



Enabling sustainable production landscapes in Eastern Highlands and Western Highlands Provinces for Biodiversity, Human Livelihoods and Well-being

Part I: Project Information

GEF ID

10515

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Enabling sustainable production landscapes in Eastern Highlands and Western Highlands Provinces for Biodiversity, Human Livelihoods and Well-being

Countries

Papua New Guinea

Agency(ies)

FAO

Other Executing Partner(s)

Wildlife Conservation Society

Executing Partner Type

CSO

GEF Focal Area

Biodiversity

Taxonomy

Capacity, Knowledge and Research, Focal Areas, Land Degradation, Sustainable Land Management, Sustainable Forest, Sustainable Agriculture, Income Generating Activities, Community-Based Natural

Resource Management, Restoration and Rehabilitation of Degraded Lands, Sustainable Livelihoods, Forest, Forest and Landscape Restoration, REDD - REDD+, Biodiversity, Biomes, Grasslands, Tropical Rain Forests, Tropical Dry Forests, Mainstreaming, Forestry - Including HCVF and REDD+, Agriculture and agrobiodiversity, Protected Areas and Landscapes, Terrestrial Protected Areas, Productive Landscapes, Community Based Natural Resource Mngt, Climate Change, Climate Change Mitigation, Agriculture, Forestry, and Other Land Use, Climate Change Adaptation, Least Developed Countries, Community-based adaptation, Livelihoods, Climate resilience, Influencing models, Convene multi-stakeholder alliances, Demonstrate innovative approach, Strengthen institutional capacity and decision-making, Stakeholders, Local Communities, Private Sector, SMEs, Individuals/Entrepreneurs, Type of Engagement, Participation, Consultation, Information Dissemination, Communications, Education, Awareness Raising, Beneficiaries, Civil Society, Community Based Organization, Non-Governmental Organization, Academia, Gender Equality, Gender results areas, Access and control over natural resources, Participation and leadership, Capacity Development, Knowledge Generation and Exchange, Gender Mainstreaming, Gender-sensitive indicators, Women groups, Sex-disaggregated indicators, Innovation, Knowledge Generation, Learning, Theory of change, Indicators to measure change, Adaptive management, Knowledge Exchange

Sector

Mixed & Others

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 1

Submission Date

3/20/2020

Expected Implementation Start

9/1/2022

Expected Completion Date

8/31/2026

Duration

48In Months

Agency Fee(\$)

613,994.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
BD-1-1	Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors	GET	4,835,730.00	20,500,000.00
BD-2-7	Address direct drivers to protect habitats and species and Improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate	GET	1,627,367.00	15,700,000.00
Total Project Cost(\$)			6,463,097.00	36,200,000.00

B. Project description summary

Project Objective

To conserve threatened species and habitats, improve the management of protected areas, areas of high conservation value and associated buffer zones, and enable sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1 Strengthening integrated land use planning, coordination and management through improved spatial data and decision support systems	Technical Assistance	<p><u>Outcome 1.1:</u> Investment and land use decision-making in EHP and WHP enhanced by using highly participatory and transparent decision support systems (DSS), backed by comprehensive land use and improved access to biodiversity information and linked spatial data.</p> <p><u>Indicators</u> The extent to which investment and land use decisions in EHP and WHP is enhanced using DSS and improved data sets.</p> <p><u>Output indicators</u> Multipurpose provincial biodiversity/forest assessments completed.</p> <p>The extent that provincial biodiversity/forest assessments incorporate gender-based knowledge.</p> <p>The extent that relevant data are available at provincial and sub provincial levels and being used to support land use management decisions (including gender and age</p>	<p><u>Output 1.1.1:</u> Biodiversity/forest assessments conducted in two target provinces, including forest assessments supplementing the National Forest Inventory</p> <p><u>Output 1.1.2:</u> Spatial data including gender and age disaggregated socio-economic data, customary landowner aspirations, development plans and historical land use and land use change in the two target provinces, and key gaps and trends in data identified.</p> <p><u>Output 1.1.3:</u> Biodiversity, socio-economic and historical land use and land use change information of the target provinces is made available through web-interface database systems</p> <p><u>Output 1.1.4:</u> Integrated decision support</p>	GET	2,431,002.00	8,115,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2: Scaling up landscape-level action for integrated conservation & sustainable supply chain development	Investment	<p><u>Outcome 2.1:</u> Key value chains for sustainably harvested products strengthened/established and financial and market support mechanisms for forest and farm producer organizations made available</p> <p><u>Indicators</u></p> <p>Farming families and forest and farm producer organisations are demonstrably benefiting from improved gender sensitive, biodiversity friendly and climate resilient value chains in WHP and EHP. The number of small-scale farmers with improved business arrangements.</p> <p><u>Output indicators</u></p> <p>Number and type of options for gender sensitive, biodiversity friendly and climate resilient practices and approaches identified.</p> <p>Number of men and women farmers that adopt biodiversity friendly and climate resilient management practices.</p> <p>The area of targeted landscapes under improved practices</p>	<p><u>Output 2.1.1:</u> Options for gender sensitive, biodiversity friendly and climate resilient practices and approaches have been identified by a review of the farming and forest use systems (gender disaggregated) of the target provinces</p> <p><u>Output 2.1.2:</u> At least 1,000 farming families (FFs) are implementing improved farming and forest management systems, including forest restoration and agroforestry, based on biodiversity friendly and climate resilient practices.</p> <p><u>Output 2.1.3:</u> Assessments of specific gender sensitive, biodiversity friendly and climate resilient value chains in each FF cluster conducted, and improvement</p>	GET	2,399,100.00	20,482,500.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3: Strengthening the enabling environment and governance structures for integrated landscape/land use planning, coordination and management	Technical Assistance	<p><u>Outcome 3.1:</u> Integrated decision support systems for land use management of the targeted landscapes enabled by adequate policies and methodologies</p> <p><u>Indicators</u></p> <p>The extent to which integrated decision support systems at provincial levels (WHP and EHP) are supported effectively by improved policies and methodologies</p> <p><u>Output indicators</u></p> <p>The extent to which provincial regulatory frameworks support the conservation and sustainable use of multi-functional landscapes</p> <p>The extent to which provincial policies and regulations on agricultural, fisheries and forestry commodity trading support biodiversity friendly and climate resilient land use.</p>	<p><u>Output 3.1.1:</u> Strengthened provincial (2) regulatory frameworks for the conservation and sustainable use of multi-functional landscapes</p> <p><u>Output 3.1.2:</u> Provincial policy and regulations (4) on agricultural, fisheries and forestry commodity trading strengthened to support gender sensitive, biodiversity friendly and climate resilient practices and approaches</p>	GET	352,432.00	3,050,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 4: Effective knowledge management, monitoring and evaluation	Technical Assistance	<p><u>Outcome 4.1:</u> Stakeholders and the project benefit from the project's knowledge management and monitoring and evaluation systems</p> <p><u>Indicators</u> Increase in knowledge of stakeholders on the value of biodiversity and sustainable land use practices at local, provincial, and national levels</p> <p>Project governance and implementation is guided effectively by the project's M&E system.</p> <p><u>Output indicators</u> Functioning MEL system that is suited to national and local contexts. Mid-term review completed. Final Evaluation completed.</p> <p>Number and type of project outputs disseminated.</p> <p>Number and type of knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations operating</p>	<p><u>Output 4.1.1:</u> Monitoring and evaluation of project progress on a regular basis using harmonized, gender and age disaggregated, monitoring and learning approaches (at local and national level)</p> <p><u>Output 4.1.2:</u> Knowledge sharing strategy developed, and lessons and best practices disseminated in appropriate formats at local and national level</p>	GET	661,797.00	2,742,500.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Project M&E	Technical Assistance	Monitoring & Evaluation	Project M&E	GET	311,000.00	
Sub Total (\$)					6,155,331.00	34,390,000.00

Project Management Cost (PMC)

GET	307,766.00	1,810,000.00
Sub Total(\$)	307,766.00	1,810,000.00
Total Project Cost(\$)	6,463,097.00	36,200,000.00

Please provide justification

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Conservation and Environment Protection Authority	In-kind	Recurrent expenditures	1,000,000.00
Recipient Country Government	Climate Change and Development Authority	In-kind	Recurrent expenditures	150,000.00
Recipient Country Government	Department of Agriculture and Livestock	In-kind	Recurrent expenditures	150,000.00
Donor Agency	Sustainable Wildlife Management in the Bismarck Forest Corridor, PNG (GCP GLO/682/EC)	Grant	Investment mobilized	2,400,000.00
Donor Agency	Enhancing disaster and climate resilient agriculture in vulnerable communities (TCP/PNG/3803)	Grant	Investment mobilized	200,000.00
Donor Agency	PNG Highlands Joint Programme (UNJP/PNG/014/UNJ)	Grant	Investment mobilized	400,000.00
Donor Agency	Readiness for registry and nesting system to facilitate climate-related investments in agriculture, forest and land use (AFOLU) sector in PNG (GCP /PNG/011/GCR)	Grant	Investment mobilized	500,000.00
Donor Agency	Emergency support to preventing the spread and mitigating the impacts of COVID-19 along the agricultural value chain and building resilience in food security, nutrition and livelihoods (OSRO/PNG/100/JPN)	Grant	Investment mobilized	800,000.00

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Donor Agency	Support to enhance food security and nutrition and encourage healthy eating habits of rural communities in Papua New Guinea through piloting School Meal Programme (TCP/PNG/3805)	Grant	Investment mobilized	100,000.00
Donor Agency	Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT: UNJP/PNG/010/EC)	Grant	Investment mobilized	20,000,000.00
Donor Agency	GCF REDD+ Results Based Pilot Programme for Peace and Development	Grant	Investment mobilized	10,000,000.00
Recipient Country Government	Papua New Guinea Forest Authority	In-kind	Recurrent expenditures	500,000.00
Total Co-Financing(\$)				36,200,000.00

Describe how any "Investment Mobilized" was identified

? Sustainable Wildlife Management in the Bismarck Forest Corridor, PNG (GCP GLO/682/EC) - A large part of the Bismarck Forest Corridor lies in EHP. This project complements all the outcomes of the Project.

? Enhancing disaster and climate resilient agriculture in vulnerable communities (TCP/PNG/3803) - Capacity-building activities on climate-resilient agriculture practices and the enhancement of value-chain in the Highlands Region conducted under the project will complement Outcome 2.1 of the Project. ? PNG Highlands Joint Programme (UNJP/PNG/014/UNJ) - Agriculture extension services and capacity building in Highlands Region will complement Outcome 2.1 of the Project. ? Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT: UNJP/PNG/010/EC)- This project's objective is in line with the Project and in particular it aligns to the output on enhancing sustainability of commodity supply chains and safeguarding the globally significant biodiversity in PNG. The project will complement Outcome 2.1 and 4.1 of the Project. ? Readiness for registry and nesting system to facilitate climate-related investments in agriculture, forest and land use (AFOLU) sector in PNG (GCP /PNG/011/GCR) - building on forest and land-use monitoring under the project will complement Outcome 1.1, 3.1, and 4.1 of the Project. ? Emergency support to preventing the spread and mitigating the impacts of COVID-19 along the agricultural value chain and building resilience in food security, nutrition and livelihoods (OSRO/PNG/100/JPN) - Agriculture extension services and capacity building in EHP and WHP under the project will complement Outcome 2.1 of the Project. ? Support to enhance food security and nutrition and encourage healthy eating habits of rural communities in Papua New Guinea through piloting School Meal

Programme (TCP/PNG/3805) - Agriculture extension services and capacity building in EHP and WHP under the project will complement Outcome 2.1 of the Project. ? The GCF REDD+ Results Based Pilot Programme for Peace and Development is currently being finalized and if approved will provide co-financing. The GCF support to sustainable community development and forest conservation will complement all the outcomes of the Project. The national and provincial governments will contribute in-kind costs for project management including a national project director (CEPA), officers executing project activities, a project steering committee, provincial technical working groups, office space and support with transport. The changes in co-financing from the PIF are as follows: ? Funds not secured, but may materialize: o USAID (PNG Biodiversity Programme) ? USD 20,000,000 ? Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT: UNJP/PNG/010/EC) ? Increased from USD 2 million to USD 20 million. ? Funds not secured o FAO (Regional, Global and TCPs) ? USD 50,000 o European Union (Strengthening integrated sustainable landscape management in Enga Province) ? USD 6 million ? Funds secured but at lower value: o Sustainable Wildlife Management in the Bismarck Forest Corridor, PNG (GCP GLO/682/EC) ? reduced from USD 2.8 million to USD 2.4 million o GCF REDD+ Results Based Pilot Programme for Peace and Development ? reduced from USD 20 million to USD 10 million. ? New funds secured: o Enhancing disaster and climate resilient agriculture in vulnerable communities (TCP/PNG/3803) - USD 200,000 o PNG Highlands Joint Programme (UNJP/PNG/014/UNJ) - USD 400,000 o Readiness for registry and nesting system to facilitate climate-related investments in agriculture, forest and land use (AFOLU) sector in PNG (GCP /PNG/011/GCR) ? USD 500,000 o Emergency support to preventing the spread and mitigating the impacts of COVID-19 along the agricultural value chain and building resilience in food security, nutrition and livelihoods (OSRO/PNG/100/JPN) ? USD 800,000 o Support to enhance food security and nutrition and encourage healthy eating habits of rural communities in Papua New Guinea through piloting School Meal Programme (TCP/PNG/3805) ? USD 100,000 In addition, several new sources of potential co-funding could not be confirmed at time of project design, but are likely to materialize, these include: ? Western Highlands Provincial Government ? USD 150,000 in kind ? Eastern Highlands Provincial Government ? USD 150,000 in kind ? Wildlife Conservation Society ? USD TBC in kind.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agenc y	Trus t Fun d	Countr y	Focal Area	Programmin g of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Papua New Guinea	Biodiversit y	BD STAR Allocation	3,622,710	344,157	3,966,867.0 0
FAO	GET	Papua New Guinea	Biodiversit y	BD STAR Allocation	2,840,387	269,837	3,110,224.0 0
Total Grant Resources(\$)					6,463,097.0 0	613,994.0 0	7,077,091.0 0

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)
PPG Required **true**

PPG Amount (\$)
200,000

PPG Agency Fee (\$)
19,000

Agenc y	Trust Fund	Country	Focal Area	Programmin g of Funds	Amount(\$)	Fee(\$)	Total(\$)
FAO	GET	Papua New Guinea	Biodiversity	BD STAR Allocation	111,111	10,556	121,667.00
FAO	GET	Papua New Guinea	Biodiversity	BD STAR Allocation	88,889	8,444	97,333.00
Total Project Costs(\$)					200,000.00	19,000.00	219,000.00

Core Indicators

Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
284,998.00	285,000.00	0.00	0.00

Indicator 1.1 Terrestrial Protected Areas Newly created

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
10,000.00	8,002.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
Akula National Park 5 community conserved areas to be identified	125689	SelectProtected area with sustainable use of natural resources	10,000.00	8,002.00		

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
274,998.00	276,998.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
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Name of the Protected Area	WD PA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)
Akula National Park Baiyer River	125 689 3146	SelectPro tected area with sustainable use of natural resources	741.00	741.00			31.00		<input type="checkbox"/>
Akula National Park Crater Mountain WMA	125 689 106683	SelectHa bitat/Species Management Area	270,000.00	270,000.00			45.00		<input type="checkbox"/>
Akula National Park Hogave Conservation Area	125 689 n/a	SelectPro tected area with sustainable use of natural resources	0.00	2,000.00			40.00		<input type="checkbox"/>
Akula National Park Jimi Valley NP	125 689 15797	SelectNat ional Park	4,180.00	4,180.00			15.00		<input type="checkbox"/>
Akula National Park Mt Gahavisuka PP	125 689 9714	SelectPro tected area with sustainable use of natural resources	77.00	77.00			42.00		<input type="checkbox"/>

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
800.00	800.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	700.00		

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
800.00	100.00		

Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
190000.00	190000.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
190,000.00	190,000.00		

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification**Indicator 4.3 Area of landscapes under sustainable land management in production systems**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Documents (Please upload document(s) that justifies the HCVF)

Title Submitted

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	1316073	1031551	0	0
Expected metric tons of CO ₂ e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	1,316,073	1,031,551		
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting	2021	2022		
Duration of accounting	20	20		

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)				
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 7 Number of shared water ecosystems (fresh or marine) under new or improved cooperative management

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Shared water Ecosystem				
Count	0	0	0	0

Indicator 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation (scale of 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Select SWE				

Indicator 7.2 Level of Regional Legal Agreements and Regional management institution(s) (RMI) to support its implementation (scale of 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
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Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministerial Committees (IMC; scale 1 to 4; See Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
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Indicator 7.4 Level of engagement in IWLEARN through participation and delivery of key products(scale 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
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Indicator 10 Reduction, avoidance of emissions of POP to air from point and non-point sources (grams of toxic equivalent gTEQ)

Grams of toxic equivalent gTEQ (Expected at PIF)	Grams of toxic equivalent gTEQ (Expected at CEO Endorsement)	Grams of toxic equivalent gTEQ (Achieved at MTR)	Grams of toxic equivalent gTEQ (Achieved at TE)
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Indicator 10.1 Number of countries with legislation and policy implemented to control emissions of POPs to air (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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Indicator 10.2 Number of emission control technologies/practices implemented (Use this sub-indicator in addition to Core Indicator 10 if applicable)

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
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Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	2,000	2,000		
Male	1,000	2,000		
Total	3000	4000	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

The Project targets developed during the PIF were reviewed and adjusted during the development of the project baseline and these targets were discussed and agreed with stakeholders during stakeholder consultation workshops. The Project supports GEF core indicator 4 by developing provincial and district level plans covering 190,000 ha of forest and agricultural land outside protected areas and 285,000 ha of land within protected areas. Improved planning and implementation of biodiversity positive actions will be supported through enhanced inter-departmental collaboration

between national and provincial levels and within the provinces. This will help mitigate the barrier related to governance (Barrier B). // The project will mainstream biodiversity conservation criteria into the planning and management of forest and farms and protected areas managed by customary landowners and protected areas managed by government agencies. Improved management of farms and forests will reduce loss of biodiversity within protected areas and in areas adjacent to protected areas, while providing economic incentives (notably income from marketing farm and forest produce, and rural employment opportunities) to local communities through the sustainable use of biodiversity (this addresses Barrier C). // The project will support the improvement and maintenance of spatial data and development and application of decision support systems that will enable a focus on globally important ecosystems and species and employ a systematic and multi-stakeholder approach that leads to an increase in biodiversity friendly, climate smart land use practices. // The project will support improvements to the enabling environment, organize training and knowledge management events, and assist with the development of a provincial level monitoring system and a national web portal provides accurate and usable information on biodiversity conservation and development activities. // The above will contribute to Strategic Goals A, B, C, D, and E of the Aichi Targets, SDGs # 1, 5, and particularly SDG 15 on protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. In addition, the Project specifically supports the following Aichi targets:

- Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
 - o Target 1 • The Project contributes to raising awareness of the values of biodiversity and will provide examples of steps to conserve and use it sustainably.
 - o Target 2 • The Project seeks to incorporate biodiversity values into planning processes, notably for integrated participatory land use planning.
 - o Target 3 - The Project will promote positive incentives for the conservation and sustainable use of biodiversity by focusing on biodiversity friendly and climate smart land use practices that improve the flow of ecosystem services to customary landowners.
- Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use
 - o Target 5 • The Project directly contributes to reducing habitat loss and degradation of natural habitats, including forests.
 - o Target 7 • The project has a primary focus on ensuring areas within buffer zones under agriculture and forestry are managed sustainably, ensuring conservation of biodiversity.
 - o Target 9 • The Project will apply protocols to manage pathways to prevent the introduction and establishment of invasive species.
- Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
 - o Target 11 • The Project includes a focus on ensuring protected areas are effectively and equitably managed, ecologically representative and well connected by improving the management of the protected areas and the wider landscape.
 - o Target 12 • The Project includes a focus

on targeted threatened species. ? Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services o Target 14 ? The Project has a major focus on supporting the provision of essential ecosystem services, including services related to water, health, livelihoods and well-being, taking into account the needs of women, local communities, and the poor and vulnerable. o Target 15 ? The Project is not primarily focused on climate change but nevertheless it will enhance carbon stocks through conservation of degraded ecosystems. o Target 16 ? The Project supports PNG's efforts to support the Fair and Equitable Sharing of Benefits Arising from the Utilization of genetic resources. ? Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building o Target 18 ? The Project will encourage respect for traditional knowledge, innovations and practices of customary landowners relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources. It also encourages full and effective participation of customary landowners, at all relevant levels. o Target 19 ? The Project directly contributes to knowledge relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss. o Target 20 ? The Project promotes the mobilization of financial resources for biodiversity conservation.

Part II. Project Justification

1a. Project Description

1) Global environmental and/or Adaptation problems, root causes and barriers that need to be addressed (systems description)

1. Papua New Guinea (PNG) is situated in the South West Pacific and comprises the eastern half of New Guinea, including the islands of New Ireland, New Britain, and Bougainville and 600 smaller nearby islands and atolls. The country has a surface area of 462,840 km² (the largest Pacific Island state), and 820 km of land border with the Indonesian province of West Papua.^[1] The island of New Guinea has arguably the most complex orogeny in the world.^[2] The biota of New Guinea has been profoundly shaped by this complex orogeny. The uplift of Central Cordillera has largely isolated biotas of lowland regions to the north and south of New Guinea. It is considered that orogeny and climatic oscillations have been the major drivers that have interacted to generate high montane biodiversity in New Guinea.^[3]

2. PNG accounts for the five (5) per cent of global biodiversity with remarkably high endemism. A total of 10,973 plant species (64 per cent endemic) have been identified in PNG by the world's leading flora taxonomists, contributing to the global recognition of New Guinea having the world's richest island flora.^[4] Moreover, PNG has an estimated 150,000 species of insects, 314 species of freshwater fish (82 endemic), 2,800 species of marine fish, 641 species of amphibians and reptiles (328 endemic), 740 species of birds (77 endemic) and 276 species of mammals (69 endemic).^[5]

3. Much of PNG is mountainous and covered in tropical rainforest. It is ranked as the third (3rd) largest tropical forest area in the world after the Amazon and the Congo basin. Terrestrial habitats range from extensive lowlands with rainforest, savanna, grassland, and freshwater swamps to upland montane rainforests and alpine grassland. PNG's forests are relatively intact with about 78 per cent of forest cover (60 per cent is primary forest). According to the PNG Forest Authority (PNGFA),^[6] between 2000 and 2015, 261,528 hectares (ha) of forest was cleared. Shifting agriculture is responsible for 63 per cent of deforestation and commercial agricultural developments, primarily for oil palm, is responsible for 30 per cent of the deforested land.^[7]

4. Ninety-seven per cent (97%) of the land in PNG, including forests, is under customary ownership by virtue of sovereign rights guaranteed to all citizens.^[8] Under PNG's constitution, the population has legal ownership over the land they have traditionally lived on and used resources from - unless such ownership and the rights pertaining to it have been voluntarily suspended by virtue of an agreement with the customary owners or via compulsory acquisition by the state.^[9] The customary land tenure system is sufficiently flexible to accommodate increasing population and internal migration.^[10] Apart from customary land, there are also forests, nature reserves and parks that are administered by the state which are subject to the laws and regulations that govern them,^[11] and private freehold land set aside for reservation or conservation purposes.

