % grassland
- Largest biodiversity in the Asia-Pacific region
- Pristine riverine freshwater ecosystem

Carbon Economy

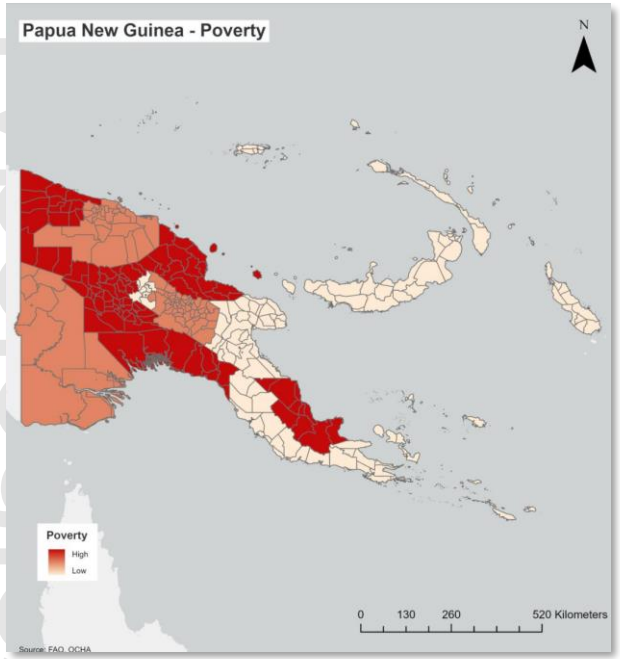
- GHG emissions from the agriculture sector = 935 kt CO_2 equivalent in 2017.
- GHG emissions from land use, land use change and forestry (forest land converted to cropland) = 9,397.82 kt CO_2 equivalent in 2017

Rainforest Biomass = 4,730 million tons of Carbon.

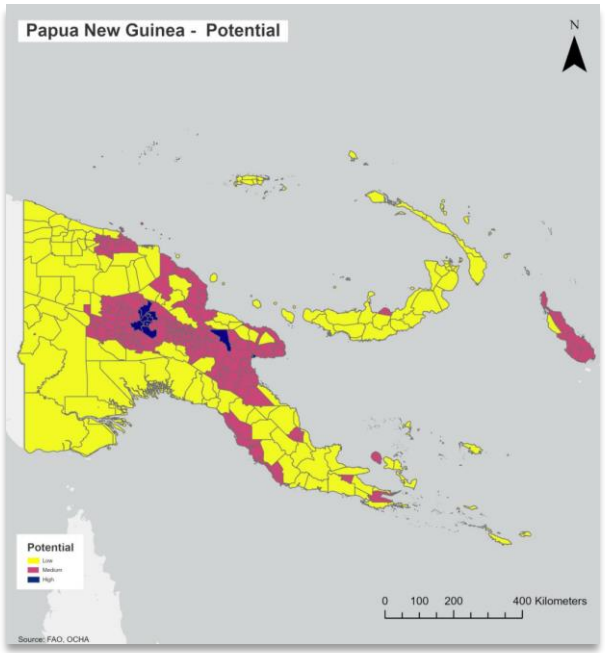
Typologies

Territories and HIH Typologies

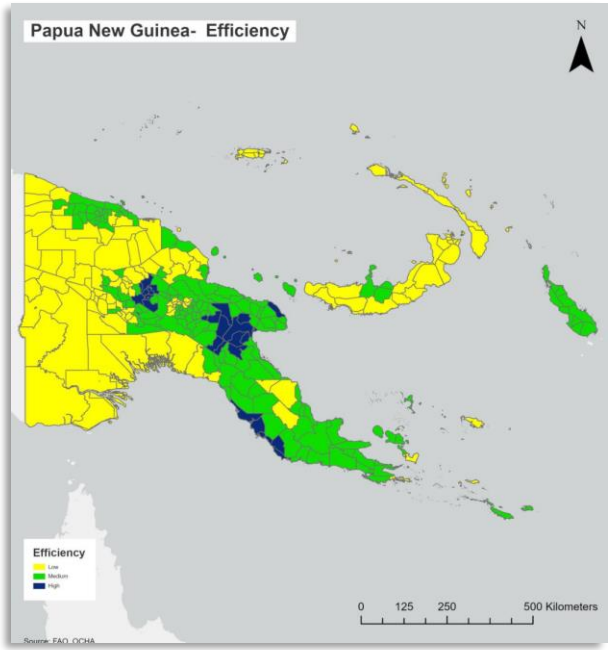
Poverty, Potential and Efficiency of the regions