5. The Government of PNG, through the Conservation and Environment Protection Authority (CEPA), within the Ministry of Environment, Conservation and Climate Change (MoEC&CC), has identified high conservation areas within Western Highland Province (WHP) and the Eastern Highland Province (EHP) as the geographic focus of this project (Figure 1). [Note: higher resolution maps are available from FAO offices in PNG].

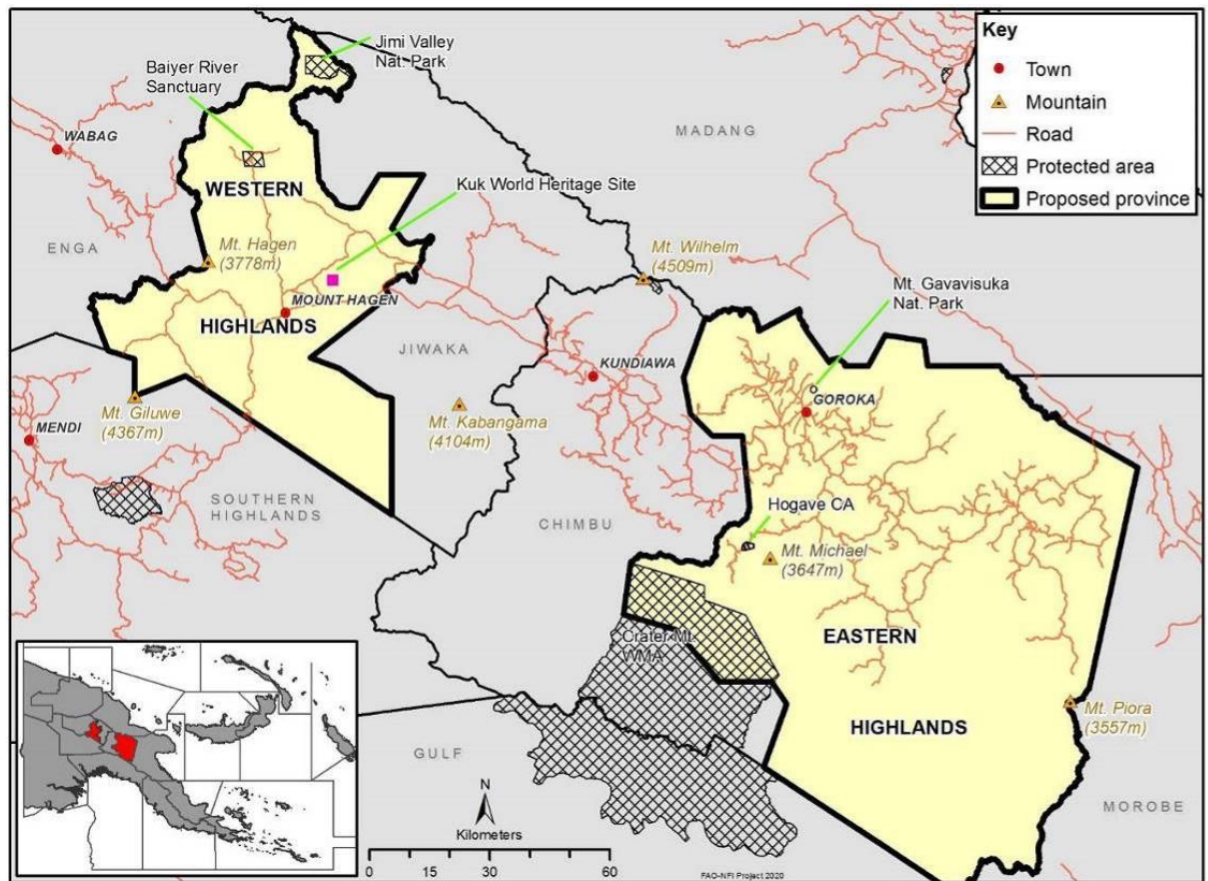


Figure 1 Project area showing locations of existing protected areas

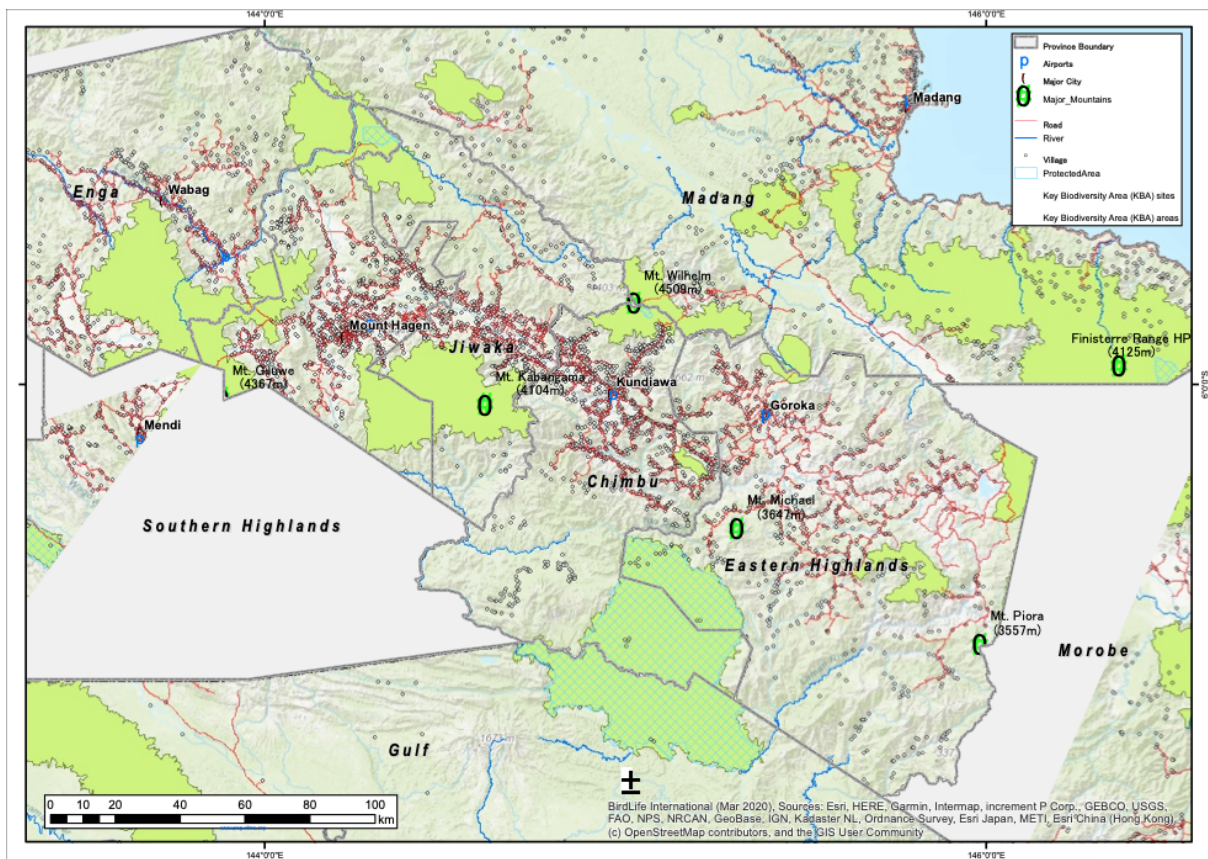


Figure 2 Key Biodiversity Areas (KBAs) in EHP and WHP[1]¹

[1]

<https://maps.birdlife.org/portal/apps/opsdashboard/index.html#/6bb77ab2761643ba885a29b942fb9734>

Figure 2 indicates Key Biodiversity Area (KBAs) in the target provinces, based on data provided by Birdlife.[1]

[1] See,

<https://maps.birdlife.org/portal/apps/opsdashboard/index.html#/6bb77ab2761643ba885a29b942fb9734>

Land use

6. Covering an area of 1.547 million ha (Table 1), the two provinces are mountainous, with an elevation range from 272 meters above sea level (asl) to 4,433 m asl, including Mt Giluwe (sharing the peak with Southern Highlands Province, the second highest mountain in PNG), and numerous mountains are higher than 3,000 m asl, Figure 3 and Figure 4.

Table 1 Area of WHP and EHP (hectares)

Province	Total area	Cropland	Forest	Grassland	Wetlands	Settlements	Other
Eastern Highlands	1,114,676	319,318	599,457	176,311	3,918	13,713	1,959
Western Highlands	432,998	188,882	179,018	33,535	6,411	23,179	1,973
Total	1,547,674	508,200	778,475	209,846	10,329	36,892	3,932

(Sources: FAO-NFI project/PNGFA and the Forest and Land use Change in PNG 2000-2015 report)

7. Agriculture covers 44 per cent (188,881 ha) of WHP and 28 per cent (319,318 ha) of EHP (Table 1). In both provinces, shifting agriculture is the predominant agricultural practice (Table 2).

Table 2 Breakdown of agricultural land use in the EHP, WHP

Agricultural land use	Eastern Highlands	Western Highlands
Permanent agriculture	115,581	77,9191
Shifting agriculture	190,023	103,071
Other	1,959	493
Tea		1,479
Coffee	11,754	5,917
Total agricultural land area	319,318	188,881

(Source: PNGFA 2019 Forest and land use change in PNG 2000-2015)

8. Forests cover 41 per cent (180,000 ha) of WHP and 54 per cent (600,000 ha) of EHP (Table 1), and the two provinces also contain important wetlands. The relatively intact montane forest largely comprises *Nothofagus* species. While most of the lower elevation forests were cleared for agriculture and timber production in the 20th century, small patches of *Castanopsis* forest remain.

9. PNG has a National Forest Monitoring System (NFMS) that relies on remote sensing and field-based inventory. As of 2019, 160 plots had been assessed through field inventory in seven of PNG's 22 provinces. Further resources and effort are needed to complete the NFMS implementation.

10. The forests in WHP and EHP are home to several IUCN Red-Listed and little-known species including, but not limited to, the Central Ranges Tree Kangaroo (*Dendrolagus stellarum* EN), Goodfellow's Tree Kangaroo (*Dendrolagus goodfellowi* EN), Eastern Long Beaked Echidna (*Zaglossus bartoni* VU), and New Guinea Pademelon (*Thylogale browni* VU).^[12]

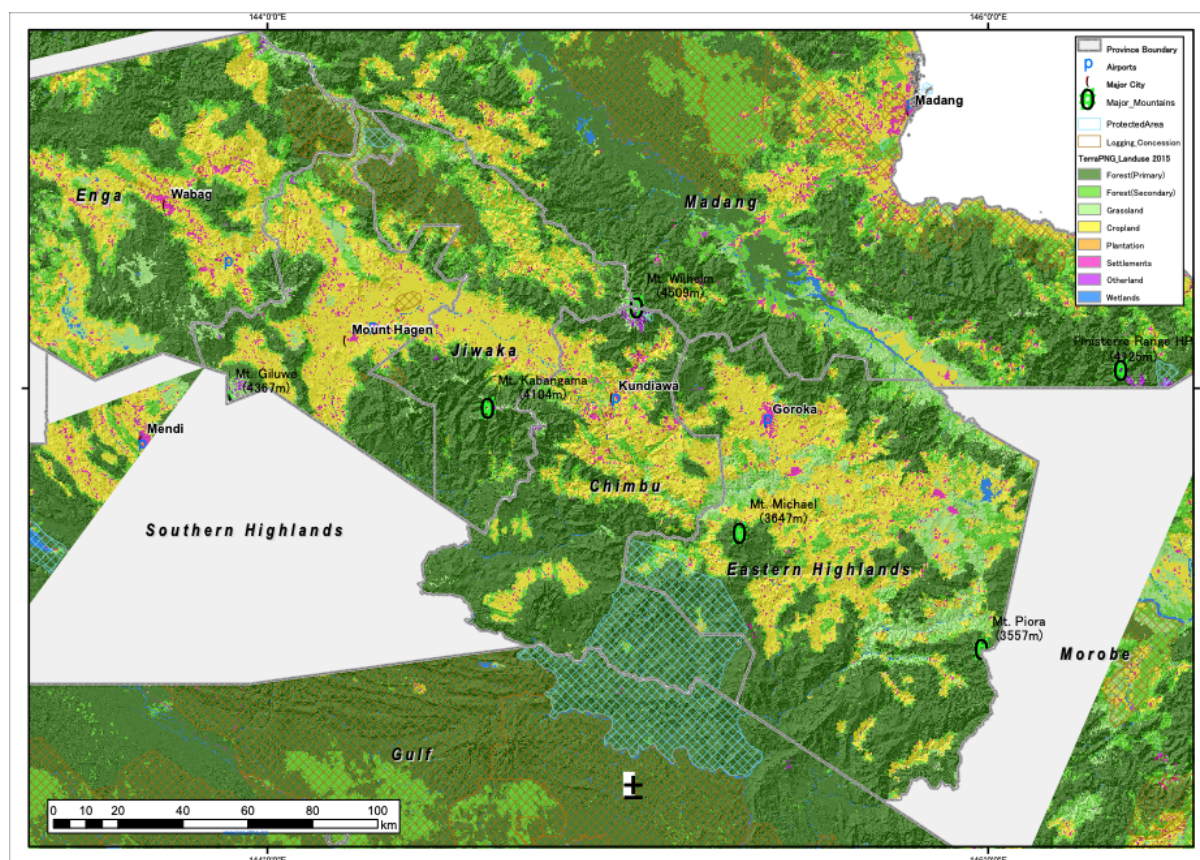


Figure 3 Land use in the Highlands

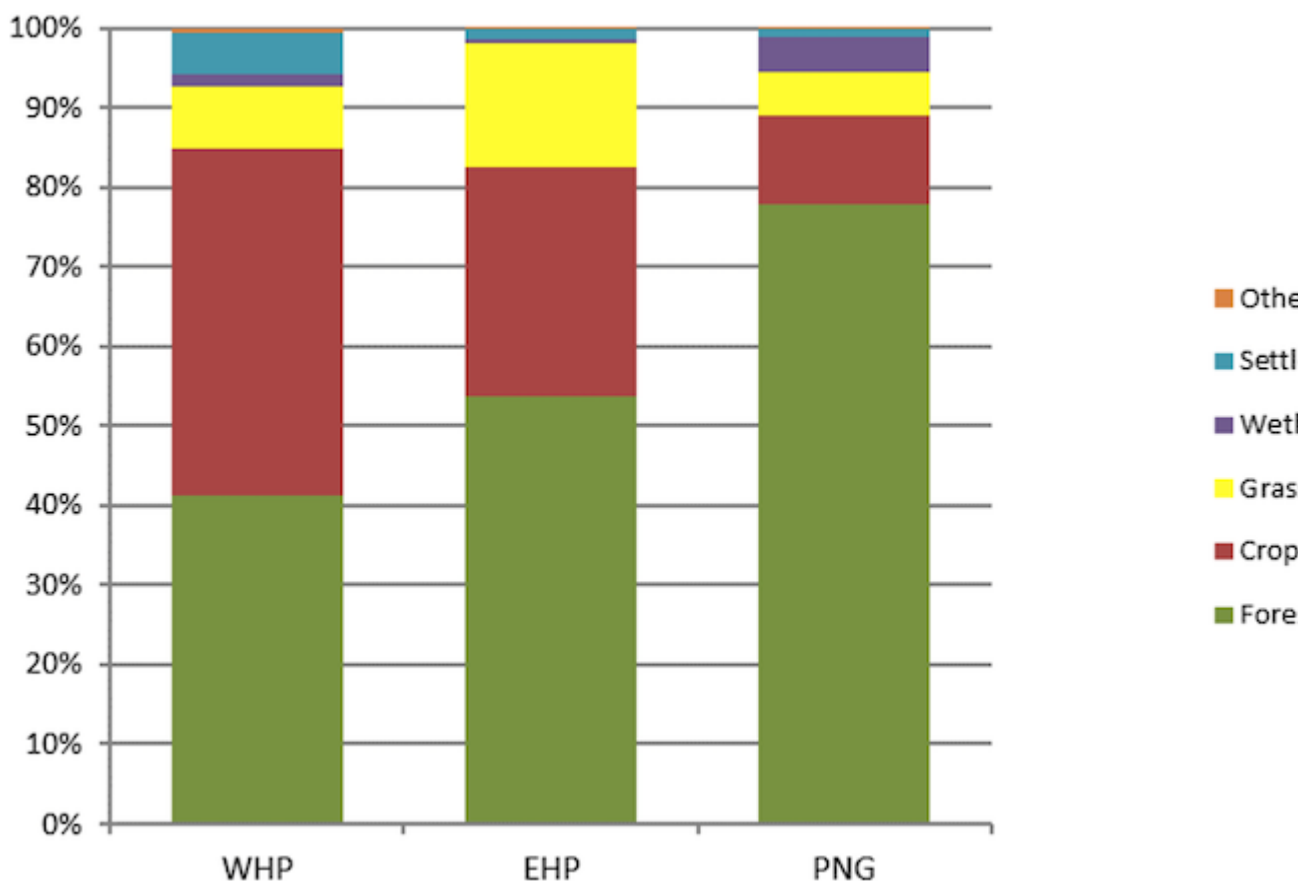


Figure 4 Land use in WHP, EHP and PNG % of total area

11. It should be noted that while land clearing is a significant threat to biodiversity in other provinces of PNG, from 2002 to 2014 only 3,900 ha of land was cleared in WHP and a similar area in EHP. Over the same period 7,900 ha of forest was altered due to logging in EHP and there was no loss of forest area due to logging in WHP.^[13]

Socio-economic context

12. Both provinces are heavily populated with an average density of 83.8 person/km² in WHP and 57.0 person/km² in EHP. These densities are many times higher than the national average of 15.8 person/km². The 2010 census indicated populations of 362,850 in WHP and 579,825 in EHP. The population is largely rural, with 89 per cent of the population in WHP and 94 per cent of the population in EHP engaged in agriculture. Most households in EHP and WHP (88 per cent) farm small areas (11 ha) and 44 per cent of households only have access to between one and five ha. The median number of people in an agricultural household in PNG was estimated as five in 2019.^[14]

13. Most rural people are employed as producers, processors, or intermediate traders in agriculture. There are vigorous informal businesses where people grow, transport, trade and retail fresh food, betel nut, firewood, fish, and other commodities.^[15]

14. Eighty-four per cent of households that own agricultural land are headed by a male, while 16 per cent of households are headed by a female. About 30 per cent of the heads of households who own agricultural land do not have any education. About 41 per cent have some primary education and 17 per cent have some secondary education. Only 4 per cent of land-owning household heads have higher education.^[16]

15. Agriculture systems are primarily fallow systems (96 per cent of the farmed area), or systems which have evolved from forest fallow systems. Fallow systems involve clearing and cutting forest, some burning of felled vegetation, cultivation of crops, and abandonment of the site to natural processes of regeneration.

16. The main three food crops grown in EHP and WHP are banana (*Musa cvs*), sweet potato (*Ipomoea batatas*), and corn (*Zea mays*). The most commonly grown cash crop is coffee (*Coffea arabica* and *Coffea canephora* var. *robusta*), with an estimated 99 per cent of households growing coffee in EHP and 93 per cent in WHP.^{ibid} Much of the informal economic activity occurs out of necessity to meet subsistence needs and is centered around fresh food production and selling of produce in open markets.^{[17],[18],[19]} The informal sector predominantly produces short shelf-life fresh produce that requires quick sales and consumption. Transport is irregular, expensive and involves travel over very poor- quality road networks. Once the produce reaches local markets in regional towns, roadsides and central centres, the marketer is confronted with overcrowded, unsanitary, unhygienic infrastructures. Producers have limited market intelligence and often face substantial competition from other vendors selling the same produce leading to a lowering of selling prices. There is a reported high levels of food wastage at market sites and there is little downstream processing and poor participation of smallholder producers in value chains and other productive economic activities.

17. Commercial agriculture in WHP and EHP is relatively limited when compared to semi-subsistence agriculture. The formal, market based agricultural sector in EHP and WHP is focused on coffee, root crop vegetables, green vegetables, and livestock (mainly chickens). There are also minor niche markets for products such as honey. Markets for these products are organised along commercial lines and have reasonably well-developed value chains. Most commercial crops are exported, although the domestic vegetable market is growing rapidly. WHP and EHP are the two highest coffee producing provinces, and together they produce more than half of coffee in the country. Most of this coffee is grown, harvested, and partly processed by smallholder growers. Most of the households in the highland provinces depend on coffee as a major source of cash income, as there are no other major alternative cash crops.^[20]

18. Key challenges for the commercialization of agriculture include: (i) domestic markets geographically distant from production areas, and lack of market information; (ii) poor transport and road infrastructure, and high costs of transport; (iii) weak research-extension-farmer linkages, exacerbated by limited political support and budget at national and provincial levels; and (iv) vulnerability to natural disasters, including tsunamis, droughts, frost (in the Highlands), and volcanic eruptions. These factors have discouraged farmers from investing in their farms, which leads to poor agricultural production and, in some cases, a complete move out of the agriculture and land use sector.^[21]

19. Nevertheless, there has been an emerging trend to address these challenges through Private Enterprise Joint Ventures (JV) and Public Private Partnerships (PPP). JVs in the Highlands usually comprise a private enterprise working with the investment wing of a Provincial Government (see section 4 on Private Sector Engagement).

Biodiversity

20. The biodiversity of EHP and WHP is remarkable. The vegetation in the two provinces comprises lowland rainforest, grasslands and wetland areas in the valleys, and lower, upper and high montane forests on the mountain slopes and mountains.

21. The lowland rainforests extend up to 1,500 m asl and they overlap with lower montane forests. The lower, upper, and high montane forests are found above 900 m and up to 3,500 m asl. Between 900 to 1,000 m asl, Oak (*Castanopsis acuminatissima*) and Laurel (*Cryptocarya* sp.) dominate, between 2,000 m and 3,000 m asl Southern Beech (*Nothofagus* spp.) dominates, above 3,000 m asl Ericaceae (*Papuacedrus* spp.) dominates, and above 3,500 m asl subalpine scrub forest occurs.

22. Both provinces are part of a center of plant diversity with 3,000 to more than 5,000 vascular plant species records from the area, including Mt Giluwe, Mt. Michael, Mt. Gahavisuka, and the Crater Mountain.^[22] The area is home to key species including Birds of Paradise, an array of arboreal tree kangaroos, the monotreme Echidna, and two species of ratite (flightless birds including cassowaries).

23. Grasslands occur in just over 13 per cent of the land area of EHP and WHP, as a result of historical land use for agriculture. While grasslands are not ecologically highly important, they do host several grassland dependent plants, birds, and small mammals and provide building materials such as roof thatching for local people.

24. The true extent of biodiversity in the two provinces remains unclear because there has not been a comprehensive biodiversity assessment. There is general consensus amongst experts that the biodiversity of PNG, and indeed the island of New Guinea as a whole, is poorly documented and not scientifically well known. The few biodiversity studies available for the two provinces are limited to specific taxa and geographic areas. Key indicator species mentioned in the biodiversity records of the protected areas and in the available literature include those shown in Table 3.