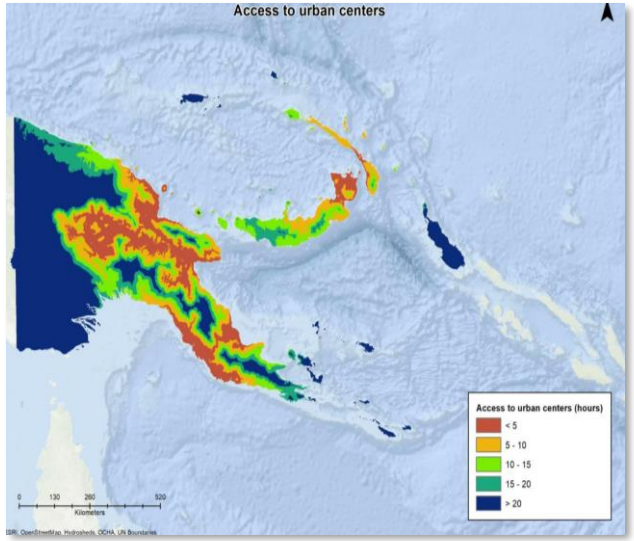
40% high poverty prevalence
30% medium poverty prevalence
30% low poverty prevalence



About 2% high potential
About 30% medium potential
60% low potential



5% high efficiency
40% medium efficiency
55% low efficiency



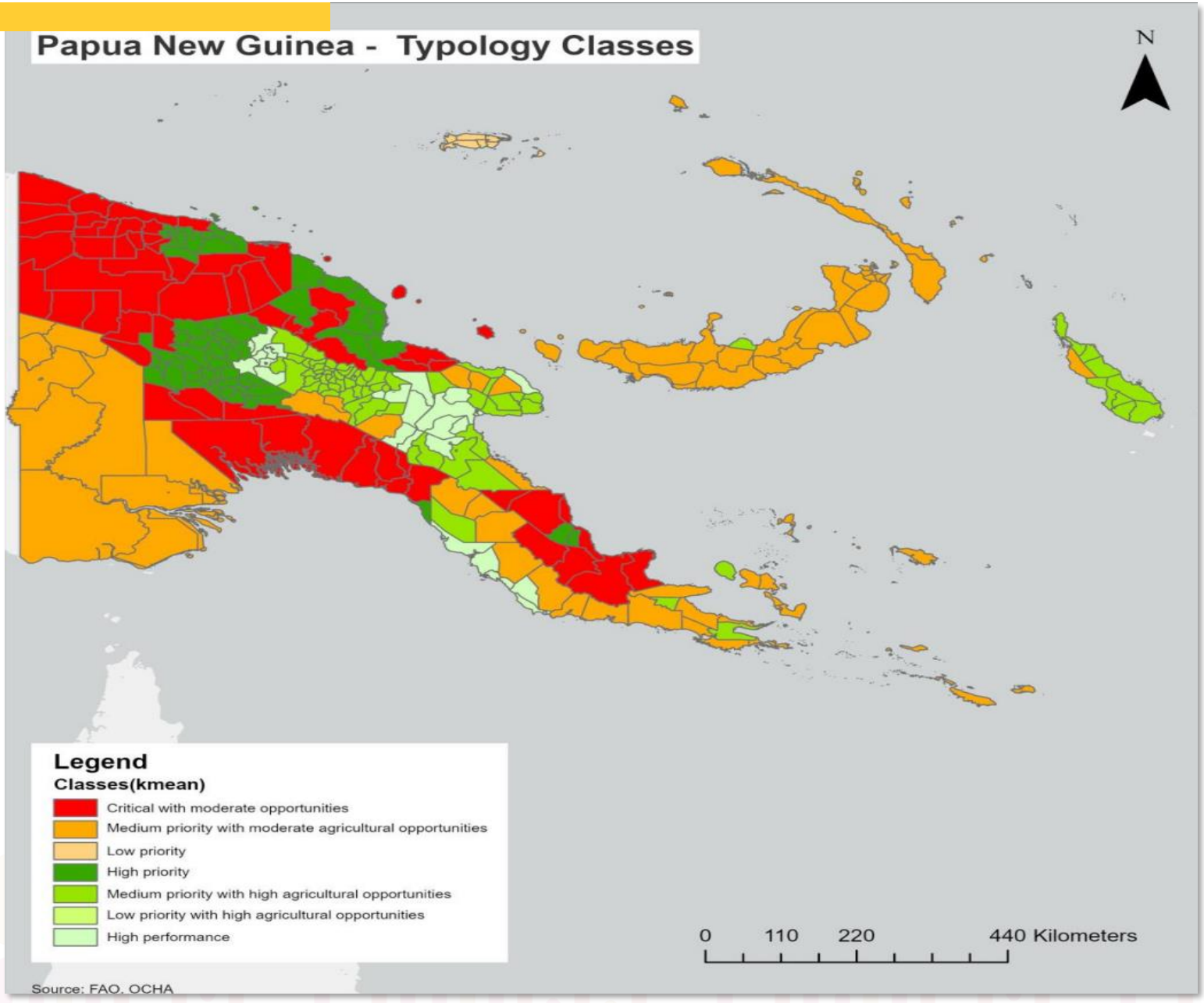
30 % accessible to urban markets within 5 hours
30 % accessible within 5 – 10 hours
10 % accessible within 10 – 15 hours
30 % > 20 hours accessible