25. The Convention on Biological Diversity (CBD) notes *the sweet potato is a central component of the Papua New Guinean diet, with an estimated 5,000 cultivars of this staple found within the country. Numerous other plant species have traditionally been cultivated, including more than 30 root crops, 21 legume species, 40 leafy green vegetables, 60 other vegetables and roots, 43 varieties of nuts, 102 fruits, and 89 other plants used for food or seasonings. Wildlife plays an important part in traditional diets, supplying the primary intake of proteins and fats in many highland areas and other isolated areas of the country.*^[23]

Table 3 Key threatened species in EHP and WHP

Species	Class	IUCN Status
New Guinea Harpy Eagle (<i>Harpyopsis novaeguineae</i>)	Bird	VU
Blue bird-of-paradise (<i>Paradisornis rudolphi</i>)	Bird	VU
Pesquet's parrot (<i>Psitttrichas fulgidus</i>)	Bird	VU
Goodfellow's Tree Kangaroo (<i>Dendrolagus goodfellowi</i>)	Mammal	EN
Doria's Tree Kangaroo (<i>Dendrolagus dorianus</i>)	Mammal	VU
Eastern Long Beaked Echidna (<i>Zaglossus bartoni</i>)	Mammal	VU
New Guinea Pademelon (<i>Thylogale browni</i>)	Mammal	VU
<i>Choerophryne siegfriedi</i>	Amphibian	CR
<i>Cophixalus nubicola</i>	Amphibian	VU
<i>Glossogobius macrocephalus</i>	Amphibian	VU
<i>Glossogobius macrocephalus</i>	Fish	VU

Species	Class	IUCN Status
<i>Lanthanusa cochlear</i>	Insect (Dragonfly)	VU
<i>Palaeosynthemis nigrostigma</i>	Insect (Dragonfly)	VU
<i>Cetrelipsis papuae</i>	Fungi	EN
<i>Sticta alpinotropica</i>	Fungi	EN
<i>Nothofagus nuda</i>	Plant (tree)	CR
<i>Nothofagus crenata</i>	Plant (tree)	VU
<i>Podocarpus archboldii</i>	Plant (tree)	VU
<i>Podocarpus polystachyus</i>	Plant (tree)	VU
<i>Cinnamomum kami</i>	Plant (tree)	VU
<i>Cinnamomum vacciniifolium</i>	Plant (tree)	EN
<i>Cinnamomum piniodorum</i>	Plant (tree)	VU
<i>Cinnamomum frodinii</i>	Plant (tree)	EN
<i>Eurya fragilis</i>	Plant (tree)	CR
<i>Lithocarpus vinkii</i>	Plant (tree)	VU
<i>Eucalyptus deglupta</i>	Plant (Tree)	VU
<i>Gmelina smithii</i>	Plant (Tree)	VU
<i>Actinodaphne tomentosa</i>	Plant (Tree)	VU
<i>Cryptocarya flavisperma</i>	Plant (Tree)	CR
<i>Cryptocarya forbesii</i>	Plant (Tree)	EN
<i>Cryptocarya nothofageturnum</i>	Plant (Tree)	EN
<i>Cryptocarya splendens</i>	Plant (Tree)	EN
<i>Cryptocarya xylophylla</i>	Plant (Tree)	EN
<i>Discocalyx brassii</i>	Plant (Tree)	EN
<i>Ficus sclerosydia</i>	Plant (Tree)	CR
<i>Ilex stenura</i>	Plant (Tree)	VU
<i>Neonauclea acuminata</i>	Plant (Tree)	VU
<i>Neolitsea teschneriana</i>	Plant (Tree)	EN
<i>Litsea crenata</i>	Plant (Tree)	EN
<i>Litsea globosa</i>	Plant (Tree)	VU
<i>Litsea alveolata</i>	Plant (Tree)	VU
<i>Litsea versteeghii</i>	Plant (Tree)	EN
<i>Litsea habbemensis</i>	Plant (Tree)	VU

Species	Class	IUCN Status
<i>Litsea fulvosericea</i>	Plant (Tree)	EN
<i>Cryptocarya ledermannii</i>	Plant (Tree)	VU
<i>Schefflera simbuensis</i>	Plant (Tree/Shrub)	VU
<i>Paphiopedilum papuanum</i>	Plant (Herb)	EN
<i>Dendrobium kauldorumii</i>	Plant (Orchid)	EN
<i>Bulbophyllum alveatum</i>	Plant (Orchid)	VU
<i>Bulbophyllum decarhopalon</i>	Plant (Orchid)	VU
<i>Bulbophyllum ptychantyx</i>	Plant (Orchid)	VU
<i>Bulbophyllum sceliphron</i>	Plant (Orchid)	CR
<i>Bulbophyllum thelantyx</i>	Plant (Orchid)	VU
<i>Bulbophyllum tinekeae</i>	Plant (Orchid)	EN
<i>Dendrobium crispilinguum</i>	Plant (Orchid)	VU
<i>Dendrobium geotropum</i>	Plant (Orchid)	VU
<i>Dendrobium pachytrix</i>	Plant (Orchid)	EN
<i>Mediocalcar stevenscoodei</i>	Plant (Orchid)	EN
<i>Dendrobium magistratus</i>	Plant (Orchid)	VU
<i>Alsophila eriophora</i>	Plant (Tree fern)	VU

27. 1. Although forest cover is the lowest among all provinces (apart from the National Capital District) in the country (See Figure 4),[1] a study conducted by CEPA and the University of Queensland in 2017 identified the most of the area in WHP and a substantial area in EHP as high conservation priority areas[2]². It is estimated that WHP has 112,123 ha and EHP 102,870 ha of KBAs (See Figure 2). Another study conducted by the Australian National University and CEPA in 2000[3]³ identified a large area in WHP and EHP as Biodiversity Priority Areas (See Figure 5).

[1] PNG Forest Authority. 2019. Forest and land use change in Papua New Guinea 2000-2015.

[2] Land-sea conservation assessment for Papua New Guinea (2017)

https://www.researchgate.net/publication/316622317_Land-sea_conservation_assessment_for_Papua_New_Guinea

[3] The BioRap Biodiversity Assessment and Planning Study for Papua New Guinea

https://www.researchgate.net/publication/259653609_The_BioRap_Biodiversity_Assessment_and_Planning_Study_for_Papua_New_Guinea

Direct threats to biodiversity and related forest ecosystem services in the EHP and WHP include (not in any order of priority):^[24] Most of the area in WHP and a substantial area in EHP have been identified as high conservation priority areas.^[24] Despite this, forest cover is the lowest among all provinces (apart from the National Capital District) in the country.^[25] (See Figure 5)

a) Agriculture and aquaculture, including annual and perennial non-timber crops (shifting agriculture, small-holder farming, limited agro-industry farming), small scale wood and pulp plantations, freshwater aquaculture (see invasive species)

b) Biological resource use, including hunting (especially Birds of Paradise for traditional costumes and limited and localised hunting of mammals for food), wood harvesting for fuel wood (logging for timber is not a major threat), and some localised impact of fishing using toxic plants to stun fish.

c) Natural system modifications, because of use of fire in grasslands and extension of semi-agriculture into forests.

d) Invasive and other problematic species and diseases. These include invasive plant (*Piper aduncum*) and fish species (Tilapia and Carp) within some PAs. These threats have altered disrupted native habitats and caused increased competition and predation among species. Pipers are a major competitor to indigenous tree species,^[26] Tilapia kill native fish and some domesticated animals (dogs and pigs) kill native fauna. African swine fever is affecting domesticated pigs, and possibly wild boar, in the Highlands.

e) Pollution including agricultural effluents (nutrient loads, soil erosion, sedimentation, herbicides and pesticides.

f) Geological events, primarily landslides in localised areas.

g) Increasingly climate change and severe weather is affecting shifting and altering habitats, occasional drought, temperature extremes (frosts), and storms and flooding are also having negative impacts.

h) In addition, there is some exploration for energy production and mining in and near Crater Mountain WR, but at the current time there is no mining or energy extraction being undertaken.

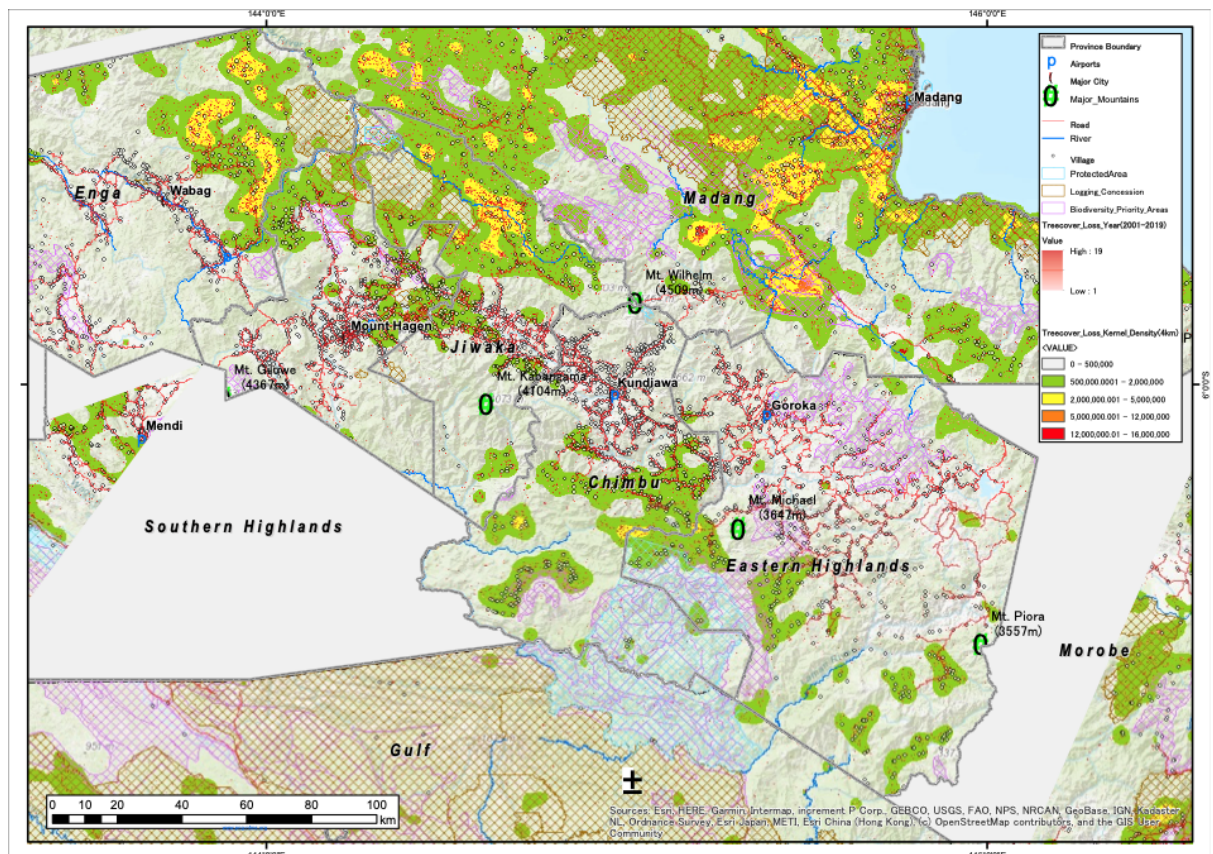


Figure 5 Biodiversity Priority Areas,[1] Protected Areas, Logging Concessions and Tree Cover Loss[2] in WHP and EHP.

[1] The BioRap Biodiversity Assessment and Planning Study for Papua New Guinea https://www.researchgate.net/publication/259653609_The_BioRap_Biodiversity_Assessment_and_Planning_Study_for_Papua_New_Guinea

[2] Global Forest Watch <https://www.globalforestwatch.org/>

28. Due to the absence of reliable and comprehensive data and information on the scale and trend of the threats described above, it is not yet possible to provide a complete assessment of the relative impact of each threat. However, it is reported that biological resource use, agriculture and climate change are the main direct threats under a business-as-usual scenario: the first two threats are likely to increase with the high population growth rates, and climate change is likely to have an increasing direct effect and compound the other threats. These threats to biodiversity in EHP and WHP are also compounded by marked ad hoc land use planning.

29. One approach taken by the Government of PNG to address threats and conserve biodiversity has been to establish a comprehensive, effectively managed, and ecologically representative national system of protected areas (PAs). Existing protected areas are classified either as:

? **National Parks and Wildlife Sanctuaries** (NPWS) designated under the National Parks Act 1982 which are gazetted on freehold land and managed by the State.

? **Wildlife Management Areas** (WMAs) designated under the Fauna (Protection and Control) Act 1966, which are managed by local communities on communal land for the conservation and sustainable use of wildlife resources.

? **Conservation Areas** established under the Conservation Areas Act 1978, and are declared by communities on communal land, and the declarations are endorsed by the Government following a formal request.

30. There are five protected areas in the two provinces covering 274,998 ha, including part of Crater Mountain Wildlife Management Area (WMA - 270,000 ha), Mount Gahavisuka Provincial Park (77 ha) and Hogave Conservation Area (2,000 ha) in EHP and Jimi Valley National Park and Baiyer River Sanctuary (741 ha) in WHP. In addition, the Kuk World Heritage Site in WHP consists of 116 ha of swamps that have been worked almost continuously for 7,000, and possibly for 10,000 years. ^[27]

31. **Crater Mountain WMA** spans three provinces, EHP, Simbu and Gulf. The WMA was gazetted in November 1993, but the boundaries are yet to be confirmed. The area is owned by 22 customary landowning clans (about 8,000 people). The WMA has no formal management plan or operational plans, the facilities are degraded, and the area has had only limited support from donors. A mining lease have been granted despite the legally protected status of the area. **Given the importance of this WMA for conservation values, it will be a priority for project action.**

32. **Mt Gahavisuka Provincial Park** is located approximately 11km from Goroka township on a spur of Mt Otto in the Bismarck Ranges. In 1983 a 49-year lease was signed between the national government and customary landowners to conserve montane forest ecosystems and maintain scenic and recreational values. The Park was formally gazetted in July 1989. The Park is owned by the customary landowners of Ganakoiha and Anupazuha Clan from Nagamiza Village and is managed by the Provincial Government with the Ganakoiha Anupazuha Clan ? Board of Trustees. The Park has no management plan and no rangers to enforce traditional rules and customs. The park's limited visitor facilities, including walking tracks and lookouts are in poor condition and there are very few visitors to the park. The Park is surrounded by a buffer zone, and there a no people living within the park.

33. **Hogave** is a proposed conservation area 63km south of Goroka. In 1987 a conservation project was initiated by three clans: Laivolo, Mula and Kevoma. The two primary objectives of the Hogave conservation project are to formally conserve the area and improve living standards of the people. Scientific research work has contributed to improve the general standard of living of local people.

34. **Velotige** is a proposed conservation area near Goroka Town. The proposed area is owned by five clans; Sonohinekave, Foyufa, Arikaufa, Huhile and Zowaukove. The area has ecological, biological, cultural, historical, and archaeological values. A management plan has been submitted to the Provincial Executive Council for endorsement and there is a 15-member management committee. The idea for the conservation area was initiated by a group of local people to promote the management of the natural resources, to encourage and facilitate social development and to facilitate and promote service delivery to the Akameku area. The area has been formally agreed by the customary landowners and there is Boundary Land Use agreement which is recognized by the Eastern Highlands Provincial Lands Division.

35. **Jimi Valley National Park** lies in the Mul-Baiyer Lumusa District near the boundary between East Sepik, Madang and Jiwaka Provinces. A new highway linking Mt Hagen to Madang is being constructed close to the national park boundary. Jimi Valley consists of a low metamorphic ridge and flat valley floor close to the Jimi River with altitude varying from 400m to 1000m asl. It is surrounded by high mountains rising up to 2,700 m asl, including Schrader Ranges, Sepik-Wahgi Divide, Bismarck Range and Saw-Wapi Divide. The park was gazetted in October 1991 to

conserve forest and wildlife it includes rainforest and fringing riverine forest. No one lives within the national park, however, about 300 customary landowners live outside the park. There is no management plan or management committee. There are no visitor facilities and very limited funding.

36. **Baiyer River Sanctuary** is in the Baiyer-Lumusa District west of Mt Wilhelm and about 40 km north of Mt Hagen. The forest is in good condition and birds are abundant. The sanctuary was gazetted in January 1968 on land purchased from the local Ugini clan in 1950 to develop a zoological garden and protect forest ecosystems for future generations near Mt Hagen. There is no management plan. Some funding was provided for facilities as the area has high potential for tourism, although tourists are currently not accessing the sanctuary. The site is managed by the Western Highlands Provincial Government and whilst there are no people living in the sanctuary, there are a few local management teams working as care takers.

37. The **Kuk Early Agricultural Site** is in Dei District and is part of the wetlands of the Upper Wahgi, one of the largest inter-montane valleys in the highlands of PNG. Kuk is approximately 12 km northeast of Mount Hagen township, the Provincial Headquarters of WHP. The site is not declared as a protected area under PNG legislation, however, it is a World Heritage Area. The area surrounding Kuk is owned by two customary landowner clans; the Kawelka Kundubo and Kawelka Puntbo from the Kawelka Tribe and is proposed as a protected area. The site has a management plan and is managed by 14 local volunteers who live near the site.

38. In addition to the above, **Oimbo** and **Repa-Komonga** are proposed as conservation areas. These areas are located near the Baiyer River Sanctuary and owned by the same land-owning clans from Baiyer River Sanctuary.

39. During the project design phase, an assessment of the management effectiveness of protected areas within the two provinces was undertaken using the Management Effectiveness Tracking Tool (METT). A summary of the threats and selected management effectiveness ratings is provided in Table 4. The METT assessment indicated:

? None of the five protected areas have a management plan or planning processes that allow adequate opportunity for key stakeholders to influence the management plan.

? Two areas have enough information to manage the area, one has partial information, and two areas do not have enough information.

? Only one protected area has systems in place to control access/resource use (Hogave), one area has systems that needed improvement and two areas have no systems in place.

? Two areas have no staff that were adequately trained to fulfill management objectives, and the other three areas need improvement.

? Three areas partially provide economic benefits to local communities, the other two areas are not providing benefits.

? In terms of the overall condition of biodiversity, Hogave Conservation Area is rated as partially intact, Crater Mountain WMA Area and Jimi Valley National Park mostly intact and Baiyer River Wildlife Sanctuary and Mt Gahavisuka Provincial Park as partially degraded.

? In terms of threats to protected area values, invasive species are reported as a threat common to all areas, other threats include (not in any order) hunting, ineffective management, oil and gas and mining, loss of keystone species, logging, climate change, increased number of visitors, road construction and population increase.

40. In addition to these protected areas, some local communities have declared ad-hoc community conservation areas (both terrestrial and marine) through the establishment of conservation deeds or conservation contracts under contract law, with the help of NGOs. Information on the effectiveness of these areas is not readily available.

41. The establishment of large-scale National Parks and Wildlife Sanctuaries under State management has proven to be extremely difficult, partly due to the complexities of customary ownership of land and related decision-making systems that require extensive consultation and consensus. In recognition of this, in recent years the focus has shifted away from National Parks and Wildlife Sanctuaries towards more inclusive, community-based approaches to PAs. This shift is evident in PNG's Policy on Protected Areas (2014) which notes that the future PA network will comprise:

- **National Protected Areas** including National Parks (NP), Marine Sanctuaries, National Heritage Areas and Special Management Areas. These areas will be gazetted under national legislation.

- **Regional Protected Areas** including Community Conservation Areas (CCA) and Locally Managed Marine Areas. These areas will be gazetted through provincial government legislation.

42. Furthermore, the Policy notes that:

- Existing WMAs will be placed in a transitional class of Protected Area under the new legislation (also called WMA) with provisions holding over from the existing legislation but with greater powers of enforcement. No new WMAs will be created.

- Existing Conservation Areas will become Community Conservation Areas.

43. Effective implementation of the Policy on Protected Areas will require clear consideration of:

- ? The critical role of customary landowners:

- o As custodians of significant, globally important biodiversity.

- o As essential stakeholders in the effective management of all protected areas and surrounding landscapes.

- ? The dependence of rural communities on natural resources and the ecosystem services these resources provide to support their livelihoods.

- ? The intricacies of the traditional land tenure system, including that land use decisions normally require extensive consultation and building of consensus within the community and that customary landowners are entitled to make trade-offs between development and conservation activities.

44. However, the effective implementation of the Policy on Protected Areas, and more broadly conserving biodiversity in general, is constrained by:

- ? Poor access to adequate, accurate, timely and useable data and information on biodiversity, land use, and development plans and activities.

- ? Inadequate land use planning at provincial and district levels constrains the identification of areas of high conservation value, socio-economic needs and interests, and risks and opportunities associated with development plans and activities.

- ? Weak collaboration between national and provincial levels and between government agencies within the target provinces, coupled with political pressure to capture opportunities to generate value from global demand for PNG's rich natural resources.

? Low capacity, capability, and technical skills. Government staff based in the provinces often lack capacity and capability to undertake land use planning and effectively manage protected areas. Communities often lack the management and business skills that are necessary for building sustainable biodiversity-friendly value chains and running small-scale enterprises.

? Lack of supportive enabling conditions (policies, institutional arrangements, financing/credit and markets) for conserving biodiversity, while simultaneously improving livelihoods.

Table 4 Protected areas in WHP and EHP, threats and selected management effectiveness ratings

Name of area	Area (ha)	Threat 1	Threat 2	Threat 3	Selected management effectiveness scores						
					7	7a	9	10	14	25	30
					Is there a management plan?	Does the planning process allow adequate opportunity for key stakeholders to influence the management plan?	Is there enough information to manage the area?	Are systems in place to control access/resource use in the protected area?	Are staff adequately trained to fulfill management objectives?	Is the protected area providing economic benefits to local communities?	What is the overall condition of the biodiversity of the protected area?
Baiyer River Wildlife Sanctuary	741	Invasive species	Hunting	Ineffective PA management	No	No	No	No	No	No	Partially degraded
Crater Mountain Wildlife Management Area	270,000 ^[28]	Oil and gas drilling and mining	Loss of key stone species	Invasive species	No	No	No	Needs improvement	Needs improvement	Partially	Mostly intact
Jimi Valley National Park	4,180	Invasive species	Hunting	Logging	No	No	Yes	No	No	No	Mostly intact

Mt Gahavi suka Provin cial Park	77	Cli mat e cha nge	Inva sive spec ies	Increa sed numbe r of visitor s	No	No	Yes	No	Needs improv ement	Partial ly	Partial ly degrad ed
Hogav e Conser vation Area	2,0 00	Roa ds	Cli mat e cha nge	Popul ation Increa se	No	No	Partial ly	Yes	Needs improv ement	Partial ly	Partial ly intact

Table 5 Key habitats and species of protected areas in EHP and WHP^[29]

Area	Key habitat types	Key species
Baiyer River Wildlife Sanctuary	Riverine, mid-montane forest, lowland rainforest and patches of higher altitude savannah	New Guinea Harpy Eagle, Long-beaked echidna, short-beaked echidna (not confirmed), Dwarf and Northern Cassowary, Raggiana Bird of Paradise
Crater Mountain Wildlife Management Area	Mid-montane forest, montane forests, sub-alpine grasslands at high altitudes	Long-beaked Echidna, 25 pigeon species, 27 parrot species, Hercules moth, Tree Kangaroo (Goodfellows, Dendrolagus and Doria?s)
Jimi Valley National Park	Lowland rainforest, mid-montane forest, grasslands, riverine, sub-alpine grasslands at high altitudes	Birds-of paradise (blue, king, lesser), Pesquet?s parrot, Klinki pine

Mt Gahavisuka Provincial Park	Mid-montane and montane forest, grassland, sub-alpine grasslands at high altitudes	Six species of Birds of Paradise, 1,000+ orchid species, Tree Kangaroo, New Guinea Harpy Eagle
Hogave Conservation Area	Mid-montane and montane, sub-alpine grasslands at high altitudes	Blue Bird of Paradise, Dwarf cassowary, Tree Kangaroo, New Guinea Harpy Eagle

Focus landscapes of the project

45. In addition to a focus on policy, planning, decision support systems and capacity building at national, provincial and district levels, the geographic focus of the project is on the protected areas, areas of high conservation value and buffer zones within EHP and WHP.