Territories and HIH Typologies

Agricultural Typology Classes

Typologies

Typology Class/Descriptions
Critical, high poverty with moderate Agriculture potential
High priority, high poverty, medium/high potential, medium/moderate efficiency
Medium priority with high agricultural opportunities with medium poverty, medium/high potential, medium/moderate efficiency.
Low priority with high agricultural opportunities, with moderate poverty, medium/high potential, medium/moderate efficiency
High performance with moderate poverty, medium/high potential, high efficiency



1. Cocoa Investment Area

Current industry

Important primary cash crop: Supporting livelihoods of 150,000 households in 14 province.

Three smallholder-based production models:

- Subsistence-oriented low intensity wet bean producers
- Subsistence-oriented low intensity dry bean producers
- Business-oriented high intensity dry bean producers

Current production:

- Total area planted = 150,000 – 200,000 ha
- 43,000 tons dry beans valued at US$84 million annually.
- **75 % fine flavored cocoa**
- Current world demand for dry cocoa bean has attracted very high price for dry cocoa beans at between USD8,000 – USD 10,000 per ton.

Existing cocoa value addition

Current value addition:

- Primary processing (wet bean to dry bean) is the main value addition
- Zero to very little domestic processing into secondary & tertiary products.

Government supports:

- Through policies, initiatives, and funding to improve productivity through **National Agriculture Strategic Plan (NASP)**.
- Productive partnerships through WB funded PPAP/PACD agriculture commercialization projects and value chain development through EU funded STREIT project.

Profitability – Currently primary production, processing & marketing of cocoa dry beans in PNG are profitable activities for all value chain actors.

Markets & Opportunities

Markets:

- Domestic market– **No cocoa roasters & processors.**
- Export markets – **100% dry bean export,** 43,000 MT exported annually.

Opportunities:

- PNG cocoa is known for its unique 'fine-flavour' which commands premium prices in international markets.
- Downstream processing & value adding to current & future high prices for cocoa boasting increased production of high-quality cocoa.
- Organic certified cocoa production by subsistence-oriented low-input low output farmers (93 % of PNG cocoa producers).
- High demand for specific flavoured of fine quality organic cocoa by niche markets in Europe, Australia and New Zealand.
- Downstream processing into secondary products – cocoa butter & cocoa powder will add value & increase overall net profits of all value chain actors.

Wet cocoa beans → Dry cocoa beans Initial stages of value addition → Large scale value addition and Export

Raw Materials → High-value added

Bottlenecks, Key Investments & Risks Mitigation

Investment case

Bottlenecks

1. **PROCESSING:** Lack of modern processing facilities and difficulties in meeting international quality and safety standards. E.g. Kiln pipe drying and smoke taint reduce quality of cocoa beans.
2. **ACCESSIBILITY::** Poor to no road access for wet bean producers, delayed fermentation resulting in poor quality cocoa. High cost of transporting dry beans for sale reduces farmers profitability.
3. **PEST/DISEASES:** Cocoa Pod Borer have devastated cocoa yield and quality.
4. **CLIMATE CHANGE:** Climate Impact of El Nino/La Nina on low cocoa yield
5. **ACESS TO FINANCE:** Limited access to credit & finance for farmers and processors to invest in GAP and post-harvest management

Key Investments

1. **INVEST IN MODERN PROCESSING FACILITIES**:
   - Supply solar-powered combination fermentries /driers kits to 1,000 Cooperatives to improve quality of cocoa dry beans.
   - Invest in 1 x medium-scale cocoa roasting, grinding processing factory in Lae
2. **INVEST IN ROAD ACCESS**: Construct 100 km x new access roads, rehabilitate and upgrade 100 km x existing district, provincial and national road networks to connect farmers to markets.
3. **INVEST IN MODERN COCOA NURSERIES:** Construct 4 x certified 50,000 seedling capacity nurseries to support farmers with CBP tolerant, high yielding cloned cocoa seedlings.
4. **INVEST IN CAPACITY BUILDING:** Invest in capacity building of farmers to apply GAP and anticipatory action approach to climate change mitigation and sustain cocoa yield.
5. **CREDIT PROVISION:** Provide underwriting services guaranteeing producers and processors and value chain actors to have access to credits and finances from financial institutions..

Risks & Mitigation

1. **REPLACE KILN PIPI & STRENGTHEN POST_HARVEST MANAGEMENT**: Kiln pipe driers and smoke taint reduce quality of cocoa beans. Work with farmers and wet bean processors to replace all kiln pipes with solar-powered driers and training on post-harvest management. Strengthen quality assurance and traceability at the factory gate and shipping points.
2. **EASY ACCESS TO MARKET:** Poor to no road access to market for wet bean producers, delayed fermentation resulting in poor quality cocoa. Work with provincial & national governments to improve road access.
3. **INCREASE D AVAILABILITY OF CPB TOLERANT COCOA CLONES & GAP:** Cocoa Pod Borer pest destruction. Increase nursery capacities to support farmers with CPB tolerant, high yielding cocoa clones. Train farmers in GAP and IPDM. cocoa production strengthened and supported with CPB tolerant cocoa clones from certified nurseries.
4. CLIMATE SMART & GAP: Climate impact of El Nino/La Nina on low cocoa yield Inter cropping with coconut and diversify planting with all 18 recommended CPB tolerant cocoa clones. Increase capacity building on climate resilience agriculture practices. Diversify income.
5. LEVERAGE FARMERS & VALUE CHAIN ACTORS: Underwriting services to leverage farmers and processors gives confidents to creditors and financial institutions.

Business Case for Investment in Cocoa Downstream processing and Value addition

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Cocoa Downstream Processing and Value Adding – Cocoa Powder & Cocoa Liquor (Medium Scale)

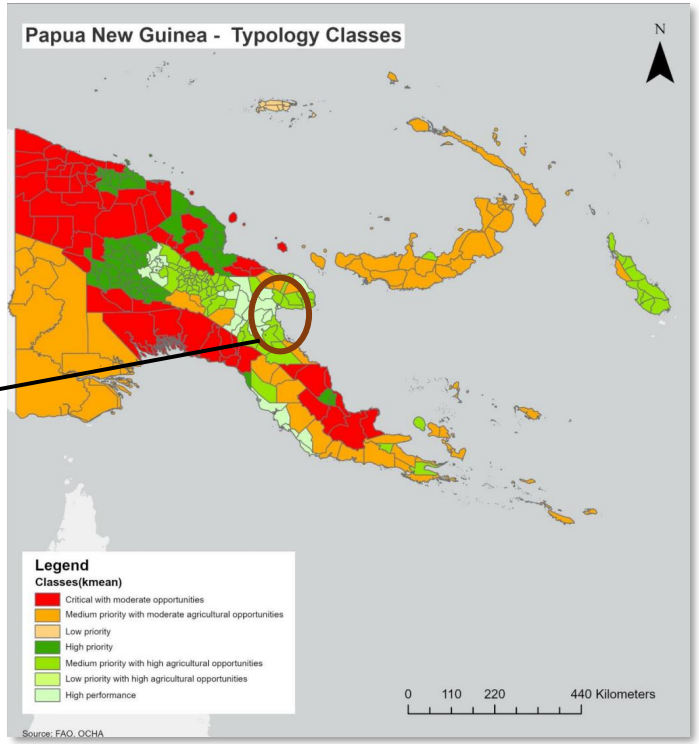
Medium size cocoa processing factory. Location – Lae Nadzab Agro SEZ, Morobe Province

Cocoa processing factory → Cocoa Butter, Cocoa Powder → Domestic Markets, Export Market

47,857 households

239,285 People

Beneficiaries



Profitability Indicators (@12%, 10 years evaluation period)	
Investment Required (USD)	42.2 Million
NPV (USD)	535.1 Million
IRR	32 %

2. Vanilla Investment Areas

Current industry

High value cash crop – supporting 130,012 households. 80 % ((240 t/year) produced in East & West Sepik Provinces.

Production – 100 % subsistence-oriented smallholder household units. 3rd largest world producer with 300 tons per year from 1,918 ha of ***V. tahitensis & V. planifolia***

Marketing – 100 % export of dried cured vanilla beans.

Constraints – Limited access to credit and financing for farmers and processors, post-harvest losses, lack of modern processing facilities, and difficulties in meeting international quality and safety standards.

Existing vanilla value addition

Current value addition:

- Primary Processing: (Green bean to dry cured bean) is the main value addition
- **100 % export** of cured gourmet type beans type beans to buyers & processors in USA, Europe, Australia & New Zealand.