46. PNG's Policy on Protected Areas provides an opportunity to substantially improve the conservation of biodiversity in WHP and EHP. However, this opportunity will only be realized with the cooperation of customary landowners. Given the limited resources available to government at national, provincial and district levels, it is important that resources for biodiversity conservation be focused on areas of highest conservation value and areas that face the most significant threats. Moreover, because areas outside protected areas contain significant biodiversity and provide essential ecosystem services that support the livelihoods of customary landowners, biodiversity-friendly farm and forest management practices and associated value chains are likely to provide the most feasible approaches for conserving biodiversity both within and outside protected areas.

47. The Project's interventions in the EHP and WHP landscapes will focus on a) existing protected areas, b) areas of high conservation value, c) potential community conserved areas (CCAs) and d) the agricultural and forest lands that are adjacent to these areas (buffer zones).

48. Within the existing protected areas, areas of high conservation value, and CCAs, the project will focus on improving management effectiveness with a target of 285,000 ha. It should be noted that this includes all of Crater Mountain WCA which, as mentioned above, includes area within adjacent provinces.

49. The project will support government agencies to enable communities to identify, and secure gazettal of CCAs through the relevant provincial government.

50. Within the buffer zones, the project will support customary landowners to improve forest and agriculture management including through agroforestry and a focus on biodiversity friendly, climate smart agriculture and livestock production for both semi-subsistence and market-based situations. It is anticipated that 190,000 ha of landscapes will be brought under improved practices and 800 ha will be restored.

51. It should be noted that the project is designed to initially develop capacity and capability to improve access to spatial data (both socio-economic and biodiversity) and develop decision support systems (DSS) that will then be used to support participatory land use planning at provincial and district level. Integrated land use plans will identify a) priority areas and species for conservation and mainstreaming biodiversity and b) priority areas for improving agriculture, forest, and grassland management in and near key sites for biodiversity conservation. For this reason, and because COVID-19 restrictions prohibited the project design team from traveling to field sites to identify potential site level locations for the project, *detailed information on potential community conserved areas and buffer zones will need to be secured in the first two years of the project.*

2) Root causes

52. The root causes of the threats to biodiversity in EHP and WHP are complex and include demographic, economic, socio-political, technological, and cultural root causes.^[30] All these root causes operate to variable extent in the areas targeted by the project. For example, the PNGFA report on forest and land use change in PNG 2000-2015^[31] noted:

“PNG’s forest and land use is complex and in undergoing transitional change. These transitional changes are caused by human activities such as logging, agriculture, infrastructure expansions, fire and mining.”

53. The most apparent root causes in the target provinces, and the ones that the project can most likely have any influence over, are described below:

54. **Economic root causes** ? Poverty, lack of job opportunities and poor access to markets are hallmarks of the Highlands. PNG is ranked in the low human development category at 155 out of 189 countries in 2018. Rural populations, particularly in the two targeted highland provinces, are heavily dependent on natural resources and rural livelihoods are based largely on subsistence and semi subsistence agriculture.

55. Most rural people are poor with limited access to financial capital, value-added markets, and livelihood opportunities other than subsistence agriculture. Most people in WHP and EHP are employed in semi-subsistence agriculture and/or informal economy activities including agriculture, fishing, and forestry.

56. There are few job prospects in rural areas beyond subsistence farming, forcing communities to rely heavily on forest and land resources. For younger people, prospects of job opportunities and sustainable livelihoods remain difficult. In some areas, unemployment and underemployment has likely contributed to illegal drug related problems, particularly among youth.

57. Farmers in the target provinces depend on coffee as a major source of cash income.^[32] Coffee is affected seriously by international coffee price fluctuations and the spread of pests and diseases heavily affects the production and quality of coffee and thus the cash income of farmers. Exports of certified coffees constitutes 5 per cent of the annual exports of coffee in 2016. The export of verified and certified coffees, Organic, Fairtrade and Fairtrade Organic coffees has grown steadily in recent years along with an increase in the number of licensed and certified coffee farmers, and increased returns to farmers who are participating in certification programs.

58. The Government of PNG has ambitious plans to increase agriculture production through a combination of increased productivity (by 60 per cent) and increased land under cultivation (by 180 per cent). These plans are within the context of the potential for PNG’s export commodities to see rapid expansion, notably for palm oil, coffee and cocoa which are key elements of the government’s long-term strategy to develop a world-class agricultural sector that is responsive to

international and domestic markets by 2030. Plans for the coffee industry, which is the most relevant for WHP and EHP, are focused on improving productivity of existing sites and thus not a significant issue for the project.

59. PNG has struggled to translate recent achievements in the extractive industrial sector into broad-reaching and more inclusive and equitable socio-economic development outcomes. The extractive industrial sector is not a major driver of change in the target provinces but is a key factor nationally. Chronic law-and-order and land tenure issues, as well as marked constraints of state institutions impede growth.^[33]

60. The project will seek to address economic root causes through improving forest and farm management and associated value chains (Component 2), which will contribute to improved livelihoods and employment opportunities.

61. **Socio-political root causes** ? The country (including the target areas) has two land tenure systems, the alienated system which adapts the European model where the state owns the land, and the customary system where the local indigenous people have ownership over the land. About 97 per cent of the land comes under the customary system.^[34]

62. Domestic and international surveys reveal widespread illiteracy, malnutrition, poor health and vulnerability to natural hazards, many of which are expected to escalate with climate change.^[35]

63. Weak land use planning and poor collaboration between government agencies in the target provinces, coupled with political pressure to capture opportunities to generate value from global demand for PNG's rich natural resources, drives deforestation and ecosystem degradation, resulting in loss of biodiversity and increased greenhouse gas emissions from land use as well as threats to rural livelihoods.

64. Gender inequality is a significant issue in PNG, and the target provinces. Women are vastly underrepresented at all levels of government limiting their power to influence public policy and voice issues. In rural and urban areas, Papua New Guinean men commonly hold onto their traditional cultural practices, where tribal discipline and power is given to men to have authority over their clan and family members. Men make most of the decisions in the family and control most of the resources, and women are expected to conform to various societal rules and norms, often having their basic rights denied.

65. PNG's development strategy recognises the need to build opportunities for women and girls to participate in economic, political, cultural, and social life at all levels (community, provincial and national).^[36] The Organic Law on Provincial Governments and Local-level Governments (OLPG&LLG) mandates each province to formulate and implement a rolling five-year development plan and a rolling annual budget. However, this requirement has not been satisfactorily complied with nationally^[37] or in the target provinces.

66. According to the most accepted definitions, virtually the entire population of the targeted provinces is Indigenous. However, PNG's laws and policies do not distinguish between specific groups of people as Indigenous, and the term is generally not used by the population to refer to itself. Accordingly. For the purposes of this project the term customary landowner is used to refer to the Indigenous People of the two provinces. The recognition of indigenous legal rights, rules and norms, is enshrined in the Constitution of PNG, including the recognition of the importance of 'the worthy customs and traditional wisdoms of our people' which have come down to us from generation to generation. A key positive driver for this project is that PNG's fifth National Goal emphasizes that development shall be achieved 'through the use of Papua New Guinean forms of

social, political and economic organization, including traditional ways of life and culture, and the traditional role of villages and communities.?

67. The ancestral ties of customary peoples to the land and ecosystems are not only of economic importance, but also of cultural and spiritual significance and are fundamental to the construction of identities as well as ways of being, thinking and living. The unique cultural identity of the various customary groups and their valuable and sustainable land use practices are central to mitigating harmful external root causes.

68. While the project has limited potential to affect any major change in socio-political root causes, Component 3 does include a focus on improving the enabling environment for both biodiversity conservation and sustainable agriculture and overall the Project emphasizes the substantive rights of customary landowners.

69. **Climate change and climate variability** are key factors that affect the environment and socio-economic conditions in the planned project sites. According to PNG's Intended Nationally Determined Contribution (INDC)^[38], climate change is predicted to exacerbate hazards like coastal flooding, inland flooding and droughts. Moreover, the report notes that natural disasters driven by climatic conditions and gradual shifts in climatic conditions disrupt daily life, cause damage to assets and infrastructure, destroy livelihoods, endanger cultural and ecological treasures, and kill or injure people.

70. Annual maximum and minimum temperatures have increased in Port Moresby since 1950. Maximum temperatures have increased at a rate of 0.11°C per decade since 1950. These temperature increases are consistent with the global pattern of warming.^[39] Data since 1950 show no clear trends in annual or seasonal rainfall at Port Moresby. However, over this period there has been substantial variation in rainfall from year to year. (ibid)

71. Projections for all emissions scenarios indicate that the annual average air temperature and sea surface temperature will increase in the future in PNG. By 2050, under a high emissions scenario, temperature increase is projected to be in the range of 1.1-1.9°C compared to the average of the period 1980-1999.^[40] Increases in average temperature will result in a rise in the number of hot days and warm nights.^[41] Average annual and seasonal rainfall is projected to increase over the course of the 21st century. Projected increases are consistent with the expected intensification of the West Pacific Monsoon and the Intertropical Convergence Zone. However, there is some uncertainty in the rainfall projections and not all models show consistent results for PNG. However, model projections show that extreme rainfall days are likely to occur more often.(ibid) Regarding cyclones, projections tend to show a decrease in the frequency of tropical cyclones by the late 21st century and an increase in storm frequency in Papua New Guinea.^[42]

72. In PNG, climate change will likely exacerbate hazards such as inland flooding and landslides and may also introduce new hazards due to gradual shifts in climatic conditions ? most prominently, malaria expansion into the highlands, and changed agricultural yields. The country has a high vulnerability to weather related hazards ranking at 163 out of 181 countries in the ND-GAIN vulnerability index. This a result of a very low adaptive capacity (ranked 176 out of 180 countries) and a moderate to high exposure to climate change (ranked 143 out of 192 countries).^[43]

73. Inland flooding, driven by heavy irregular rainfalls, regularly affects valleys and wetlands in the highlands. The effects of inland flooding are amplified by steep inclines and deforestation which increases surface runoff and decreases infiltration. Based on 19 years of data, 22,000-26,000 people are affected annually by inland floods, displacing 6,000-8,000 and typically resulting in a

few deaths each year. Public records estimate annual damage at USD 8-12 million, a burden usually shouldered by the poorest people in the country. Changes in climatic conditions – both through increased average precipitation and increased extreme rainfall events – will strongly affect the impact of inland floods.^[44]

74. Landslides, triggered by increased rainfall intensity and land use changes, destroy vital assets in mountainous areas. In recent decades, landslides have caused considerable damage to road infrastructure and remote communities. Although the effect of landslides is not well understood given the unpredictability and remote impact, landslides have caused significant damage along the Highlands Highway, the sole lifeline for highland communities and export businesses. Changes in precipitation patterns and land use are likely to increase the number of landslides.(ibid)

75. The highland regions are particularly sensitive to variability in agricultural yields because of change in climatic conditions. Sweet potato, coffee and cocoa are examples of climate-sensitive crops that Papua New Guineans are dependent on for food and livelihoods.(ibid)

76. The total GHG emission caused by deforestation and forest degradation between 2000 and 2013 was 164,314 tCO₂e (12,640 tCO₂e/year) for WHP and 987,394 tCO₂e (75,953 tCO₂e/year) for EHP. Semi-subsistence agriculture was the cause of the deforestation and forest degradation in both provinces.

77. The project does not have the capacity to significantly affect climate change mitigation, but it includes activities focused on improving climate change resilience in agriculture and also improving the management effectiveness of protected areas (Component 2).

3) Barriers

78. Key barriers to delivering improved biodiversity conservation and enhanced livelihoods include:

A. Information and knowledge barriers

79. Stakeholders in EHP and WHP tend to have good local knowledge, but relatively limited access to external knowledge, information, and data on biodiversity and sustainable natural resources management. Most critically, customary landowners generally have extensive knowledge of traditional practices that have been sustained and adapted over thousands of years in the highlands. They also have vast local knowledge of biodiversity, including agrobiodiversity, but may lack technical knowledge on how to address land degradation and improve natural resource management in the face of climate change and other root causes of biodiversity loss. Customary landowners often have poor access to technical information from either government or the private sector as there are few mechanisms for knowledge and information sharing. Awareness of opportunities to improve biodiversity conservation and livelihoods through CCAs, agroforestry, and improved farm management is generally poor.

80. Whilst government, at least at national level, has access to information and knowledge on biodiversity and natural resource management, data sets are often incomplete, not kept up to date, and not readily accessible. Overall, there is inadequate data, information, and DSS to support sustainable natural resource planning and management.

81. Absence of appropriate systems to manage and share data and information to enable national, provincial, and local governments and customary landowners to make informed decisions limits stakeholder ability to adjust approaches and plans to meet current and future challenges. The baseline study undertaken for the project design identified there was a lack of information on site-

specific forest ecosystem and restoration needs, land degradation, sustainable land management and biodiversity hotspots at national, provincial, and local levels. These knowledge gaps lead to poor planning and a lack of focus on critical biodiversity and land degradation, often resulting in ineffective outcomes at all levels. Component 1 of the project will address this gap. The two-way information flow from customary landowners to the national level and vice-versa will help bridge critical data/information gaps and address Barrier A and enable concerned policy makers, planners, implementing agencies and forest users to make use of up-to-date data for effective planning and management of forest, biodiversity and land (Component 1). The project will provide necessary technical support to customary landowners, districts and the provinces, including training in data input and retrieval and use of decisions support systems. Functional data and decision support with linkages to national level data bases will enable relevant national and provincial agencies to support customary landowners to undertake sustainable land management and biodiversity conservation in the project area, based on the needs and interests of the landowners.

82. At all levels, there are substantial gaps in data, information and knowledge and challenges to accessing reliable, accurate, timely and useable information on agriculture and development activities. Poor quality information and data can lead to poor quality decisions, or be used as a reason for indecision, and create a barrier to effective landscape management in the highlands.

83. At local levels, communities in the target provinces often have poor knowledge of markets, weak or no access to investment capital and markets, are unable to take risks to develop business opportunities without significant external assistance.

84. Information is lacking on how to conduct basic market research and assess market demand for forestry, fishery, and agricultural products, how to keep financial records, how to develop properly costed business plans, how to mobilize finance internally and attract external finance, how to develop business models that are structured around a diverse basket of products and can distribute benefits fairly, and how to assess and overcome competition.

85. Long distances and poor transport infrastructure as well as lack of knowledge of market requirements and opportunities limit effective engagement of rural highland people in domestic and international markets. Rudimentary value chains for small and medium enterprises based on forest, fishery and farm products exist in the project target areas and there are some more developed value chains for agricultural products to build upon, supporting biodiversity friendly, climate resilient production.

86. In terms of organizational relationships and links, there are knowledge gaps in the process of business registration, organizational management, and leadership (including how to resolve conflicts). Guidance is needed on how to organize finance, and how to manage staff roles and responsibilities. Gaps also exist in how to enter contractual arrangements with business partners, and how to improve negotiation skills.

87. At all levels, knowledge of government policies and programs often remains rudimentary. There are conflicting interpretations of different bodies of law ? and lack of knowledge about how to engage and with whom.

88. Information and knowledge barriers are addressed in all components of the project and specifically in Component 1.

B. Governance barriers

89. PNG has comprehensive legislation related to the environment, much of which has been informed by past lessons and the findings of various projects and programs. However, policy reforms are often stalled for long periods and once progressed, implementation of policies is often lacking.

90. The linkages between national policy and local action, via provincial, district and local governance arrangements, are often weak and sub-national staff often have limited knowledge of national policy and priorities.

91. Coordination between government agencies at national level, between national agencies and provincial governments and between provincial and district levels often depends on the good-will of individual public servants and formal coordination mechanisms are generally lacking.

92. Land use governance structures and regulatory frameworks remain weak and comprehensive land use planning has not been implemented. For example, in the target provinces forest clearance for agriculture is ad hoc, and often occurs without national or provincial level knowledge, planning, zoning or inputs.

93. Although the government of EHP and WHP recognize the importance of an integrated approach to land use planning, in practice there is a lack of focus on this issue. No up-to-date long-term land use plans exists in the targeted provinces. Whilst it is widely acknowledged that the rights of customary landowners must be protected, and their free prior and informed consent secured in land use planning exercises, how this achieved varies from place to place.

94. While customary land management offers great potential for sustainable land use, actors external to the clans often underestimate the nuances of customary landownership and fail to allow sufficient time for customary landowners to consider and negotiate change within the clan.

95. Further, while CEPA staff has undergone protected area adaptive management training, their ability to promote the implementation of the government's protected area policy (which includes requirements to ensure local arrangements governing use of natural resources in PAs are fair and sustainable and they support traditional livelihoods) is hampered by a lack of performance, management and monitoring standards, compliance and law enforcement protocols, and guidelines/procedures for community engagement and involvement in PA management as well as an inadequate information, communication and reporting system, amongst other challenges.

96. The devolution of PA management responsibilities to the Provincial Government is not new as previous governance instruments had foreseen the delegation of such mandates. However, the effectiveness of decentralizing governance responsibilities for PAs is yet to be established, with anecdotal reports indicating the need for improved governance performance by the provinces.

Lack of funding sustainability and absence of long-term financial strategies pose barriers to the acceptance of the new PA arrangements at the provincial level.

C. Capacity and capability barriers

97. Government agencies at all levels are often under-staffed and lacking in logistical support and budget. At local levels, there are low levels of literacy and inadequate awareness of rights and responsibilities under national and provincial policy. Forestry, agriculture, livestock, and fisheries extension programs exist, but their penetration to rural areas is often poor. Government departments often have limited, or in some cases no, means to access communities.

98. There is very limited effective outreach and agriculture extension capacity. Despite the availability of a moderately large body of information which would advantage producers, little of

this is effectively communicated to farmers.^[45] There is, however, capacity within the private sector to provide extension services, at least for commodities of commercial interest.

99. Whilst the government encourages small and medium scale enterprises (SME), these enterprises often have poor access to finance and credit. However, many of the major banks have recently introduced products that target SMEs and some private sector operators provide training to SMEs in financial matters.

100. The lack of staffing, management plans and budgets for protected areas suggests that there is limited capacity of protected area staff to undertake effective management of areas of high conservation value.

101. Capacity and capability barriers are addressed in all components of the project.

D. Infrastructure Barriers

102. Poor access to suitable cost-effective technologies discourages rural Highland people from adopting innovations that would potentially reduce or eliminate harmful forest use and agricultural practices. Digital communications technologies including cell phone technology and internet are improving but remain limited in the Highlands.

103. The poor state of roads and other infrastructure, such as communications and cool chain services, have been identified in numerous studies as serious constraints to the ability of farming families to engage in the marketplace and to properly store produce as it waits for a sale.^{[46],[47]}

104. Poor transport infrastructure limits the ability of farmers and forest and farm producer organisations (FFPOs) to develop and sustain markets for forest and farm products. A study by the Oxford Business Group of the Transport Sector in PNG in 2019 stated:

?The poor condition of roads, ports and airports has raised the cost of doing business and rendered a number of sectors of the economy increasingly uncompetitive. Because of this, inland transport costs currently account for 10-15% of the on-board price at the port. Since potholed roads and poor connectivity can cause delays in fresh farm produce reaching the market on time, transport infrastructure also impacts the agriculture sector. Therefore, supermarkets in Port Moresby are stocked with imported fruits and vegetables, while many varieties produced in the Highlands go to waste.?^[48]

105. An Australian Government report noted that:

?Much of PNG's 30,000 km road network is in poor condition, increasing road user costs and making sections of road impassable. This isolates large numbers of Papua New Guineans from markets and income-earning opportunities, as well as health and education services. Bad roads are a constraint to growth and a major cause of poverty and hardship.?^[49]

106. While the Project does not address the barrier of poor road infrastructure, it does recognize that the sustainability of project interventions focused on improving agricultural productivity will likely be compromised in the mid- to long-term without improved transport infrastructure. Infrastructure barriers are dealt with indirectly in the project through Component 3 (improving the enabling environment) and Component 4, sharing lessons learned with other stakeholders.

Table 6 Summary of Threats, Root Causes and Barriers in Eastern and Western Highlands Provinces

	Threats	Consequences	Root causes	Barriers
Ecosystem health	Climate-related: •Droughts •Floods •Severe weather Fires Agriculture Overharvesting and destructive harvesting. Invasive species.	Biodiversity change and loss (increased threat to species, loss and degradation of habitat, loss of genetic diversity). Soil erosion. Changes to hydrological systems Changes to micro-climate Loss of ecosystem services. Increase in greenhouse gas emissions from land use.	Economic issues: ? Poverty and high dependence on natural resource use. ? Unsustainable economic activity (lack of alternative livelihoods and dependence on natural resources). Socio-political issues. Climate change.	Inadequate knowledge, data and information to inform good decision making. Weak governance structures and coordination mechanisms including lack of land use planning. Weak capacity and capability Market barriers for small and medium enterprises based on forest, and farm products. Infrastructure (transport and communications) restricts market opportunities
Socio-economic wellbeing	Climate-related: •Droughts •Floods •Severe weather Ecosystem degradation Poorly planned and implemented economic development.	Increasing risks to agriculture. Loss of livelihoods and reduced food security.		

4) Baseline scenario and any associated baseline projects

107. In PNG there are three levels of governance and administration: National, Provincial and local level governments, including district governments. This project focuses primarily at local and provincial levels but also includes some activities focused on national level.

108. Whilst PNG has a substantial body of law, regulations, policies and strategies relevant to the Project, there are numerous challenges to their effective implementation including limited engagement of customary landowners, inadequate capacity, limited resources (finance, infrastructure, personnel, communications, extension services), law-and-order concerns, and poor roads and communications hinder their effective implementation.^{[50],[51]}

Development policy and planning

109. At the national level, sustainable development goals are articulated in PNG's Vision 2050, the Development Strategic Plan 2010-2030, and a series of five-year Medium-Term Development Plans. PNG's National Strategy for Responsible Sustainable Development (StaRS)

emphasizes the need to invest in 'Strategic Assets' such as agriculture, land management, forestry, environment and associated ecosystem services. These national goals are further articulated in sectoral policies and plans and also meant to be translated into provincial level planning and implementation through Provincial Development Plans/Strategies and Provincial Forest Plans.

110. The Government of PNG through the Department of Lands and Physical Planning (DLPP) has drafted a National Sustainable Land Use Policy (NSLUP, 2021). The NSLUP provides an enabling framework for sustainable land use and planning and facilitates land availability for investments and development. It aims to provide direction for planning, allocation, wise use, and management of land and land resources both in urban and rural areas.

111. Key institutions involved in land use planning include:

? DLPP ? has the mandate for land use planning and management.

? CEPA ? regulates environment management through review and approval of environmental permits for resource projects while also managing the country's rich biodiversity through setting up protected areas and other forms of conservation areas.

? PNGFA ? develops and implements policies and laws for sustainable management of PNG's forest resources including plantation development on non-forested lands.

? Department of Agriculture and Livestock (DAL) ? plans and implements strategic agricultural programs, provide extension support and plays a key linking role for the private sector

? Climate Change and Development Authority (CCDA) ? coordinates climate change adaptation and mitigation projects, reports to the UN Framework Convention on Climate Change on behalf of PNG.

112. In addition, statutory bodies and/or committees/boards are set up to help develop specific sectors through mobilizing resources, collaborating, and working across a portfolio of stakeholders and partners. Various planning boards such as the National and Provincial Land Boards, National Forest Board, National Environment and Conservation Council provide decision-making at the highest level.