Secondary Processing: No or very little domestic processing & value addition of lower grade beans (non export quality). These are sold across the border to neighboring Indonesia.

Government support:

- Through policies, initiatives, and funding to improve productivity through **National Agriculture Strategic Plan (NASP).**
- Productive partnerships through WB funded PPAP/PACD agriculture commercialization projects and value chain development through EU funded STREIT project.

Markets & Opportunities

Domestic: Zero to low use of vanilla essence in local food & culinary– but domestic market remain underdeveloped & untapped.

Market growth: Increasing demand for natural flavors in food and beverage industries worldwide is driving market growth.

Premium Export Market: Ethnical sourcing and traceability for premium Gourmet vanilla provide opportunity for PNG to tap into top-end market.

PNG Brand: Developing a brand that signifies high quality and sustainable sourcing will attract premium buyers. Consistency in purchase price and processing will ensure a stable market for farmers, fostering trust and long-term partnership in the vanilla value chain.

Export & Foreign Currency Revenue → Initial stages of primary value addition → Large scale value addition and Export

Raw Materials → High-value added

Bottlenecks, Key Investments & Risks Mitigation

Hand-in-Hand Initiative

Investment case

Bottlenecks

1. **PROCESSING:** Lack of modern processing facilities and difficulties in meeting international quality and safety standards.

2. **PEST/DISEASES:** Vanilla pest & diseases reduce yield and affect quality.

3. **HIGH PRICE VOLATALITY:** Uncertainty due to high price volatility impact supply fluctuations

4. **CLIMATE CHANGE:** Climate Impact of El Nino/La Nina on low cocoa yield

5. **ACESS TO FINANCE:** Limited access to credit & finance for farmers and processors to invest in GAP and post-harvest management

Key Investments

1. **INVEST IN MODERN PROCESSING FACILITIES:**
   - Supply solar-powered vanilla drying kits to 130,012 households to improve quality of cured vanilla beans.
   - Invest in 1 x medium-scale vanilla processing factory in Maprik, East Sepik Province.

2. **INVEST IN PATHGEN FREE NURSERY**: Testing, cleaning & supply certified pathogen-free vanilla vines to farmers. Innovation & utilization of nature-based solutions & apply GAP management.

3, **INVEST IN GI BRANDING & LABELLING:** Investment in GI branding & labelling to maintain consistency in quality of gourmet and extract vanilla, maintain market competitiveness, consumer preference, traceability, & implement rigorous quality control measures.

4. **INVEST IN CAPACITY BUILDING:** Invest in capacity building of farmers to apply GAP management with appropriate level of shade management. Increase capacity of farmers to become climate smart producers. Diversify income.

5. **CREDIT PROVISION:** Provide underwriting services guaranteeing producers and processors and value chain actors to have access to credits and finances from financial institutions..

Risks Mitigation

1. Poor drying reduce quality of vanilla beans & don't meet international food safety standards. **Supply solar-powered driers and training on post-harvest management' Strengthen quality assurance and traceability at the factory gate and shipping points.**

2. Pathogens (virus/bacteria) infect and & destroy vanilla vines. **Quarantine movement of vines from infected areas. Support farmers with pathogen-free vines from certified nursery or tissue culture laboratory. Train farmers in GAP and IPDM.**

3. High price volatility & supply fluctuations. **Stay informed about market dynamics, GI branding & maintain consistency in quality of gourmet and extract vanilla, maintain market competitiveness, consumer preference, traceability, & implement rigorous quality control measures.**

4. Climate impact of El Nino/La Nina on low vanilla yield **Increase capacity of farmers on climate smart agriculture practices.**

5. Limited access to credit. **Underwriting services to leverage farmers and processors credit ratings gives confidents to creditors and financial institutions.**

Business Case for Investment in Gourmet Vanilla & Vanillin Extract

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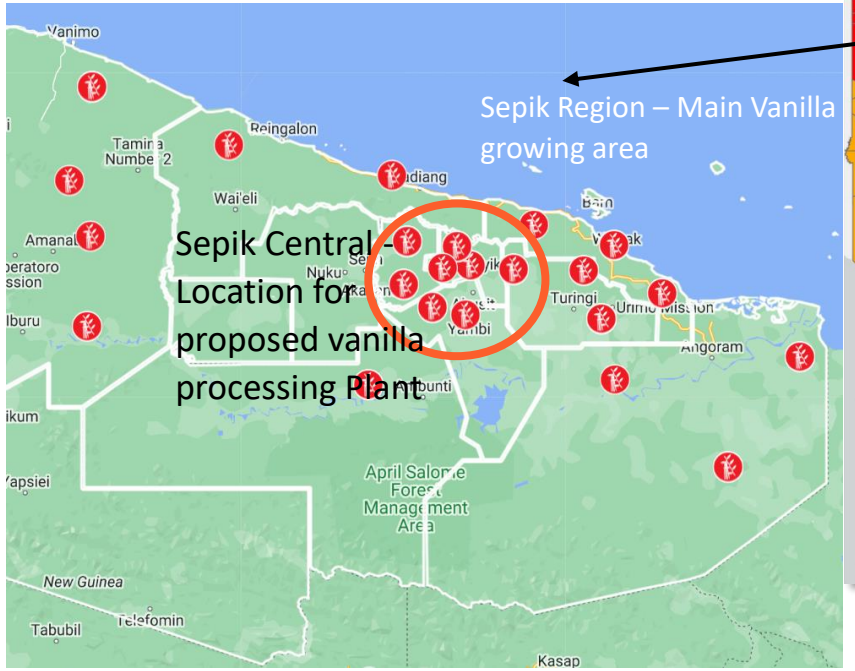
Vanilla Downstream Processing – Gourmet & Vanillin Extract (Medium Scale)

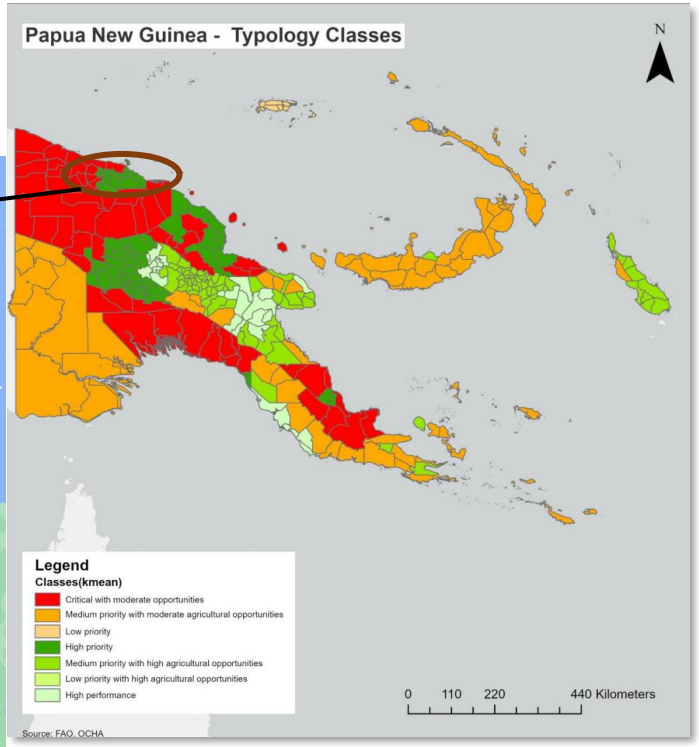
Medium size vanilla processing factory location - Maprik, Sepik Plains SEZ, Sepik Province

130,000 households

650,059 People

Beneficiaries





Vanilla processing factory → Gourmet Vanilla, Vanillin Extract → Domestic Markets, Export Market

Profitability Indicators (@12 %, 10 years evaluation period)	
Investment Required (USD)	24.3 Million
NPV (USD)	282.4 Million
IRR	33.7%

3. Coconut Investment Areas

Current industry

Important primary cash crop: Supporting 440,328 households, 2.6 m people (71% cultivate coconuts for self consumption, 29% cultivate for cash).

Current production:

- Total area planted = 560,000 ha; 14 million palms.
- 96,665 metric tons per year; Export revenue USD37 million per year.
- 20 registered coconut product exporters; 63 MSME virgin coconut oil producers.
- PNG has 1.1% share of global coconut products.

Accessibility: Low copra price & limited access to credit and financing for farmers and processors, post-harvest management, lack of modern processing facilities, and difficulties in meeting international quality and safety standards.

Existing coconut value addition

Primary Processing :

- Virgin coconut oil (VCO) is the main value-added product.
- Copra (dried kernel)
- Coconut oil extracted from copra (dried kernel)
- Copra meal (by-product of oil extraction)

Secondary Processing: Mostly by local MSME producing value added products coconut oil based products at cottage level - cosmetics, soap, cooking oil, and bio-diesel.

Government supports - Through policies, initiatives, through **National Agriculture Strategic Plan (NASP).** Support to KIK the industry regulator improve productivity & R&D.

Profitability – diversified utilisation of various coconut products and by-products such as husks and shells processing & marketing are profitable activities for all value chain actors.

Markets & Opportunities

Domestic Market: 381 million nuts are locally consumed annually as food. Low domestic market for VCO.