113. Development planning activities and subsequent budget allocation is led by the Department of National Planning and Monitoring (DNPM) as well as the Ministry of Finance and Treasury. Each sector develops sector plans that are then integrated into MTDPs. Sector plans are also required to link with national strategies such as STaRS, and Vision 2050. Sector development plans also align to international targets and obligations such as under the CBD, UNCCD, UNFCCC and the UN SDGs. They have a lifespan of five years and contain strategies and action frameworks. These five-year plans provide a clear, accountable plan for investment and sustainable economic development. Sector plans at national level include:

1) Land Use Plans - The DLPP develops and implements all plans pertaining to land matters. National land use planning and implementation is linked MTDP as well as provincial plans.

2) Conservation Plans - CEPA passed the National Protected Areas Policy in 2014 with an aim to develop a network of ecologically representative protected areas across PNG, both marine and terrestrial. A Protected Area Bill is in the pipeline to be endorsed by parliament. Once approved, CEPA's Protected Area Implementation Plan will initiate implementation of a network of protected areas in PNG.

3) Forest Plans - The PNGFA has both National and Provincial Forest Plans that include national and provincial forest development objectives. These plans are developed in tandem with the 5-year provincial development plans.

4) Agriculture Plans - The DAL has various National Agriculture Development Plans that focus on improving and strengthening the agriculture sector. Agriculture sector plans are developed in consultation with provincial or regional DALs.

114. The main land use sectors (environment, forestry, agriculture, mining, transport, housing, and technology) have their own land use information systems according to their policy and legislative mandates. Because there is no centralized land use planning, **there are overlaps between different land use plans and conflicting and competing land use plans**. The draft NSLUP has been specifically designed to address these escalating issues among other land use challenges hindering development in the country (see Figure 6).

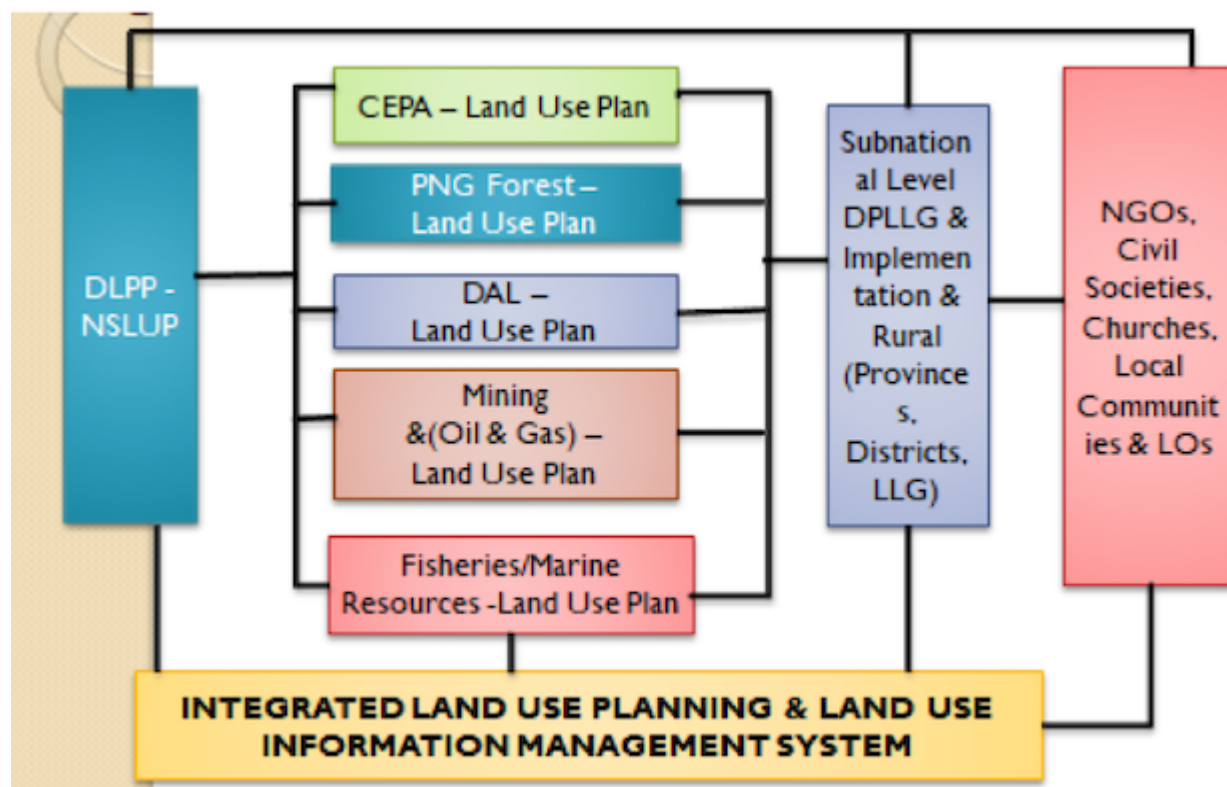


Figure 6 The Main Actors of Integrated Land Use Planning in PNG

Sources: Gibson Pitz Presentation on draft NSLUP 2019

115. There are **significant limitations in the nature and extent of sector plans** with many being out of date, not comprehensive and/or based on limited consultation. **Coordination between and across sector plans is limited** with many targets presenting contradictory objectives especially with regard to the use of land ? e.g. targets for increases in levels of land under timber and agricultural production and conservation, and action on climate change ? targets linked to expansion of economic activities and extractive operations and those of limiting emissions. Annual work plans and budgets, that include both recurrent and investment budgets for sectors, are submitted to DNPM with budgets then allocated through consultation and coordination between DNPM, Treasury and Finance.

Relevant policies

116. Key national policies and laws and their relevance to the project are summarized in Table 7.

Table 7 Policy and Legislative framework in the context of the project implementation

Policy/Legislation	Description	Relevance
Constitutional		
Fourth National Goal and Directive Principle (NGDP) and section 25	Promotes the preservation and replenishment of all natural resources that includes natural forests within the development of all national legislation and policies. The fourth NGDP calls for PNG's natural resources and environment to be conserved and used for the collective benefit of all citizens and with due consideration and necessary actions to be taken for the benefit of future generations.	Provides overall guidance for the project
National Development Policies and Strategies		
PNG Vision 2050 (launched in 2010)	This policy is the long-term underpinning strategy for PNG's development and all its priority sectors of development. It sets out the guiding principles or pillars for the development of all policies in PNG and establishes the concept of sustainable development in all sectors. All future medium- to long-term strategies and plans must align to this vision.	Provides overall guidance for the project
Medium Term Development Plan III (2018 ? 2022)	This sets out specific indicators and targets relating to the development of PNG's resources and the delivery of its services throughout the country within the medium term. All subsequent sectoral plans/programs must align with or be consistent with these objectives.	Provides overall guidance for the project
Strategy on Responsible Sustainable Development (StaRS) 2014	This policy promotes sustainable development and management of natural resources in PNG with the goal of preserving environment and biodiversity through more energy efficient (low carbon/carbon neutral) or green growth paths for key sectors and government agencies. The focus is to produce a green growth economy in PNG.	Provides overall guidance for the project
Acts of Parliament		
Organic Law on Local and Provincial Governments 1998	Under this law, Provincial Governments can create their own laws under Section 42, specifically Section 42 (1)(k) Agriculture; (c) Land and land development; (s) Forestry and agroforestry. In addition, Local Level Governments can make their own laws under Section 44, e.g. Section 44 (1)(p) local environment; (z) protection of traditional sacred sites.	The project will strengthen provincial policy and regulations on agricultural, fisheries and forestry commodity trading to support gender sensitive, biodiversity friendly and climate resilient practices and approaches

Environment Act 2000 and Regulations	<p>Governs and regulates the protection of the environment and impacts of natural resource development activities in order to promote sustainable development of the environment and the economic, social and physical well-being of people by safeguarding the life-supporting capacity of air, water, soil and ecosystems for present and future generations and avoiding, remedying and mitigating any adverse effects of activities on the environment.</p> <p>Section 29 Provincial Environment Committees</p> <p>(1) A provincial law may provide for the establishment of a Provincial Environment Committee, and provide for the membership, powers, functions and procedures of the committee.</p> <p>(2) A provincial law made under Subsection (1) may provide for the delegation of powers of the Provincial Government in relation to environment matters to the Committee.</p> <p>Section 39 (1) Provincial Environment Policy relating to matters within law-making powers of Provincial Governments under the Organic Law.</p>	The project will be compliant with the requirements of the Environment Act and will seek to strengthen provincial regulatory frameworks for the conservation and sustainable use of multi-functional landscapes
Environmental Planning Act (1978)	Requires all development projects which might have a significant environmental impact to comply with environmental impact assessment (EIA) procedures, including the submission of an environmental impact statement (EIS) or plan.	The project will be compliant with the Act.
CEPA Act 2014	Provides for the conservation and protection of the environment in accordance with the Fourth National Goal and Directive Principle (National Resources and Environment); establishes the Conservation and Environment Protection Authority (CEPA); and repeals the National Parks Act	CEPA is a key partner in the project.
Land Act 1996	Guides the development and management of all land in PNG, both state and customary land. It provides regulations for the acquisition of land by the State and the alienation or lease of land of the State, to establish a Land Board, to define powers of officers of the State in relation to land, to prescribe offences in relation to land, to regulate the fencing of land and various other matters relating to land.	The project will be compliant with the requirements of the Act. The project will support the development of integrated land use plans and update forest plans for the two target provinces. These plans will be consistent with the Land Act.

Physical Planning Act 1989	Guides the development and management of all state land and provides for the functions of the National and Provincial Physical Planning Board.	The project will support the development of integrated land use plans and update forest plans for the two target provinces. These plans will be consistent with the Act.
Land Groups Incorporation Act 1974 (amended 2009)	Provides for the organization of customary landowners into management units, legally recognized and able to participate and benefit from the development of their land.	Customary landowners are a primary beneficiary of the project.
Land Registration Act 1981	Provides for the registration, titling, issuance of certificates, instituting various forms of leases, mortgages and charges, and various other matters relating to land registration.	The project will comply with the regulations under this Act.
Forestry Act 1991	The Act governs the management of forest resources in PNG and the mechanisms for conducting forestry activities. It recognizes the need for the protection of areas of forests within logging concessions that are high in biodiversity or set aside for conservation purposes. This meets the national goal of preserving the environment, biodiversity, soil, water resources and the integrity of the climate system, for the well-being of current and future generations.	The Project will support the development of integrated land use plans and update forest plans for the two target provinces. These plans will be consistent with the Act and policy.
Climate Change Management Act 2015	This legislation is the legal basis for all climate change programs and activities in PNG setting out the various administrative, financial and project related functions and powers. It seeks to primarily reduce greenhouse gas emissions in PNG according to national targets and domesticizes the UNFCCC into PNG's legal regime. This law empowers the CCDA to coordinate between all key sectors in PNG on matters of climate change mitigation and REDD+ to combat deforestation as means of meeting its national targets.	The project will coordinate with CCDA and be compliant with this Act.
Conservation Area Act 1978	Provides for the preservation of the environment and of the national cultural inheritance by: (i) the conservation of sites and areas having particular biological, topographical, geological, historic, scientific or social importance; and (ii) the management of those sites and areas.	The project will comply with Act.

Fauna (Protection and Control) Act 1966	Allows for the protection, control, harvesting and destruction of fauna. Fauna is protected primarily through the declaration of Wildlife Management Areas. The level of protection provided by WMAs is low, primarily because the Fauna (Protection and Control) Act provides no effective powers for the Government to enforce appropriate management of these areas, or even to prevent them being used for exploitative purposes such as mining or commercial forestry.	The project will comply with Act.
Sector Plans and Policies		
National Sustainable Land Use Policy (drafted in 2012 and revised in 2014 and 2021)	Integrates the various national development policies and specific natural resource sector policies and plans with the SDGs. It provides an overarching framework that aims to facilitate this process and promotes the sustainable development and management of PNG's natural resources through a coordinated approach to spatial planning at the national level.	The Project will comply with the land use policy
PNG Strategic Development Plan	<i>Broad Objective #4 Natural resources and environment</i> aims to ensure PNG's natural resources are managed sustainably to ensure they benefit both future and current generations and that resource revenues are focused on nation building, while at the same time protecting the environment.	The Project supports Broad Objective 4
Vision 2050	The seven pillars of Vision 2050 aim to support PNG to develop and grow the manufacturing, services, agriculture, forestry, fisheries and eco-tourism sectors	The project will support pillars 3 Institutional Development and Service Delivery; 5 Environment Sustainability and Climate Change; 6 Spiritual, Cultural and Community Development; and 7 Strategic Planning, Integration and Control for agriculture and forestry, sectors

National Forest Policy 1991 The Forest Plan 1996 National and Provincial Forest Plans and Forest Development Guidelines	<p>The Forest Policy addresses the need for the sustainable management of forest resources and adopts an integrated approach to implementing this goal through administrative, research and project approaches.</p> <p>The Forest Plan 1996 seeks to implement the Forestry Policy through periodic and detailed planning that establishes limits on total allowable cuts for timber harvesting each year. Forest Plans provide guidance for development at national and provincial levels while Forest Development Guidelines provide specific strategies and actions plans such as incorporating REDD+ and climate change into forest activities, increasing plantations through <i>Painim Graun Planim Diwai</i> initiative.</p>	The project will support the development of integrated land use plans and update forest plans for the two target provinces. These plans will be consistent with the Guidelines.
National Protected Areas Policy 2014 (and Draft Protected Area Bill)	<p>Section 3.4 provides guidance on zoning^[52] which can be done in three ways: 1) by legislation on gazettal or approval of management plan (<i>statutory zones</i>); 2) in a management plan signed by customary landowners, communities and governments (<i>non-statutory</i>); or 3) by agreement signed between landowners, communities and government (<i>non-statutory</i>).</p> <p>The Policy provides details of the Classes of Protected Areas.^[53]</p> <p>Most applicable to this project are Community Conservation Areas. Special Management Areas can be established regionally at provincial level via a gazettal, regulation or a management plan.</p>	<p>This is a key policy for the project and it will guide much of the work in Component 2.</p> <p>The Project will consider whether Baining Mountains, Whiteman and Nakanai Ranges can be classified under this Policy.</p>
Climate Compatible Development Action Plan 2010 Climate Compatible Development Management Policy 2014	The action plan and policy identify key areas for action on climate change including targets of a 50 per cent reduction in GHG emissions by 2030 and achieving carbon neutrality by 2050. PNG prepared and submitted its 1st Nationally Determined Contribution (NDC) in 2016.	The project will support climate change adaptation.
National REDD+ Strategy 2017)	The National REDD+ Strategy outlines the key action areas across the sectors. In its NDC PNG proposed that its main contributions to reduce GHG emissions will come from REDD+ initiatives.	The Project will learn lessons from REDD+ and the spatial data planned for the project will support REDD+ reporting
National Biodiversity Strategy and Action Plan 2007	Provides PNG with the roadmap for mainstreaming of biodiversity conservation into all the main sectors. Presents a framework for the short to medium term which will lay the foundation for a longer-term action plan.	The project will support the NBSAP objectives.

PNG National Food Security Policy 2017 ? 2026	To foster strong public ? private partnerships and thus leverage the potential of agriculture to promote enhanced nutrition and health by bringing profitable smallholder farming, efficient food value chains, women?s income and child nutrition together.	Component 2 of the project will support the aims of this policy
E-Agriculture Strategy (2017-2023) by the Fresh Produce Development Agency (FPDA)	Aims to transform PNG?s agriculture sector by innovative information and communication technologies, by 2023. FPDA is launching the Fresh Produce Advisory Resources Market Information Services (FARMIS) information portal. This service provides weather and crop advisory information as well.	The ICT improvements aimed at Agriculture and the FARMIS are relevant and useful for the Project?s DSS and Land Use Planning
National Transport Strategy administered by the Road Traffic Authority.	Sets out policies for development of the transport sector over the medium to long term, including goals to: ? Deliver a safe and secure transport system for users and the public; ? Mitigate or avoid adverse social, health and environmental effects of transport; ? Develop new infrastructure to serve national and provincial priorities; ? Provide better Government institutional structures to deliver transport infrastructure and services; ? Strengthen the human resource capacity of the Government transport agencies; ? Bring 95% of the population within easy reach of all-weather transport access; ? Provide transport access to 95% or more of developable agricultural land	While the Project is not focused on transport, the long-term success of project outcomes depends on improved value chains that require reliable transport.

National Financial Inclusion Strategy 2016-2020. (NFIS)	<p>Seeks to deliver on its Mission and to achieve its Vision in the context of nine Priority Areas.</p> <ol style="list-style-type: none"> 1. Digital Financial Services ? support innovative use of technology for scaling up financial access and promotion of expansion of digital finance services to reach remote parts of the country. 2. Inclusive Insurance ? expand micro insurance to reach 1.5m people. 3. Financial Literacy and Financial Education To build on gains in financial education and extend it to educational institutions such as technical colleges, secondary and primary schools. 4. Financial Consumer Protection To introduce and implement a consumer protection framework for regulated financial institutions. 5. Informal Economy and Agricultural Finance To enhance access to and usage of finance for enterprises in the informal economy including agriculture. 6. SME Finance To enhance access to and usage of finance for Small and Medium Enterprises (SMEs). 7. Resources Sector Engagement To leverage opportunities within the resources sector to advance financial inclusion. 8. Data Collection and Dissemination To continue regular collection of financial inclusion data and publish it for policy makers and commercial service providers to identify key dimensions and opportunities in Papua New Guinea. 9. Government Engagement To promote the integration of financial inclusion in Local and National Government planning and implementation processes. 	Improvements to livelihoods and wellbeing in EHP and WHP will rely on improvements to Financial Services supported by an enabling environment.
National Strategy for Responsible and Sustainable Development StaRS	Recognises that forestry and biodiversity, fisheries and marine resources, agriculture and livestock are strategic assets for investment and pillars for economic growth.	The Project will support the aims of StaRS

Provincial Policies

117. At provincial level, there is a lack of strategic planning, sector investment planning, budget allocation and programme coordination. The Organic Law on Provincial and Local Level Governments 1998, mandates provincial governments to enact provincial laws and policies. To date, there are a few examples that demonstrate this has been effectively enforced at sub-national levels, these include the Madang Provincial Environment Bill, supported by The Nature Conservancy (TNC) working with Madang Provincial Government, and in New Ireland Province supported by the Wildlife Conservation Society (WCS).

118. The Physical Planning Act 1989 and the Environment Act 2000 provide the legislative framework for land use planning of any resource development and for all land which is executed through the National, Provincial and Local Physical Planning Boards. However, this has little

influence on customary land use, as only three per cent of PNG's land area (most of which is government leased land sub leased for development purposes) is subject to the Physical Planning Act.

119. The process of decentralizing environmental management to provincial levels is defined in the Environment Act, 2000, referring to the power of provincial governments to create their own provincial policies and laws pertaining to environmental matters under the Organic Law including setting up of Provincial Environment Committees.^{[54],[55]} The Protected Areas Policy, 2014 (and draft PA Bill yet to be endorsed) outlines processes for vetting and endorsing protected and conserved areas at the sub-national level.

120. Provincial and Regional Protected Area Roundtables will be established to help develop and manage a network of PAs locally and nationally across the country.^[56] These Roundtables will be based within the provincial environment climate change divisions under each provincial administration. A GEF 4 project started initial discussions on possible pathways to embed the Roundtables within existing legal and institutional frameworks.^[57]

121. Despite these legal provisions, there is a lack of clarity on the decentralization of regulatory powers around environmental monitoring and reporting including site inspections of development activities between CEPA and responsible provincial environment units for permitting processes, the type and activity level, approvals of environmental impact assessments and associated monitoring and costs. At present, all of these functions are carried out at the national level by CEPA.

122. Sustainable land use planning and management is a challenge at provincial levels. Lands offices and officers face financial, capacity and resource constraints that constrain their ability to promote effective land use management. This situation is compounded by lack of data, data management infrastructure, province-wide land use plans and maps and low technical capacity.

123. Provincial governments are responsible for the development and implementation of provincial development plans including setting goals and aspirations of the province. Provincial plans are developed in tandem with the national 5-year Medium-Term Development Plans that are reviewed and developed through the DNPM. Funding and budgeting are based on these plans with monitoring and evaluation done by both DNPM, especially for large government funded projects. There is also oversight by and close collaboration with national sector agencies (e.g., for land use, forestry, agriculture, and conservation) to ensure alignment and coherence to national targets and goals.

124. Sector agencies (DLPP, PNGFA, DAL and CEPA) have representation within respective provincial administrations through provincial and regional offices. These sub-national offices are largely independent of the national agencies as they are funded through the provincial governments as per the Organic Law on Provincial and Local Government Affairs 1998.

125. Provincial planning and decision-making are overseen by the Provincial Executive Council (PEC), chaired by the Provincial Governor. At district level, the District Development Authority (DDA) chaired by the sitting MP has development decision-making authority and district plans are linked to the provincial plan. Ward and local level government development plans, where they exist, are required to align with the relevant district plan.

Sector Plans at Provincial Level

126. Sector agencies establish specific government structures based on their respective legislation. For example, a Provincial Forest Management Committee (PFMC) is established

within each province to develop a provincial forest plan, and review and make recommendations on forest management within the province. The PFMC is established under the Forestry Act, 1991. Decisions on forest development are deliberated by PFMC and pass-through the Provincial Executive Council, although any final decision is made by the National Forest Board. Through the process of Provincial Forest Management plan development, the Provincial Forest Office (PFO) (part of the National Forest Service and guided by the national level Forest Authority) works in collaboration with the Provincial Planning Office to develop a forest management plan which the PFMC submits to the PEC for endorsement.

127. The Land Act, 1996 and various other laws managed through the DLPP guide the development of land in PNG. The Physical Planning Act, 1989, provides for land use planning of any resource development and land that is executed through the National and Provincial Physical Planning Boards with minimal influence exercised on customary land use. Around three per cent of total national land area is covered by towns and urban centers, whereas customary land is more than 90 per cent of the national land area.

128. Development is guided through various laws such as the Land Registration Act, 1981, the Land Groups Incorporation Act, 1971 (as amended) and the Land Dispute Settlement Act, 1975 (as amended). For customary land development, the Incorporated Land Groups (ILGs) mechanism is the legal framework provided for landowners to organize and register themselves into groups (as per their clan groups and identified land boundaries) and to participate in development activities on their land through lease arrangements. For large-scale resource developments, the longest lease length is 99 years. Importantly though, each sector such as forestry, mining, oil and gas, and environment have their own guidelines for permitting a given activity on land, for example, commercial agriculture developments, forest management agreements, timber rights purchases and protected area or mining leases. Thus, close coordination and collaboration among organizations is crucial to align different land uses and resource rights at national and provincial levels. Currently, *there is no proper coordination with the different sectors at the provincial and district levels.*

129. Extension services are facilitated and coordinated from the PNGFA and the DAL, with extension services branches at the national levels with counterpart offices at regional and provincial levels.

Incentives

130. Currently, there are no incentives for rolling out a national sustainable land use management program by government. However, the NSLUP will pave the way for such a system to be developed through a top-down policy development and bottom-up implementation approach. At the sector level, overlapping resource rights will need to be resolved, for example, oil palm development should never encroach conservation or protected area zones. Clans, wards or ILGs that voluntarily participate in bottom-up sustainable land use planning will benefit from enhanced market access as an incentive. Additionally, communities and sub-national governments that strengthen their management of protected areas, including CCAs or culturally sensitive sites within production areas will also be accorded appropriate incentives. For instance, cocoa farmers can receive transport subsidies to ease their burden of transporting cocoa to the nearest market or port if they implement sustainable land use plans and effectively manage PA/CA within their production landscapes.