Export Markets – PNG produces high-quality white copra and virgin coconut oil products which commands premium prices in international markets. Potential markets for shell charcoal (activated charcoal) and husk (by-product) fibre in international markets underutilized.

Market Opportunities:

- Certification – certified organic VCO command high premium price.
- Potential Value-added products – Value addition of 2.42 million tons of dried coconuts equivalent to 407,650 metric tons of VCO, 869,990 metric tons of husks & 410,830 metric tons of shell.

Dry coconuts/copra → Copra & coconut oil Initial stages of value addition → Large scale value addition and Export

Raw Materials → High-value added

Bottlenecks, Key Investments & Risks Mitigation

Hand-in-Hand Initiative

Investment case

Bottlenecks

1. **PROCESSING:** Lack of modern processing facilities and difficulties in meeting international quality and safety standards. E.g. Kiln pipe drying and smoke taint reduce quality of coconut oil & other products.

2. **ACCESSIBILITY::** . Poor access to market and high cost of transporting dry beans for sale reduces farmers profitability.

3. **Pest/Diseases:** Bogia Coconut Syndrome have devastated coconut palm yield.

4. **CLIMATE CHANGE:** Climate Impact of El Nino/La Nina on low coconut yield & senile palm trees

5. **ACESS TO FINANCE:** Limited access to credit & finance for farmers and processors to invest in GAP and post-harvest management

Key Investments

I. **.INVEST IN MODERN PROCESSING FACILITIES**:
   - Supply solar-powered combination drier kits to 1,000 Cooperatives to improve quality of coconut oil.
   - Invest in 1 x medium-scale coconut virgin oil, coconut husk fibre & coconut shell charcoal processing factory in Madang

2. **INVEST IN ROAD ACCESS**: Construct 50 km x new access roads, rehabilitate and upgrade 100 km x existing district, provincial and national road networks to connect farmers to markets.

3. **INVEST IN COCONUT NURSERIES** to support farmers with high yielding disease-free coconut seedlings for rehabilitation of run down & senile coconut plantations..

4. **INVEST IN CAPACITY BUILDING**: Train farmers to apply GAP and anticipatory action approach to climate change mitigation and sustain coconut yield.

5. . **CREDIT PROVISION**: Provide underwriting services guaranteeing producers and processors and value chain actors to have access to credits and finances from financial institutions..

Risks Mitigation

1. Kiln pipe driers and smoke taint reduce quality of coconut oil. **Replace all kiln pipes with solar-powered driers and train farmers on coconut post-harvest management .Strengthen quality assurance and traceability at the factory gate and shipping points**.

2. Poor road access & high transportation cost to market reduces profitability. **Work with provincial & national governments to improve road access.**

3. Bogia Coconut syndrome destroy coconut palms. **Increase nursery capacities to support farmers with disease-free coconut seedlings Train farmers in GAP and IPDM. Coconut production strengthened and supported with disease free high yield hybrid coconuts. Quarantine movement of coconuts from infected areas**

4. Climate impact of El Nino/La Nina on low coconut yield **Inter cropping with cocoa and diversify income. Increase capacity building of farmers on climate smart resilient agriculture practice**

5. Farmers have low security & are high risk borrowers. **Underwriting services will leverage farmers and processors give confidence to creditors and financial institutions.**

Business Case for Investment in PNG Virgin coconut oil, husk fibre & shell charcoal (activated carbon)

Hand-in-Hand Initiative

Coconut Downstream Processing and Value Adding – Virgin Coconut Oil, Shell Charcoal & Husks (Medium Scale)

Medium scale coconut products processing factory. Location, Madang SEZ, Madang Province