131. The PNGFA has plans to increase total plantation forest estates in PNG and promote downstream processing within the next decade but lacks the necessary incentives and drive to mobilize resources and stakeholder buy-in to implement this plan. This creates an opportunity for

the project to work with PNGFA and provincial forestry offices to conduct a feasibility study for social forestry, development of woodlots, agroforestry, integration of small-medium enterprises (SMEs) and setting up enabling conditions for ease of loan access for local communities.

132. PNG has developed numerous programs, policies, and strategies to mitigate and adapt to climate change. These include the Nationally Determined Contributions under the UNFCCC in 2015 and the Second National Communication under the UNFCCC in 2014 and the National Climate Compatible Development Management Policy in 2014. These documents list the agriculture, forestry, and fisheries sectors among the most vulnerable to climate change and identify adaptation and mitigation measures. PNG has an El Niño Early Action Plan^[58] and a Climate Risk and Early Warning System (EWS) for improved drought monitoring and sub seasonal-to-seasonal prediction that can foster better decision-making for agriculture, water management and other climate-sensitive sectors by creating an end-to-end EWS aimed at reducing the impacts of drought.^[59]

Relevant projects and programs

133. There are several projects focused on biodiversity conservation that will be implemented concurrently with the proposed project. Neighboring provinces to WHP and EHP have been well supported by biodiversity conservation projects, but EHP and WHP have largely missed out on projects and other initiatives despite the high conservation value and the high risk of biodiversity loss.

134. In addition, PNG has numerous programs, projects and traditional practices that are relevant to the proposed project. Initiatives that are seeking to address land-use planning, sustainable agricultural production, and forest management, and strengthening of protected areas management are outlined in **Table 8** and **Table 9**. Key lessons learned from projects and programs include:

? Customary landowners are very aware of local conditions, challenges and opportunities and have a very strong influence over land use decisions. Gaining the support of customary owners through highly participatory, consultative processes for landscape scale land use planning and actions and related market opportunities is critical to the success of the project.

a. The need for strong community support for conservation initiatives is a common thread of all conservation initiatives in PNG. Customary tenure and management coupled with strong dependence on natural resources for livelihoods requires any new resource management regime (including protected areas) to be carefully negotiated and to respect the needs and aspirations of participating communities.

b. The intricacies of the customary land tenure system and the trade-offs by landowners between logging or other natural resource projects with conservation have presented barriers to projects (especially in Lak).

c. Targeted capacity building and investment in community education and awareness raising activities are needed to complement existing programs.

? PNG has considerable experience with implementing a multipurpose National Forest Inventory (NFI), but the inventory is incomplete and does not provide adequate information for EHP and WHP. The project provides an opportunity to extend the NFI to the target provinces.

? There has been some progress with sustainable financing of protected areas in PNG and the project will draw on this expertise to build the capacity of protected area management in WHP and EHP and incorporate viable financing mechanisms into protected areas.

? There have been numerous projects and programs on crop diversification, climate resilience and supporting farmers to shift from subsistence to semi-commercial or commercial farming. The project will utilize lessons from these projects and seek to engage partners that have experience in these issues when identifying value chains and building capacity and capability.

135. The Government has been using an integrated land use planning and management approach involving the participation of customary landowners to conserve biodiversity. This approach has been supported by several projects funded by GEF and other donors. Accordingly, the proposed project is designed to forge direct links with relevant local-national level initiatives to ensure cross learning, capacity building and realization of opportunities for collaboration.

136. The Project will seek to build linkages with adjacent provinces, notably Chimbu, Jiwaka and Enga provinces, and their associated projects and programs by involving key stakeholders in capacity building and knowledge sharing efforts as well as sharing spatial data.

Table 8 Relevant Projects

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Ongoing projects					

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT PNG)	<p>Develop three specific sustainable, market oriented, competitive and prosperous rural activities in selected areas of the Sepik region (East Sepik and part of Sandaun Provinces)</p> <p>Establish strong and efficient value chain enablers, focusing on support services, infrastructure, policy and regulatory environment, especially in the Sepik region</p> <p>It focuses on three value chains: cocoa, vanilla and fisheries and aims to achieve to increase sustainable and inclusive economic development of rural areas through two integrated outcomes:</p> <p>(1) Increasing the economic returns and opportunities from three selected value chains - cocoa, vanilla and fishery while;</p> <p>(2) Strengthening and improving the efficiency of value chain enablers including the business environment and supporting sustainable, climate proof transport and energy infrastructure development</p>	2020-2024	FAO	EUR 81.3 million	<p>The project will seek opportunities to utilize the STREIT project's biodiversity friendly and climate resilient value chain methodology, FFPO training and communication s skills.</p> <p>The STREIT project objective is in line with the GEF-7 project and aligns to the Output on enhancing sustainability of commodity supply chains and safeguarding the globally significant biodiversity. The STREIT project will complement Outcome 2.1 and 4.1 of the GEF-7 Project through sharing learning about and use a sustainable food value chain (SFVC) approach.</p>

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Sustainable Financing of Papua New Guinea's Protected Area Network	Aims to reduce the funding gap for Papua New Guinea's protected areas in order to improve their management	2017-2022	UNDP	USD 11.3 million	The project will draw on the expertise of the sustainable financing project to build the capacity of protected area management in WHP and EHP and incorporate viable financing mechanisms into protected areas within the target sites.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Sustainable Wildlife Management in the Bismarck Forest Corridor (Eastern Highlands, Simbu, Jiwaka Provinces)	The key purpose of this project is to alleviate unsustainable hunting pressure on wildlife within the Bismarck Forest Corridor through a number of interventions including the provision of alternative protein sources and strengthening of an enabling legal framework PNG that encourages and supports community led natural resource management.	2019-ongoing	WCS and FAO	USD 2.63 million	The project will draw lessons from the SWM project including lessons on natural resource management at community and provincial scales, supporting the development of CBOs, helping to develop household incomes and access to protein. It will share experience on pressures on valuable wildlife species and forest ecosystems and assess the relevance of the SWM monitoring of ecological systems and hunting levels and incorporate key issues into the project's M&E system.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Enhancing disaster and climate resilient agriculture in vulnerable communities (TCP/PNG/3803)	The aim of this project is to improve disaster and climate resilience in vulnerable communities.	2019-2023	EU	USD 200,000	Capacity-building activities on climate-resilient agriculture practices and the enhancement of value-chain in the Highlands Region conducted under the project, will complement Outcome 2.1 of the GEF-7 Project.
PNG Highlands Joint Programme (UNJP/PNG/014/UNJ)	<p>This project focuses on communities affected by conflict in the Highlands and aims to:</p> <ul style="list-style-type: none"> ? Increase capacity for peace and social cohesion ? Improve resilience to manage risks and mitigate shocks from conflict and man-made/natural disasters ? Enhance knowledge and skills to integrate peacebuilding and human rights strategies into service delivery ? Promote people-centred, proactive and transparent/accountable systems to support effective leadership that promotes peace, security and human rights 	2020-Dec 2022	Multi-Partner Trust Fund	USD 830,511	Agriculture extension services and capacity building in the Highlands Region under the project will complement Outcome 2.1 of the GEF-7 Project.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Strengthening integrated sustainable landscape management in Enga Province, PNG	Increase sustainable and inclusive economic development of the Enga Province through the development and delivery of an innovative approach to rural development that brings together government systems, private sector and community action to present a model for climate compatible green growth	2021-2025	EU and UNDP	EUR 5 million	WHP is adjacent to Enga Province. Environmental and social situations are similar. The project outcomes and approach are very similar, and the duration will mostly overlap. The project will have close collaboration with the Enga project for efficient and effective implementation.
Readiness for registry and nesting system to facilitate climate-related investments in agriculture, forest and land use (AFOLU) sector in PNG (GCP /PNG/011/GCR)	The project contributes to build an AFOLU Registry and Nesting System in PNG that will facilitate private sector engagement. Activities conducted under the project are the establishment of institutional framework for the Nesting System, including regular meetings between the various AFOLU sector stakeholders including the private sector, support to address the regulatory gaps identified to establish a Nesting System, development of baseline information, support to establish a data management system, and improve some of the underlying forest and land use change data.	2021-2023	GCF	USD 983,030	Capacity building on forest and land-use monitoring under the project will complement Outcome 1.1, 3.1, and 4.1 of the GEF-7 Project.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Emergency support to preventing the spread and mitigating the impacts of COVID-19 along the agricultural value chain and building resilience in food security, nutrition and livelihoods (OSRO/PNG/100/JPN)	The project aims to reduce the further spread of COVID-19 and support agricultural livelihoods recovery and income generation activities through restoring food production, improving nutritional status and strengthening the resilience of affected population. The target locations are provinces where confirmed cases of covid-19 were identified and with high prevalence of food and nutrition insecurities. These include province from the Highlands region, Islands region and Southern region.	2021-2022	Japan	USD 1,818,181	Agriculture extension services and capacity building in EHP and WHP under the project will complement Outcome 2.1 of the GEF-7 Project.
Support to enhance food security and nutrition and encourage healthy eating habits of rural communities in Papua New Guinea through piloting School Meal Programme (TCP/PNG/3805)	Develop school capacity in providing healthy school meals based on safe and nutritious local food in Chimbu Province and Eastern Highlands Province. The supply and demand model will be developed. The local agriculture extension service and value chain are enhanced.	2021-2023	FAO	USD 340,000	Agriculture extension services and capacity building in EHP and WHP under the project will complement Outcome 2.1 of the GEF-7 Project.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
GCF REDD+ Results Based Pilot Programme for Peace and Development	The payment for national REDD+ results in 2014 and 2015 (USD 20 million) will be made by GCF as a pilot programme. The proceeds will be re-invested for REDD+ implementation, such as forest monitoring, sustainable community development activities, strengthening legal and institutional framework, and social and environmental safeguard.	2022-2027	GCF	USD 20,000,000	GCF RBP will support sustainable community development and forest conservation. Such activities will complement all the outcomes of the GEF-7 Project.
PNG Biodiversity Programme	Development Planning Process (Madang Province) to strengthen national and provincial level governments to better manage conservation areas, strengthen capacity and coordination at the provincial-level and build linkages to the National Coordinating Committee, and strengthen coordination through the Provincial	2020-2024	USAID	USD 9 million	The Project will collaborate on strengthening national governance for better conservation area management and strengthening on coordination between national and subnational level. Both WHP and EHP share a border with Madang Province. Effective collaboration between the projects will enable the ridge to reef biodiversity conservation in north-central part of New Guinea Island in PNG.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
PNG Lukautim Graun Program (LGP) also known as Papua New Guinea Sustainable Landscapes activity	Aims to protect Papua New Guinea's (PNG) rich biodiversity, which is under increasing threat from industrial development, population growth, and other anthropogenic factors.	2021-	USAID	USD 20 million	<p>This is a highly relevant and important project. The Project will collaborate on the LGP's work to install an ArcGIS system accessible by every CEPA staff member and consultant and the development of an Integrated Information Management System that includes an outward facing portal with gender and age disaggregated data that is accessible by the public. The Project will ensure that the provincial level DSS links to the IIMS in CEPA.</p> <p>The Project will seek cross-learning with USAID LGP Partners, including, for example, the PNG Tree Kangaroo Conservation Program working in YUS Conservation Area and Outspan PNG</p>

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Market for Village Farmers Project - Maket Bilong Vilis Fama (MVF)	Works in six provinces including EHP and WHP including: C1: Inclusive Business Partnerships C2: Supportive Value Chain Investment C3: Collective Governance and Project Management aimed at promoting a favorable policy and institutional environment to support the development of inclusive fresh produce.	2020 ? 2024	IFAD, DAL and FPDA	USD 50.26 million	The Project will seek to collaborate with MVF on C1, C2 and C3
Enabling community forestry in Papua New Guinea	This project is in the Eastern Highlands province, the Ramu and Markham valleys and the Lae region. It aims to improve rural livelihoods through family-focused community reforestation and agroforestry in PNG.	2017-2021	ACIAR	AUD 2.4 million	The project will seek to learn lessons from the ACIAR project and promote successful agroforestry approaches. If the ACIAR project is extended the Project will cooperate with the ACIAR project on research needs. The Project will also seek to engage with staff of the University of Sunshine Coast Tropical Forest and People Research Centre who have been instrumental in the ACIAR project.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea	Aims to upscale towards Land Degradation Neutrality and conserve biodiversity by creating an enabling environment for SLM and SFM and by delivering viable solutions ready for upscaling. The Project objective is to achieve biodiversity conservation and land degradation neutrality in the Southern Highlands and Hela Provinces of Papua New Guinea through integrated landscape management and natural capital assessment.	2023-2027	GEF 7 CEPA UNEP	USD 3.5 million	The Project has been developed in coordination with this project. The two projects will closely coordinate implementation including in relation to planning, spatial data, DSS, exchange of lessons learnt on value chain development, SME business planning, review of regulatory frameworks, project monitoring, communication and knowledge management and exchange of farmers, government staff and FFPO members to learn lessons across projects

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Establishing System for Sustainable Integrated Land-use Planning Across New Britain Island in Papua New Guinea	The project aims to reduce rates of agricultural-driven deforestation and biodiversity loss and establish a sustainable system of land-use planning to guide future land development activities across the island of New Britain. It will develop integrated landscape management systems, promote sustainable food production practices and responsible value chains and conservation and restoration of natural habitats through public-private-community partnerships and knowledge management. It will improve two major agricultural commodities - palm oil and cocoa.	2021-2027	GEF UNDP	USD 10.7 million	The Project will share lessons relevant to the National Sustainable Land Use Policy, sustainable land use planning systems, spatial data and DSS tools, value chain development and market linkages, capacity development on environmental compliance monitoring and enforcement, management of community conservation areas, and knowledge management and sharing of lessons learnt
The PNG Agricultural Commercialization and Diversification Project (PACD)	The project worked on at institutional reform and capacity building, crop diversification, climate resilience and supporting farmers to shift from subsistence to semi-commercial or commercial farming.	2020-2025	World Bank	USD 40 million	This project is highly relevant to Component 2 of the Project. The Project will utilize lessons learnt from this project including about the foundations for strong and sustainable industries and how to build awareness of the benefits of having a collective approach
Past projects					

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Technical support to PNG Forest Authority to implement a multi-purpose National Forest Inventory	Conduct remote sensing-based assessment to determine the most appropriate stratification and number of plots per strata for the actual field measurement collecting data on timber volume, non-timber forest products, flora and fauna, soils and forest litter.	2014-2019	FAO	EUR 7.75 million	<p>The project will expand lessons learned in implementing the multi-purpose national forest inventory (NFI), including biodiversity assessments within tropical rainforests. It will explore other relevant sectors such as agriculture for potential to expand the lessons of the NFI.</p> <p>The Satellite Land Monitoring System (SLMS) will be improved through more effective integration of two different geospatial methodologies (point sampling and wall-to-wall mapping) which will eventually enhance the quality of the national ETF reporting.</p> <p>Moreover, the existing SLMS software and hardware will be further upgraded by integrating mitigation and Adaptation data from agriculture and land use sectors not only limited to geospatial data as the system</p>

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Forest Carbon Partnership Facility (FCPF) REDD+ Readiness Project	Strengthen capacities for the efficient management of REDD+, develop a National REDD+ Strategy and increase engagement of diverse stakeholders in this process.	2015-2020	UNDP and FAO	USD 9 million	<p>The project will build on the action areas identified in the National REDD+ Strategy including:</p> <ul style="list-style-type: none"> ? Strengthened land use and development planning. ? Strengthened environmental management, protection and enforcement ? Enhanced economic productivity and sustainable livelihoods <p>The National REDD+ Strategy emphasizes the importance of integrated subnational planning through strengthening provincial, district and community level planning which is core to the proposed project.</p>

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Research that is supporting the Development of Localised Climate Information Services in Papua New Guinea	An inter-disciplinary project that supports the development of localised climate information services in PNG	until 2021	Climate Change Institute of the Australian National University and NARI, funded by DFAT	Not known	The project will draw on the research findings of the Australian National University Climate Change Institute and PNG National Agricultural Research Institute (NARI) in relation to strategies and innovative management practices that sequester carbon or reduce greenhouse gas emissions from the land sector while maintaining or increasing on-farm productivity, profitability and/or sustainability. The project will seek to learn lessons from field trials on coffee in the Eastern Highlands that will investigate how coffee can manage carbon. The research may also be extended to cocoa.

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Productive Partnerships in Agriculture Project (PPAP)	This project worked on Institutional Strengthening and Industry Coordination, Productive Partnerships and Market Access Infrastructure	Completed in 2019	World Bank	USD 75.20 million	The Project will utilize lessons learnt from this project
Community-based Forest and Coastal Conservation and Resource Management in Papua New Guinea Project	<p>The project aimed:</p> <p>To develop a Sustainable National System of Protected Areas (PAs) for an effective natural resource management and financing systems for Community Conservation Areas and Wildlife Management Areas</p> <p>To promote Environmental, Sustainable Economic Growth (ESEG) approach established through the Kokoda Initiative to be replicated in other globally and nationally significant biodiversity areas</p>	2012-2018	UNDP	USD 30.1 million	<p>The project will analyze and apply the outcomes and lessons learnt for participatory land use planning, namely (1) development and refinement of an enabling environment for a community-based sustainable national system PAs; (2) establishment of new PAs in the country; (3) use of Conservation Area (CA) management planning in partnership with communities; and (4) increase the capacity and support for implementation of CA Management Plans.</p>

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Building Capacity for Sustainable and Responsible Development in the Bismarck Sea program, Papua New Guinea	The objective of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security is to ?achieve conservation of marine biodiversity and food security through sustainable resource management? with 5 goals; Goal 1: Priority Seascapes designated and effectively managed; Goal 2: Ecosystem approach to management of fisheries and other marine resources fully applied; Goal 3: Marine Protected Areas established and effectively managed; Goal 4: Climate change Adaptation measures achieved; Goal 5: Threatened species status improving	2015-2017	Australian Aid, UNDP, TNC, CSIRO	Not known	The project will explore applying the proposed steps by the program for community participation land use planning and monitoring. The proposed 6 steps are; Step 1: Understand decision-making; Step 2: Map stakeholder values; Step 3: Decision-support tools; Step 4: Pilot planning; Step 5: Tools training; Step 6: Evaluation and learning

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Capacity Building Initiative for Transparency: Strengthening capacity in the agriculture and land-use sectors for enhanced transparency in implementation and monitoring of Nationally Determined Contributions (NDCs) under the Paris Agreement in Papua New Guinea	<p>Institutional arrangements for coordinating information and data from the agriculture and land use sectors into ETF processes and reports enhanced.</p> <p>Best practices on ETF reporting processes, information gathering, system infrastructure, and methodologies in the agriculture and land use sectors disseminated to relevant priority sectors.</p> <p>Reporting on inventories of emissions sources and sinks and emissions reduction activities from agriculture and land-use sectors strengthened.</p> <p>Monitoring and reporting of selected NDC priority Adaptation actions in the agriculture and land use sectors strengthened</p>	2019-2021	FAO	USD 0.86 million	The project will follow up upgrading the web-platform and support hosting spatial data (PNG REDD+ and Forest Monitoring Web-Portal) and developing Near Real-time Deforestation Alerts and Monitoring System for operational Decision Support System (DSS).

Project or initiative	Work area	Duration	Donor or Agency	Budget	Potential linkages
Enhancing disaster and climate resilient agriculture in vulnerable communities	The project focused on strengthening knowledge and capacity of the agriculture sector and vulnerable pocket-communities to adopt disaster and climate resilient agriculture practices and livelihood strategies	2020-2021	FAO's Technical Cooperation Programme	USD283,000	The project will incorporate relevant lessons from this project on climate change impacts and long-term climate suitability of selected commodities; agro-meteorological advisory products including pest and disease early warning; disaster risk reduction practices; and community seed banks and multiplication gardens and the importance of seed conservation, crop diversification and seed storage for resilience during protracted emergencies.

Table 9 Links to Programs

Initiatives	Work Area	Potential linkages
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<p>PNG Multi-purpose National Forest Inventory (NFI)</p>	<p>PNG has been improving its National Forest Monitoring System (NFMS) as part of fulfilling the United Nations Framework Convention on Climate Change (UNFCCC) Cancun and Copenhagen decisions. The NFMS will provide reliable forest resource information for formulating national forest policies, planning and sustainable development as well as progressing REDD+. PNG's first multipurpose National Forest Inventory (NFI) is one of the three components of the NFMS. The NFI provides national scale information on biodiversity. The inventory includes collecting information on timber volume, minor forest products, carbon stock, soil characteristics, biodiversity (both flora and fauna), and socio-economic aspects of PNG forests. The NFI aims to cover all forest types and ecological habitats. Currently, biophysical and biodiversity surveys have been completed for 160 plots from 43 clusters out of a planned 4,000 plots and 1,000 clusters. PNGFA with technical support from FAO has been implementing the NFI with initial assessments funded by the EU and UNREDD Program.</p>	<p>The project will support the implementation of the NFI in the EHP and WHP. The NFI will provide the biodiversity and forest resource information for Component 1, which will be used to further develop and achieve the other components.</p>
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Coffee Industry Strategic Plan (Highlands's region including EHP and WHP), FAO, Coffee Industry Corporation		The project will support the objectives of the coffee industry strategic and business plans (2020-24), while mainstreaming biodiversity into production and value chains, including improving productivity, scale of production, information and communication, legal and policy environment and institutional capacity strengthening, insofar as these objectives and approaches support biodiversity friendly and climate resilient aims. It will also seek to apply learnings about improving productivity and market access for male and female coffee farmers and other stakeholders along the coffee value chain.
National Coffee Development Roadmap. 2020 - 2030. Coffee Industry Corporation (CIC)	This ambitious 10-Year roadmap for the Papua New Guinea Coffee Industry envisages that the multi-million Kina economic cash crop is transformed into a billion Kina industry with an ultimate aim of producing 3 million bags by 2030	The project will engage with this industry body to promote mainstreaming of biodiversity principles into Coffee agronomic practice
Country gender assessment of Agriculture and the Rural Sector in PNG	A detailed desk review was conducted on available literature to assess the status of gender equality and women's rights in agriculture, and a set of policy recommendations have been developed and captured in the compiled Country Gender Assessment of Agriculture and the Rural Sector report for Papua New Guinea (PNG).	The project will apply the findings of Assessment in relation to planning and programming for the promotion of gender equality and women's empowerment as well as policy recommendations for women to benefit more equally from agri-food value chain interventions.

Improving agricultural statistical capacity for PNG. FAO worked in collaboration with DAL and the National Statistics Office		<p>The project will seek to incorporate agricultural statistics into the spatial data sets and integrated planning tool with a view to improving policy and planning.</p> <p>The baseline from the analysis will enable policy makers to develop more targeted interventions, in terms of food insecurity and agricultural production. The information will be used by the project to help relevant government agencies to monitor and evaluate the impact of agriculture activities and improve reporting against relevant Sustainable Development Goals.</p>
Productive Partnerships in Agriculture Project, an Initiative of the World Bank Completed in 2019	This project worked on Institutional Strengthening and Industry Coordination, Productive Partnerships and Market Access Infrastructure	The Project will could utilize lessons learnt from this program for Component 2.
Promotion of digital agriculture and innovation by DAL, the National Information and Communications Technology, International Telecommunications Union (ITU) and the Department of Communications and Information Technology, and Energy, and FAO	Strengthen local capacities to develop and implement digital agriculture services and solutions Activities included the piloting of the livestock traceability system using blockchain technology; training on Agromet, a tool for weather forecasts and alerts; and training on AgriTech to promote the digital literacy of women and youth in the communities.	The project will seek to learn lessons from the E-Agriculture related initiatives which were piloted in the province of Jiwaka.
Provincial Support Improvement Program (PSIP)	Reporting and coordination is done by the Department of Provincial and Local Level Government Affairs (DPLLGA), the Department of National Planning and Monitoring, managed and distributed by the Department of Implementation and Rural Development (DIRD).	The project will liaise with and seek support from this key government program when conducting activities at the provincial level in EHP and WHP.
District Support Improvement Program (DSIP)	Reporting and coordination is done by the Department of Provincial and Local Level Government Affairs (DPLLGA), the Department of National Planning and Monitoring,	The project will liaise with and seek support from this key government program when conducting activities at the district and local level in EHP and WHP.

5) Proposed alternative scenario with a brief description of expected outcomes and components of the project and the project's Theory of Change

137. Under the current context, the management of protected areas and their surrounding agricultural and forest landscapes are not effectively conserving biodiversity or providing optimal economic returns to customary landowners. To date, biodiversity conservation principles and approaches have not been sufficiently mainstreamed into the management of either protected areas or customary lands. Top-down approaches to land use planning have proved to be ineffective given the predominance of customary landownership. A lack of spatial data, decision support systems and participatory, integrated land-use planning is constraining opportunities to support customary landowners to conserve biodiversity and generate biodiversity-friendly, climate resilient sustainable livelihoods.

138. An alternative scenario involves mitigating the impacts of land use activities that harm biodiversity and agricultural productivity by improving people-centered, participatory, integrated land use, expanding community conserved areas and promoting biodiversity friendly and climate resilient approaches to forest and farm management. Accordingly, the objective of the project is to *conserve threatened species and habitats, improve the management of protected areas, areas of high conservation value and associated buffer zones, and enable sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces*. To achieve the objective the project will address the following barriers:

? **Barrier A: Information and knowledge** ? While activities to address information and knowledge barriers are included in all four components, Component One has a particular focus on supporting the collection and analysis of spatial data and the development and implementation of decision support tools that will enable integrated planning, informed investment and decision making, and encourage the mitigation of impacts on land use and biodiversity in the target sites within the two provinces. By undertaking forest/biodiversity assessments and reviewing the management effectiveness of protected areas, stakeholders, and particularly customary landowners, will be better placed to identify areas and values of high conservation and the opportunities to conserve biodiversity within and outside these areas. Component two includes an assessment key farm and forest products and value chains to improve customary landowners' knowledge of opportunities for and constraints to improving sustainable livelihoods.

? **Barrier B: Governance** ? the project will work on two distinct levels to improve governance. The first level is focused on i) protected areas, including community conserved areas, with the aim of improving management effectiveness by supporting customary landowners to be at the center of decision making in each area (Component 2). The second level of improving governance is focused on ii) the national and provincial enabling conditions for a) conservation and sustainable use of multi-functional landscapes and b) agricultural, fisheries and forestry commodity trading (Component 3).

? **Barrier C: Capacity and capability** ? While activities to address capacity and capability barriers are included in all four components, Component 2 has a specific focus on building the capacity of customary land owner farming families to develop viable, gender sensitive, biodiversity friendly, climate resilient small-scale farm enterprises and to plan and manage community conserved areas. The capacity of provincial, district and ward planners to undertake integrated participatory planning is included in Output 1.1.6.

? **Barrier D: Infrastructure** - While the Project does not have the resources to address the barrier of poor road and telecommunications infrastructure, Components 2 and 4 include activities focused on communicating and collaborating closely with other projects and programs that have a common interest in achieving transformational change, to collectively promote wise choices and improvements to infrastructure.

139. The Project's theory of change is as follows:

- 1) **Improved data, decision support systems** and land use planning. The pathway to achieve this includes improving the quality and availability of spatial data validated through field assessments, developing integrated decision support systems that enable decision makers to identify priority areas for protection and development, potential areas of conflict, and issues requiring mitigation action and using this information to develop provincial and district level land use plans (Component 1). Key actors include customary landowners, local, district and provincial governments, the private sector, projects and universities.
- 2) **Improved agriculture and forest management practices by customary landowners outside Pas** supported by biodiversity friendly and climate resilient value chains will provide incentives for customary landowners to protect natural resources and adopt biodiversity friendly and climate resilient practices. The pathway to achieve this involves a) identifying the interests of farming families and their forest and farm producer organisations (FFPOs) to develop value chains, b) building capacity of small and medium farm enterprises and c) improving the protection of globally important biodiversity through the effective management of biodiversity on forests and farms across the landscape (Component 2). Key actors include customary landowners, supported by local, district and provincial governments, private sector, NGOs, CBOs, projects and others that provide training.
- 3) **Improved management of Protected Areas, including CCAs and other high conservation value areas** will enhance the protection of globally important biodiversity (Component 2).
- 4) **Improved policy, regulatory frameworks and institutional arrangements** will provide incentives for biodiversity- friendly and climate resilient land use. The pathway to achieve this involves a) identifying gaps and challenges with current enabling conditions including policy, laws, and institutional arrangements (e.g., extension support services) and b) supporting multi-sectoral dialogues to improve coordination and cooperation between stakeholders (Component 3). Key actors include customary landowners, provincial governments, national government agencies, NGOs, and universities.

140. An **overarching assumption** of the project is that **improved management of natural resources by customary landowners in and around areas of high conservation value in EHP and WHP will conserve biodiversity and improve livelihoods**. In addition, the project has the following assumptions:

- Assumption 1:** Improved access to and use of spatial data, knowledge, and decision support systems will improve the ability of customary landowners and other decision makers to identify priority areas for protection and development, potential areas of conflict, and issues requiring mitigation action.
- Assumption 2:** Planning that is driven by customary landowner interests and needs provides the most viable and sustainable basis for equitably conserving, sustainably managing and restoring ecosystems.
- Assumption 3:** Customary landowners can adapt land use practices to climate change and other threats so that natural resources are sustainably used and conserved, and people equitably continue to receive benefits.
- Assumption 4:** Improved agriculture practices and forest/protected area management supported by enhanced ?green? value chains will provide incentives for customary landowners to protect natural resources and adopt equitable biodiversity friendly and climate resilient practices that provide equitable benefits to community members.
- Assumption 5:** Government policy, regulatory frameworks and institutional arrangements support customary landowners to implement equitable, biodiversity- friendly and climate resilient land use.

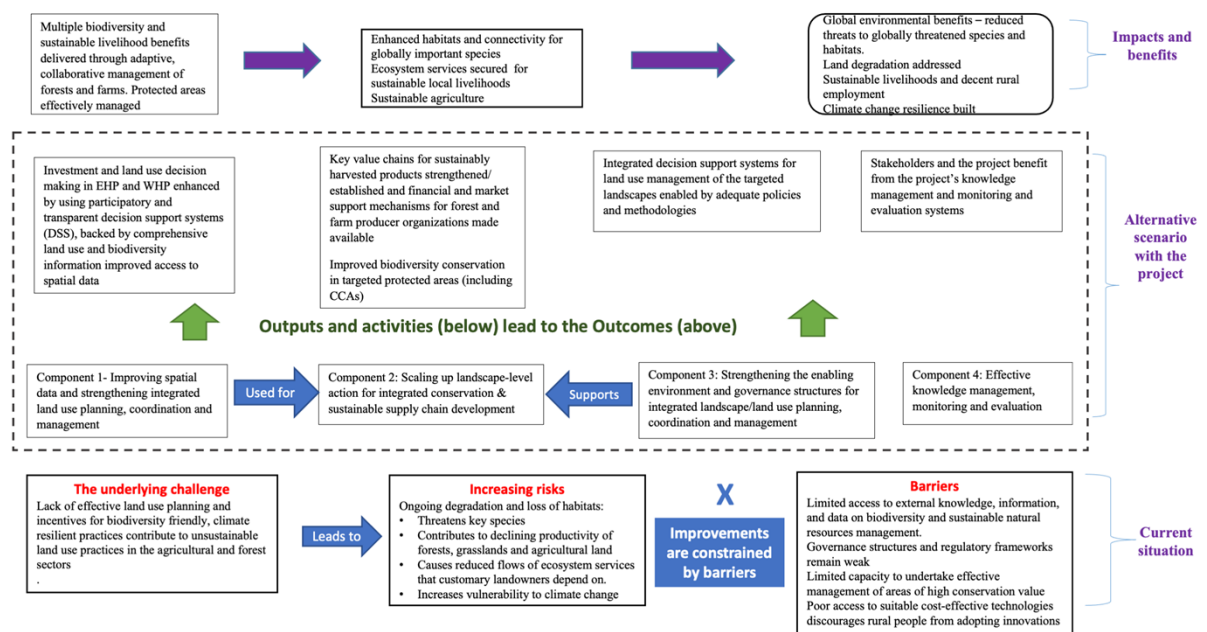


Figure 7 Simplified Theory of Change (ToC) diagram

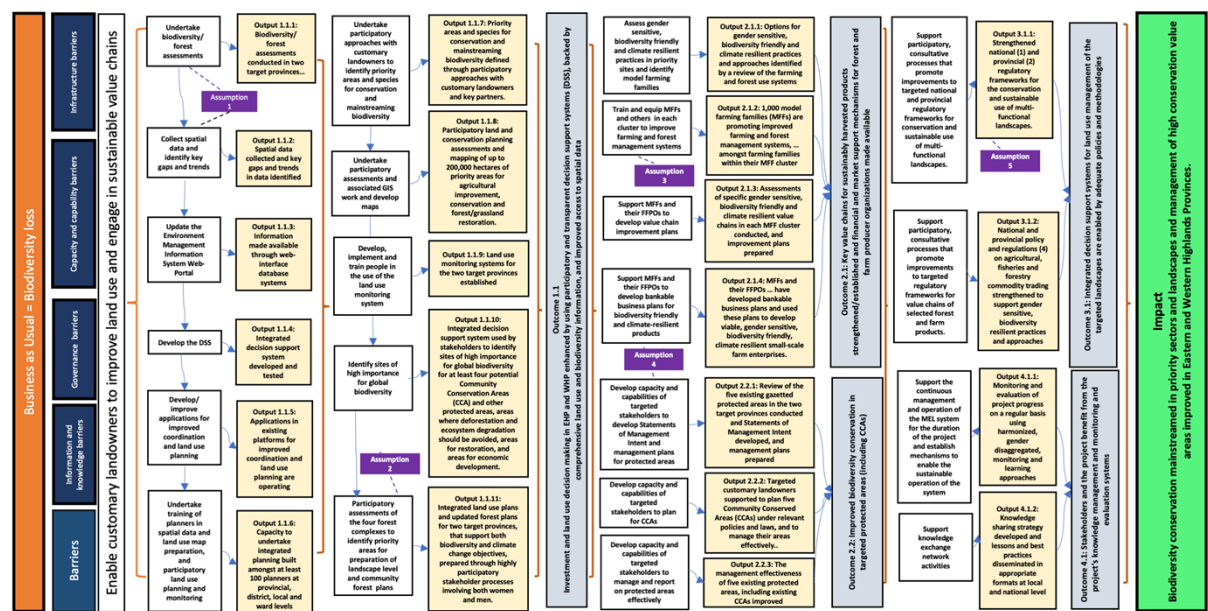


Figure 8 Detailed Theory of Change (ToC) diagram

Component 1: Strengthening integrated land use planning, coordination and management through improved spatial data and decision support systems

141. This component will strengthen the linkages between conservation planning and production landscapes by improving access to spatial data (including information on high conservation values, suitability of land for development activities and current and proposed development) and the use of decision support systems (DSS) that promote integrated land use planning, coordination, and management. The resulting improvements to spatial data and DSS will enable decision makers to identify and analyze opportunities to protect biodiversity, encourage

climate resilient and gender sensitive approaches, promote sustainable land use and mitigate harmful development impacts.

Outcome 1.1: Investment and land use decision-making in EHP and WHP enhanced by using highly participatory and transparent decision support systems (DSS), backed by comprehensive land use and improved access to biodiversity information and linked spatial data.

142. Currently, there is limited participation in decision-making over land use and development in the EHP and WHP. This situation is exacerbated by limited access to information and, for most rural PNG communities, a lack of access to markets and technology. Strengthening access to information, including relevant technical data, through information systems based on appropriate technology, supported by adequate staffing is vital to improving the situation. This Outcome assumes that participatory data collection, mapping and monitoring will help improve land use planning at farm, local, district and provincial levels, leading to better decision-making.

143. **Outcome indicator:** The extent to which investment and land use decisions in EHP and WHP is enhanced using DSS and improved data sets (disaggregated by type, location and scale of investment).

144. Estimated GEF budget: US\$ 2,431,002

145. This Component has 11 Outputs. I) The first output aims to collect information on the state and trend of biodiversity and forests in the two target provinces that is critical for the other components of the project. Ii) The second output collects additional spatial data that is required for land use planning and seeks to identify key gaps and trends in spatial Data. Iii) The third output takes the information from the first two outputs and makes it available through a web portal. Iv) The fourth output uses the data from the first three outputs to develop an integrated DSS. V) The fifth output focuses on improving web-based applications in existing platforms for improved coordination and land use planning so that they can use the information from the first two outputs and integrate with the third and fourth outputs, to enable scaling up and greater sustainability. Vi) The sixth output develops capacity of planners to use the data and systems established in the previous outputs. Vii) The seventh output draws on the spatial data, the DSS and developed capacity to identify priority areas and species for conservation and mainstreaming biodiversity. Viii) The eighth output draws on the spatial data, the DSS and developed capacity to enable stakeholders, and particularly customary landowners, to undertake participatory land and conservation planning assessments and mapping for agricultural improvement, conservation, and forest/grassland restoration. Ix) The ninth output further develops land use monitoring systems for WHP and EHP that will use the spatial data and DSS that has been developed. X) The tenth output uses the DSS to identify sites of high importance for global biodiversity. Xi) The eleventh output draws on the spatial data, the DSS and developed capacity to develop integrated land use plans and update forest plans for WHP and EHP.

Output 1.1.1: Biodiversity/forest assessments conducted in two target provinces, including forest assessments supplementing the National Forest Inventory.

146. The Government of PNG conducted a national-scale forest and land use change assessment between 2001 and 2015, and the results were used for planning the National Forest Inventory as well as for international reports such as the Forest Reference Level (FRL) and the Biennial Update Report (BUR) Technical Annex to the UNFCCC. The Government of PNG has conducted a similar assessment between 2016 and 2019 to update the results and reports. The assessments used the point sampling method and there was no mapping data prepared. Several national-scale mapping assessments have been undertaken in the past, including in 2012 by the

PNGFA, supported by JICA, and in 2015 by CCDA, supported by FAO (called TerraPNG using the Brazilian TerraAmazon system), but these assessments have not been updated. There are no updated mapping data with the level of detail required to support land use planning at provincial, district or community levels. Recent development of innovative technology enables mapping assessments based on remote sensing which overcomes many of the difficulties previously faced in mapping tropical rainforest. The project will use the approaches developed for PNG's multipurpose National Forest Inventory (NFI) and collect information on timber volume, non-timber forest products, carbon stock, soil characteristics, biodiversity (both flora and fauna), and socio-economic aspects of PNG forests.^[60] It will also collect information on customary knowledge and use of forests and forest-related biodiversity and contribute this information to Output 1.1.8 that focuses on highly participatory approaches to identifying customary land owner priority areas and species for conservation.

147. This Output will provide key information and data necessary for the other Outputs, particularly for identifying priority species and areas of globally important biodiversity (Output 1.1.7). Activities to deliver this Output include:

- Activity 1.1.1.1 Review lessons learned on biodiversity/forest assessments from past and current projects and programs, published literature and other sources.
- Activity 1.1.1.2 Support stakeholder agencies to develop plans for undertaking the two biodiversity/forest assessments, including a stakeholder engagement plan.
- Activity 1.1.1.3 Support key agencies to identify data sources and gaps, logistic, material/equipment and human resource needs for the assessment, recruit and build capability of survey teams.
- Activity 1.1.1.4 Support key agencies to secure support from customary land owners, undertake the assessments and associated GIS work and enter the data into the agreed data bases.
- ? Activity 1.1.1.5 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: Multipurpose provincial biodiversity/forest assessments that incorporate gender-based knowledge completed in WHP and EHP.

Indicators: Number of multipurpose provincial biodiversity/forest assessments that incorporate gender-based knowledge completed.

Project partners: PNGFA (including the PNG Forest Research Institute (FRI), CEPA, New Guinea Binatang Research Center (BRC).

Relevant projects/programs: PNG Multi-purpose National Forest Inventory (NFI), PNG Biodiversity Programme.

Co-financing agencies: PNGFA, CEPA.

Output 1.1.2: Spatial data including gender and age disaggregated socio-economic data, customary landowner aspirations, development plans and historical land use and land use change in the two target provinces, and key gaps and trends in data identified.

148. This Output focuses on identifying spatial data, gaps and trends in locations that are considered by CEPA as priorities for biodiversity conservation. Such data provides a critical input for decision support systems (Output 1.1.4) and for integrated land use plans and forest plans (Output 1.1.11).

149. Key activities to deliver this Output include:

- Activity 1.1.2.1 Support key agencies to collect, and review gaps in existing, spatial data including gender and age disaggregated socio-economic data, customary landowner aspirations, development plans and historical land use and land use change in the two target provinces and lessons learned on land and conservation planning assessments from past and current projects and programs, published literature and other sources.

- Activity 1.1.2.2 Support key agencies to develop plans for securing additional spatial data and undertaking participatory land and conservation planning assessments, including securing agreement on the scale of the assessments the scope of a stakeholder engagement plan and identifying capacity and capability needs.

- Activity 1.1.2.3 Support key agencies to develop capacities and capabilities for undertaking participatory land and conservation planning assessments.

- Activity 1.1.2.4 Support key agencies to secure support from customary land owners, undertake the assessments and associated GIS work and enter the data into the agreed data bases, including gender and age disaggregated data on access to and control of biodiversity resources.

? Activity 1.1.2.4 Communicate best practices and lessons from the process to support evidence-based policy making and action and promote replication.

Target: Gender and age disaggregated spatial data for EHP and WHP collected, analyzed, and stored. Key gaps and trends in data identified.

Indicators: Number and type of data sets available and being used (including gender and age disaggregated).

Project partners: CEPA, DLPP, PNGFA, Province and District Forest, Environment and Agriculture officers, Community facilitators.

Relevant projects/programs: PNG REDD+, PNG NFI.

Co-financing agencies: CEPA, PNGFA.

Output 1.1.3: Biodiversity, socio-economic and historical land use and land use change information of the target provinces is made available through web-interface database systems.

150. 1. While Output 1.1.1 and 1.1.2 are focused on collecting data and information, this output focuses on integrating this data into a web-based Environment Management Information System (EMIS) that is accessible to stakeholders with internet access (e.g., national, provincial, district and some local partners). This system will enhance the existing web-based portal (PNG REDD+ and Forest Monitoring Web-Portal, hereinafter called the existing Web-Portal) that is currently co-managed by CCDA and PNGFA. Through the project, management of the EMIS will be expanded to include CEPA and other relevant agencies. The development of the system will be supported by FAO and hosted by a global cloud server, which supports sustainability of the system and ensures it is accessible to PNG users through the internet. In terms of sustainability and expansion of the system the emphasis will be on maintaining a national system, while enhancing provincial and sub-provincial level information. This output will develop historical time-series and current land use maps and plans for WHP and EHP that integrate with the national system. Key activities to deliver this Output include:

? Activity 1.1.3.1 Support key agencies to analyse lessons on EMIS from past and current projects and programs, published literature, web sites and other sources.

- Activity 1.1.3.2 Support key agencies to use the lessons learned and information from provincial biodiversity/forest assessments (Output 1.1.1) and spatial data collected through Output 1.1.2 to identify the basic design criteria for the EMIS.

- Activity 1.1.3.3 Support the upgrading of the web-platform that hosts spatial data (PNG REDD+ and Forest Monitoring Web-Portal) and the development of the Near Real-time Deforestation Alerts and Monitoring System for operational Decision Support System (DSS).

- Activity 1.1.3.4 Update the EMIS Web-Portal with collected data and land use maps.

? Activity 1.1.3.5 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: PNG web portal operational with gender and age disaggregated spatial data from WHP and EHP.

Indicators: PNG web portal enhanced and populated with data including land use maps. Gender and age search criteria available in the web portal.

Project partners: CEPA, CCDA, PNGFA.

Relevant projects/programs: Capacity Building Initiative for Transparency-

Co-financing agencies: CEPA.

Output 1.1.4: Integrated decision support system developed and tested for the Eastern and Western Highlands, based on adaptation of lessons learned on decision support systems elsewhere in PNG.

151. A decision support system (DSS) combines databases with analytical and knowledge management tools and other inputs from stakeholders, often through web-based systems (see Output 1.1.3). For the purposes of the Project, a DSS is defined as a computer-based system (or application) that enables the integrated analysis of a wide variety of spatial data to improve decision-making. A DSS allows users to identify current land use/management and trends, actual and potential land use conflicts, and potential management options.

152. By improving provincial and sub provincial level access to available data and analytical systems in PNG, together with improving access to near real-time land cover change data, stakeholders will be better equipped to a) consider the scale, location and trend of existing and planned activities that impact on or are likely to impact livelihoods, gender equality and conservation values and b) make more informed investment and land use decisions.

153. A wide variety of DSS tools exist that can be readily adapted for the PNG provincial and sub provincial context. These include the National Forest Monitoring System (NFMS) which is already operational and includes functions of Monitoring and MRV (Measurement, Reporting, and Verification). As a part of the monitoring function, the REDD+ and Forest Monitoring Web-Portal enhances transparency of the NFMS by publishing available spatial data in PNG through a web-interface (see Output 1.1.3). The prototype Near Real-time Deforestation Alerts and Monitoring System was introduced to improve taking rapid action for effective policies and measures in PNG. To further improve the MRV function, OpenForis: Collect Earth and SEPAL (System for earth observation data access, processing and analysis for land monitoring), developed by FAO, have been implemented in PNG for forest and land use change assessment.

154. The Project will work closely with existing programs and projects to encourage existing systems to improve collaboration between systems in PNG, including with the PNG Data Portal (Environment Information for Decision Making) under CEPA, the Satellite Land Monitoring System (SLMS) under CCDA, the Forest Resource Information Management System (FRIMS) under PNGFA, and other existing systems under DAL, the Mineral Resources Authority (MRA), DLPP, and the National Statistical Office (NSO).

155. As mentioned above, this output will build on and enhance existing systems through the development of a fully operational DSS to be used at provincial and sub provincial levels to improve decision making and action. The design of the DSS will ensure it can be readily adapted for use in other provinces in PNG. The DSS will use data and information provided through Outputs 1.1.1 and 1.1.2 and link to the Environment Management Information System (Output 1.1.3). This Output is a critical input to Component 3. Key activities to deliver this Output include:

- Activity 1.1.4.1 Support key stakeholder agencies to analyse lessons on Decision Support Systems (DSS) from past and current projects and programs, published literature and other sources.
- Activity 1.1.4.2 Support key stakeholder agencies to use the lessons learned and information from provincial biodiversity/forest assessments to identify the basic design criteria for the DSS.
- Activity 1.1.4.3 Develop detailed design specifications, build and test prototype DSS with key stakeholders.