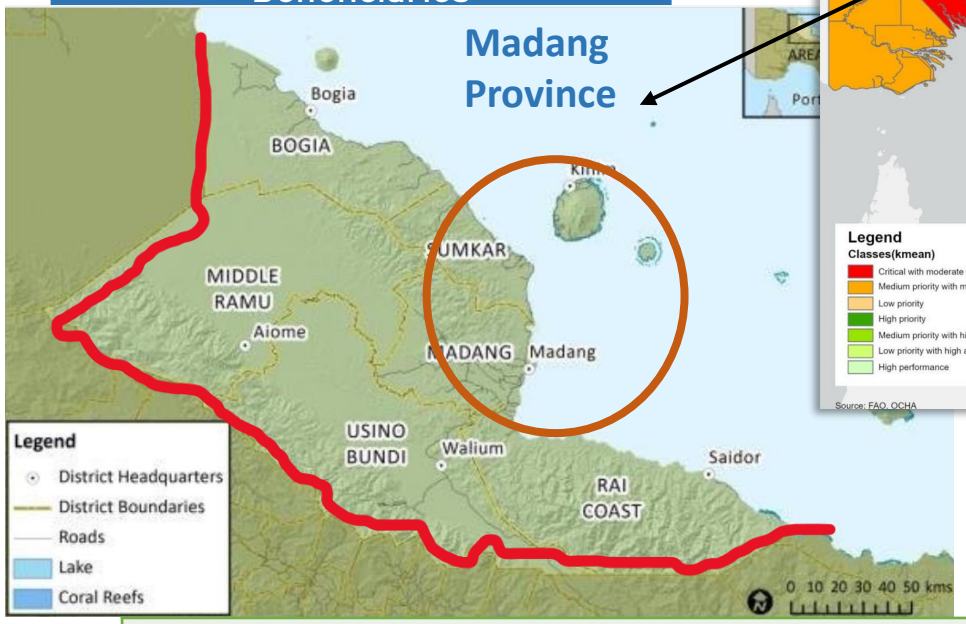


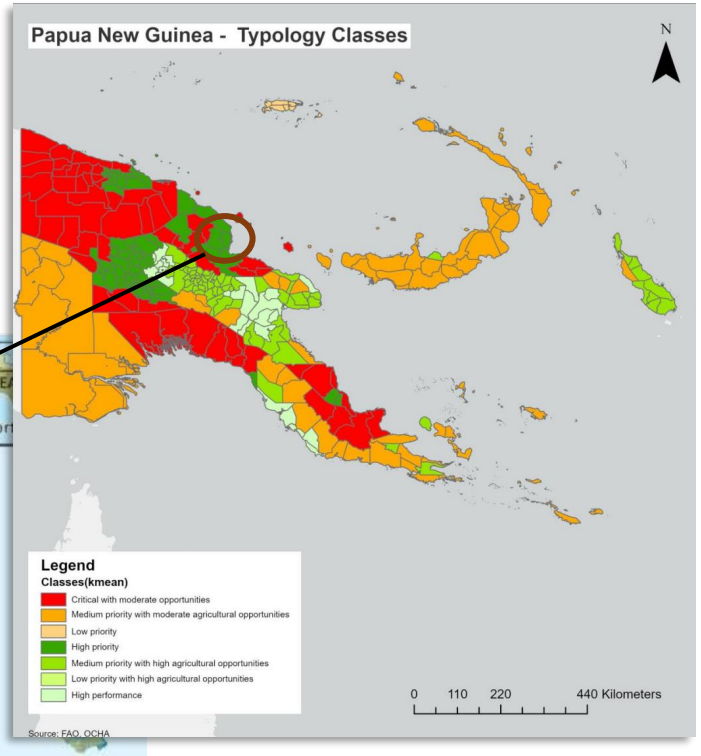



Coconut processing factories → Virgin Coconut Oil, Coconut Husks Fibre, Coconut Shell Charcoal → Domestic Markets, Export Market

50,870 households — 254,363 People

Beneficiaries





Profitability Indicators (@12 %, 10 years evaluation period)	
Investment Required (USD)	61.4 Million
NPV (USD)	349.4 Million
IRR	26%

Summary Investment plan of Papua New Guinea

Hand-in-Hand Initiative

127.9 M US$	18.0 M USD	109.9 M USD	1,143,708 People	1,462.47 US$	149,147 $ktCO_2$-eq
Investment cost	Govt. Budget per year	Investment Required	Total Beneficiaries	Av. Per capita income	tCO2-e sequestrated
Investment case	Investment case	Investment case			

Cocoa Investment

Investment:
USD42.2 Million

NPV :
USD535.1 Million

IRR:
32%

Direct beneficiaries
47,857 people

Indirect beneficiaries:
191,430 people

Total beneficiaries:
239,285 people

Per Capita income increase
2,236.0 US$/Person

Total Carbon Emissions
124,700 $ktCO_2$-e

Vanilla Investment

Investment:
USD24.3 Million

NPV :
USD282.4 Million

IRR:
33.7 %

Direct beneficiaries
130,012 people

Indirect beneficiaries:
520,047 people

Total beneficiaries:
650,059 people

Per Capita income increase
434.42US$/Person

Total Carbon Emissions
19,911 $ktCO_2$-e

Coconut Investment

Investment:
USD61.4 Million

NPV :
USD349.4 Million

IRR:
26%

Direct beneficiaries
50,873 people

Indirect beneficiaries:
203,491 people

Total beneficiaries:
254,364 people

Per Capita income increase
US$1,717.0/Person

Total Carbon Emissions
4,536 $ktCO_2$-e