- Activity 1.1.4.4 Develop guidelines and training modules for use of the DSS and provide the DSS, guidelines and training to targeted stakeholders.
- ? Activity 1.1.4.5 Communicate lessons from the DSS development and roll-out process to support evidence-based policymaking and action and promote replication.

Target: DSS systems that draw on the provincial biodiversity/forest assessments and gender information available for integrated land use and investment decision making.

Indicators: Decision support system is being used for integrated land use and investment decision making in EHP and WHP.

Project partners: CEPA, PNGFA, CCDA, Provincial governments.

Relevant projects/programs: PNG NFI, PNG REDD+.

Co-financing agencies: CEPA.

Output 1.1.5: Web-based applications in existing platforms for improved coordination and land use planning are operating.

154. The PNG REDD+ and Forest Monitoring Web-Portal^[61] provides access to information on forests, land use, environment, climate change, soils, geology, agriculture, and infrastructure. The web portal was developed jointly by the Climate Change and Development Authority (CCDA) and PNGFA. Various government agencies and private sector actors are responsible for providing data for the web-portal. The Capacity Building Initiative for Transparency project has supported updating of the Web-Portal and its contents. CEPA is also in the process of developing an Integrated Information Management System with the support of the USAID LGP. This Project will complement the work being undertaken by CEPA and provide further support to the web portal by supporting the improvement of web-based applications in existing platforms for improved coordination and land use planning.

155. The project will collaborate with several agencies and projects (including the USAID LGP) to upgrade the web-platform for hosting spatial data (PNG REDD+ and Forest Monitoring Web-Portal) and developing Near Real-time Deforestation Alerts and a Monitoring System for the DSS. Despite some challenges in attributing differential contributions of particular land-uses to the state and trend of biodiversity and ecosystem services, the approach that the project will take with spatial data, DSS, the web portal and land use planning holds great potential for improving the planning of multifunctional landscapes and for attracting the necessary resources, collaboration and partnerships. The approach will utilize the information presented by stakeholders who have a mutual interest to develop a shared platform for improved land use management and conservation planning.

156. This output focuses on Barriers A - Information and Knowledge, and C - Capacity and Capability. It provides a means for a) sharing the spatial data generated through Outputs 1.1.1 and 1.1.2, and b) enhancing the Web portal developed in Output 1.1.4 and the DSS developed in output 1.1.4. Key activities to deliver this Output include:

- Activity 1.1.5.1 Review lessons learned on web-based applications within existing platforms for improved coordination and land use planning from past and current projects and programs, published literature and other sources.
- Activity 1.1.5.2 Support key agencies to develop plans for developing/improving web-based applications existing platforms for improved coordination and land use planning.
- ? Activity 1.1.5.3 Support key agencies to identify data sources and gaps, logistic, material/equipment and human resource needs and strengthen web-based applications in existing platforms for improved coordination and land use planning. Including improving the functionality and operation of the Web-Portal and Deforestation Alerts.

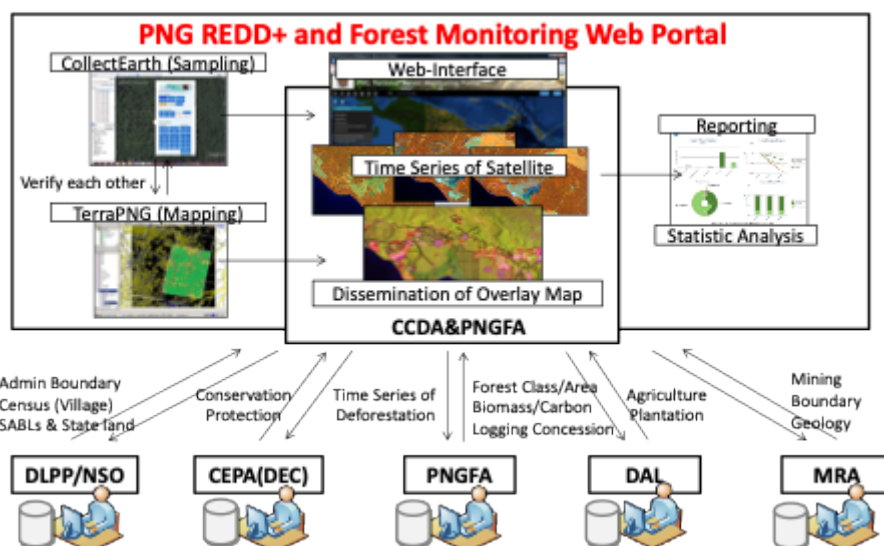


Figure 9 Overview of the PNG REDD+ and Forest Monitoring Web-Portal

Target: Eight web-based applications in existing platforms (2 provincial, 2 district, 4 local) operational for improved coordination and land use planning.

Indicators: Web-based applications in existing platforms have improved inter-operability and are accessible to decision makers at national, provincial and sub provincial levels for land use planning and related activities.

Project partners: PNGFA (including FRI), CEPA, CCDA, Provincial governments.

Relevant projects/programs: PNG REDD+, PNG NFI, USAID LGP, Promotion of digital agriculture and innovation, Improving agricultural statistical capacity for PNG, Establishing System for Sustainable Integrated Land-use Planning Across New Britain Island in Papua New Guinea, Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea, PNG Biodiversity Programme.

Co-financing agencies: CEPA.

Output 1.1.6: Capacity to undertake integrated planning built amongst at least 100 planners (women and men) at provincial, district, local and ward levels.

157. The utility of the data and tools developed through Outputs 1.1.1 to 1.1.5 depend on addressing Barrier C capacity and capability. Output 1.1.6 focuses on developing capacity at provincial, district, local and ward levels to use the spatial data, web portal, apps DSS to undertake integrated planning. The approach that the project will take to integrated planning differs from the conventional, and largely unsuccessful, top-down planning by government agencies and instead aims to match local knowledge, interests and needs of customary landowners with national and provincial goals for conserving globally important biodiversity, sustainable development and improving livelihoods and human well-being. Output 1.1.6 is critical to the success of outputs 1.1.7 to 1.1.11 and Components 2 and 3. Key activities to deliver this Output include:

- Activity 1.1.6.1 Support key agencies to collect and review lessons learned on integrated planning capacity building from past and current projects and programs, published literature and other sources.
- Activity 1.1.6.2 Through participatory processes with key agencies, design, test and refine training modules on spatial data and land use map preparation (OpenForis), and participatory land use planning and monitoring.
- Activity 1.1.6.3 Undertake training of planners in spatial data and land use map preparation (OpenForis), and participatory land use planning and monitoring.
- ? Activity 1.1.6.4 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: 100 planners have skills to undertake integrated planning (10 provincial officers in the two provinces, 24 personnel from 12 district administrations, and 66 representatives of 33 local level governments, including ward levels).

Indicators: Number of planners who have skills to undertake integrated planning (disaggregated by gender).

Project partners: CEPA, PNGFA, CCDA, DAL, Provincial governments.

Relevant projects/programs: Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT PNG), Strengthening integrated sustainable landscape management in Enga Province, PNG, Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea, Papua New Guinea Sustainable Landscapes activity, PNG NFI, PSIP, DSIP.

Co-financing agencies: CEPA.

Output 1.1.7: Priority areas and species for conservation and mainstreaming biodiversity defined through participatory approaches with customary landowners and key partners.

158. Output 1.1.7 will use the data, tools and capacity developed in Outputs 1.1.1 to 1.1.6 to support participatory approaches with customary landowners and key partners to identify priority areas and species for conservation and mainstreaming biodiversity, with a particular emphasis on identifying the needs and interests of customary landowners in biodiversity conservation. The output emphasizes developing an understanding of customary land management practices (both positive and negative), including indigenous knowledge of biodiversity and agrobiodiversity. Priority areas and species identified through this process will be the primary locations for site specific project interventions for biodiversity conservation (Component 2). Key activities to deliver this Output include:

- Activity 1.1.7.1 Support key agencies to analyse lessons on participatory processes for identifying priority areas and species for conservation and mainstreaming biodiversity from past and current projects and programs, published literature and other sources.

- Activity 1.1.7.2 Support key agencies to develop plans for undertaking participatory approaches with customary landowners and key partners, including logistic, material/equipment and human resource needs, an agreement on the scale of the assessments and a stakeholder engagement plan.

- Activity 1.1.7.3 Support key agencies to undertake participatory approaches with customary landowners, including women and youth, and key partners to identify priority areas and species for conservation and mainstreaming biodiversity.

- ? Activity 1.1.7.4 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: Six priority areas and species for conservation and mainstreaming biodiversity defined.

Indicators: Number and type of priority areas and species for conservation identified (HCV: High Conservation Value probability maps provide a base for planning).

Project partners: CEPA.

Relevant projects/programs: PNG NFI, PNG Biodiversity Programme, PSIP, DSIP, Papua New Guinea Sustainable Landscapes activity, Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea, Strengthening integrated sustainable landscape management in Enga Province, Sustainable Wildlife Management.

Co-financing agencies: CEPA

Output 1.1.8: Participatory land and conservation planning assessments and mapping of up to 200,000 hectares of priority areas for agricultural improvement, conservation and forest/grassland restoration.

159. Output 1.18 complements Output 1.17, but focuses on identifying priority areas for agricultural improvement, conservation, and forest/grassland restoration within the overall primary locations (high conservation value areas) identified in Output 1.1.8. These priority areas will be the

primary locations for site specific project interventions for improving farm and forest management, notably in buffer zones. Key activities to deliver this Output include:

- Activity 1.1.8.1 Support key agencies to analyse lessons on land and conservation planning assessments and mapping from past and current projects and programs, published literature and other sources.
- Activity 1.1.8.2 Support key agencies to develop plans for undertaking participatory land and conservation planning assessments, including an agreement on the scale of the assessments and a stakeholder engagement plan.
- Activity 1.1.8.3 Support key agencies to recruit and build capability of teams and secure resources for participatory land and conservation planning assessments.
- Activity 1.1.8.4 Support key agencies to secure support from customary land owners and undertake the participatory assessments and associated GIS work, enter the data into agreed data bases and develop maps.
- ? Activity 1.1.8.5 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: Assessments and maps that identify priority areas for improving agriculture, forest and grassland management in and near priority areas for biodiversity conservation completed in both provinces.

Indicators: Number of assessments and maps completed in and near priority areas for biodiversity conservation.

Project partners: CEPA, PNGFA, Provincial governments.

Relevant projects/programs: same as per Output 1.1.7

Co-financing agencies: CEPA.

Output 1.1.9: Land use monitoring systems for the two target provinces established.

160. Longer term sustainability of the land use planning systems, spatial data management and DSS will be improved if a long-term monitoring, evaluation and learning (MEL) system is put in place. Monitoring will provide information on the impact and effectiveness of efforts to conserve biodiversity and improve livelihoods. This output takes the data and tools developed in Outputs 1.1.1 to 1.1.5 and through a participatory process with key stakeholders to develop a MEL system that will help a wide range of users. Key activities to deliver this Output include:

- Activity 1.1.9.1 Support key stakeholder agencies to analyse lessons on land use monitoring systems from past and current projects and programs, published literature and other sources.
- Activity 1.1.9.2 Support key stakeholder agencies to use the lessons learned and information from provincial biodiversity/forest assessments to identify the key requirements for a land use monitoring system.
- Activity 1.1.9.3 Develop detailed design specifications (including information on gender and youth), build and test the land use monitoring system with key stakeholders.
- Activity 1.1.9.4 Develop guidelines and training modules for use of the land use monitoring system and provide the land use monitoring system, guidelines and training to targeted stakeholders (linking to Outcomes 2.2 and 3.1).
- ? Activity 1.1.9.5 Communicate lessons from the land use monitoring system development and roll-out process to support evidence-based policymaking and action and promote replication.

Target: Operational land use monitoring systems, including gender and age disaggregated data, of target areas being used effectively at provincial level.

Indicators: Land use monitoring systems being used effectively at provincial level.

Project partners: CEPA, PNGFA, CCDA, Provincial governments.

Relevant projects/programs: PNG NFI, PSIP, DSIP.

Co-financing agencies: CEPA.

Output 1.1.10: Integrated decision support system used by stakeholders to identify sites of high importance for global biodiversity for at least four potential Community Conservation Areas (CCA) and other protected areas, areas where deforestation and ecosystem degradation should be avoided, areas for restoration, and areas for economic development.

161. The DSS developed in Output 1.1.5 will provide the tools for stakeholders to identify areas of high conservation value, areas where deforestation and ecosystem degradation should be avoided, and areas for economic development. This project will use this information to support customary landowners and other stakeholders to prepare land use plans (Output 1.1.11) and to improve the management of protected areas, farms and forests (Component 2). Key activities to deliver this Output include:

- Activity 1.1.10.1 Support key stakeholders, including women and youth customary land owners and CEPA, to use DSS to identify sites of high importance for global biodiversity for at least four new Community Conservation Areas (CCA) and other protected areas, areas where deforestation and ecosystem degradation should be avoided, areas for restoration, and areas for economic development.

- Activity 1.1.10.2 Monitor and evaluate the use of DSS and prepare a report on lessons learned.

- ? Activity 1.1.10.3 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: At least four CCAs and other areas using the DSS.

Indicators: Number of CCAs using DSS.

Project partners: CEPA, PNGFA, CCDA, Provincial governments, CCAs, customary land owners.

Relevant projects/programs: PNG NFI, PSIP, DSIP, Strengthening integrated sustainable landscape management in Enga, PNG Biodiversity Programme, Market for Village Farmers Project - Maket Bilong Vilis Fama (MVF), Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea, Establishing System for Sustainable Integrated Land-use Planning Across New Britain Island, Papua New Guinea Sustainable Landscapes activity.

Co-financing agencies: CEPA.

Output 1.1.11: Integrated land use plans and updated forest plans for two target provinces, that support both biodiversity and climate change objectives, prepared through highly participatory stakeholder processes involving both women and men.

162. Output 1.1.11 will use the data, tools and capacity developed in Outputs 1.1.1 to 1.1.6 to support participatory approaches with customary landowners and key partners to develop integrated land use plans and update forest plans, building on existing achievements and using the latest technology available in PNG. These plans will help guide efforts to conserve biodiversity and support sustainable value chains based on forest and farm products. Key activities to deliver this Output include:

- Activity 1.1.11.1 Support key agencies to collect and review lessons learned on integrated land use plans and forest plans from past and current projects and programs, published literature and other sources.

- Activity 1.1.11.2 Support key agencies to identify capacity and capability needs for developing integrated land use plans and updating forest plans and develop these capacities and capabilities.

- Activity 1.1.11.3 Support key agencies to develop integrated land use plans and update forest plans, using information and tools from the other Outputs in Component 1.

- Activity 1.1.11.4 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: Two provincial integrated land use plans developed, and Two forest plans updated.

Indicators: Number of integrated land use plans developed, and Number of forest plans updated.

Project partners: CEPA, PNGFA, Provincial governments, customary land owners.

Relevant projects/programs: same as 1.1.10.

Co-financing agencies: CEPA.

Component 2: Scaling up landscape-level action for integrated conservation and sustainable supply chain development.

163. 1. While Component 1 focuses on improving land use planning and identifying priority areas for the project to focus interventions, Component 2 focuses on using the outputs from Component 1 to mainstream biodiversity conservation across the landscape within agriculture, forest and grassland management in the broader landscape but focused on areas of high conservation value (HCV), including areas that are critical for the recovery and survival of threatened species.

164. Interventions aimed at conserving biodiversity are unlikely to succeed unless the sustainable livelihoods and well-being of people are addressed (see Assumptions, 2, 3 and 4). An integrated landscape approach offers potential to strengthen biological corridors and protected areas whilst supporting sustainable forest and agricultural systems (for example, by using canopy crops such as coffee), building climate resilience and improving the livelihoods of communities.

165. The Project recognizes that improved farm and forest value chains will not necessarily result in conservation of biodiversity as such improvements may result in expansion of agricultural lands into natural systems, more intensive use of natural systems, displacement of species that are traditionally used by commercial species and introduction/expansion of invasive species, for example. However, there is sufficient experience in PNG to demonstrate that customary landowners are quite capable of engaging in biodiversity friendly, climate resilient value chains (see, Table 8 and Table 9). The Project will draw on lessons learnt from relevant projects and programs to focus on value chains that result in conservation outcomes.

166. The Project will develop a series of linked strategies and plans that identify measures to mitigate, monitor and manage risks and impacts related to value chains, these are described in Section B: Environmental and Social risks from the project, and include an Environmental and Social Management Plan (ESMP), a Stakeholder Engagement Plan (SEP), a Livelihoods Action Plan (LAP), Community Engagement Plans (CEP), and a Gender Action Plan (GAP).

167. To improve the likelihood that the benefits and positive impacts achieved through biodiversity friendly value chains will be sustained post-project, the Project emphasises delivery of activities through partnerships with government extension agents, NGOs, local CSOs and the private sector. This includes developing guidelines and training materials and supporting partners to develop capacity so that they continue to provide support to farming families beyond the life of the project. The data bases and DSS that the Project will support (Component 1) will be designed to be easy to update, maintain and use so that relevant information and analytical tools are available to extension staff and farming families. The Project will support improvements to provincial policies and regulations on agricultural, fisheries and forestry commodity trading to support biodiversity friendly and climate resilient land use (Component 3) which should assist with sustainability and upscaling.

168. An integrated landscape approach will support sustainable forest and agricultural systems, build climate resilience and improve livelihoods and well-being. For example, in recent years, several agricultural projects have successfully sought to improve the small holder productivity of coffee and cocoa by empowering clusters of 500-1,000 farmers. These clusters are provided subsidized inputs (e.g., tools, insecticides, coffee pulpers), training and opportunities for marketing through a lead partner. Component 2 will draw on the experience of these projects and also consider whether the WHP and EHP can benefit from the major feeder road programs that aim to connect businesses to urban coffee markets.

169. Project partners are well aware of the low levels of literacy and numeracy amongst customary landowners and many of their programs are designed to support rural communities and farming families to access finance, obtain market, weather and climate data, develop capacity and develop robust but simple plans. Project partners are also acutely aware of the nature of the barriers that inhibit uptake of biodiversity friendly, climate resilient value chains and associated management practices.

170. Component 2 comprises two linked outcomes. The first outcome focuses on developing biodiversity friendly and climate resilient agricultural and forest product value chains within the priority areas (buffer zones) identified through Output 1.1.5. The second outcome focuses on improving management effectiveness of HCV sites (as identified in Output 1.1.4).

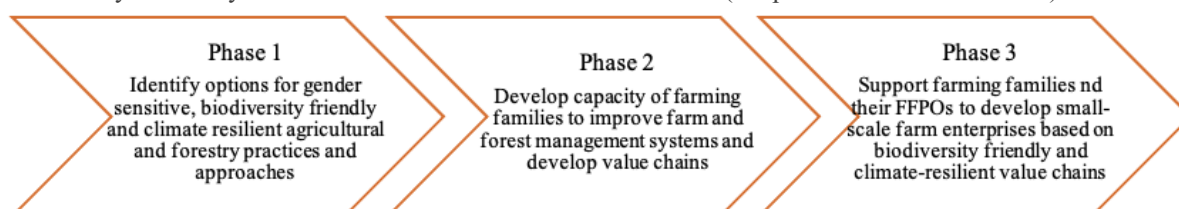
171. Estimated GEF budget: US\$ 2,399,100.

Outcome 2.1: Key value chains for sustainably harvested products strengthened/established and financial and market support mechanisms for forest and farm producer organizations made available

168. This Component comprises five outputs that will be phased in over the life of the project. Phase one will be undertaken in the first and second years of the project and involve identifying options for gender sensitive, biodiversity friendly and climate resilient agricultural and forestry practices and approaches (Output 2.1.1) within the priority areas identified in Output 1.1.5.

169. In years two and three of the project, phase two will use the analyses from Output 2.1.1 to focus on identifying and building the capacity of farming families (FFs) and their forest and farm producer organisations (FFPOs) within the identified buffer zones (5-10 km) with a view to improving farm and forest management systems and developing improvement plans for the most promising value chains (Output 2.1.3).

170. In the third and final years of the project, phase three focuses on supporting FFs and their FFPOs to develop bankable business plans and build small-scale farm enterprises based on biodiversity friendly and climate-resilient value chains (Outputs 2.1.4 and 2.1.5).



171. **Outcome indicators:** Farming families and forest and farm producer organisations are demonstrably benefiting from improved gender sensitive, biodiversity friendly and climate resilient

value chains in WHP and EHP. The number of small-scale farmers with improved business arrangements.

172. As the scale of the Project is not sufficient to achieve transformational change across the entire area of the two provinces, the project will focus on supporting farming families in and near protected areas (including buffer zones) and other sites identified in Output 1.1.5 as priorities for biodiversity conservation. The emphasis will be on supporting farming families who have self identified as willing and able to improve their farming and forest management systems and to develop gender sensitive, biodiversity friendly and climate-resilient production options into small-scale farm enterprises. The Project will examine whether it can further support clusters of coffee farmers that have been trained by existing projects and build on existing knowledge for commodities such as honey.

173. The longer-term impact of the project will depend on the Government and the private sector improving the enabling conditions for biodiversity-friendly, climate resilient value chains, including developing transport infrastructure, and providing accessible communications and affordable finance. While the project cannot readily directly affect the enabling conditions, it will:

? Support the national and provincial levels to improve regulatory frameworks a) for the conservation and sustainable use of multi-functional landscapes and b) that enable value chains of selected forest and farm products (Outcome 3).

? Collaborate closely with other projects and programs, including the private sector, that have a common interest in achieving transformational change, including by sharing data and lessons learned and collectively promoting improvements to enabling conditions and infrastructure. Such collaboration will help enable the scaling up of coffee clusters as coffee exporters, drawing on the knowledge that existing stakeholders have of coffee quality standards and export market requirements.

? Enable knowledge exchange networks (Farmer Field Schools, Forest and Farm Producer organizations, training of trainers) within the targeted provinces and link these to other national and regional networks (Output 4.1.2).

? Implement an effective project communications and knowledge management strategy.

174. Under this Outcome, farming families from each of the priority conservation sites (see Output 1.1.5) who are interested in improving farm and forest management and engaging in biodiversity friendly, climate resilient value chains will be asked to self identify. The approach will empower and incentivize farming families to be the principal agents of change in their own communities within the sites identified in Outputs 1.1.4 and 1.1.5. The project will emphasize the need for proportionate representation of relevant agricultural and horticultural crops, livestock and forest products and the need, as far cultural values allow, for gender balance.

175. Relevant government agencies, NGOs and the private sector will be supported to train FFs in best practices in location-specific clusters^[62] and to adopt sustainable conservation agriculture and agroforestry. A cluster level approach to training has several advantages including:

- 1) Training, and associated provision of tools and materials, can be tailored to suit local conditions and sustainability parameters, needs and interests.
- 2) Training can be designed to suit the needs and availability of women and youth farmers to encourage their participation.
- 3) Successful practices within the cluster can be used as demonstrations for building the capacity of large numbers of farming families in the local area, without the need for complicated transport and logistics arrangements. Once surrounding communities see that farming families have

benefited from intensification, value chain development, and improved financial services, then the adoption of these strategies and approaches will become the norm for the community. Experience in PNG has shown that the farming family approach provides opportunities for recognizing men and women in a household as joint leaders in improving farming practices and **linking** to sustainable markets and providing appropriate, and differentiated, training and materials to men and women.

176. It is assumed that by enabling increased productivity (intensification), increased marketed produce (value chain development), and increased incomes (livelihoods and wellbeing), supported by improved financial services (delivered on a fair and equitable basis across genders), the project will generate benefits for both people and biodiversity.

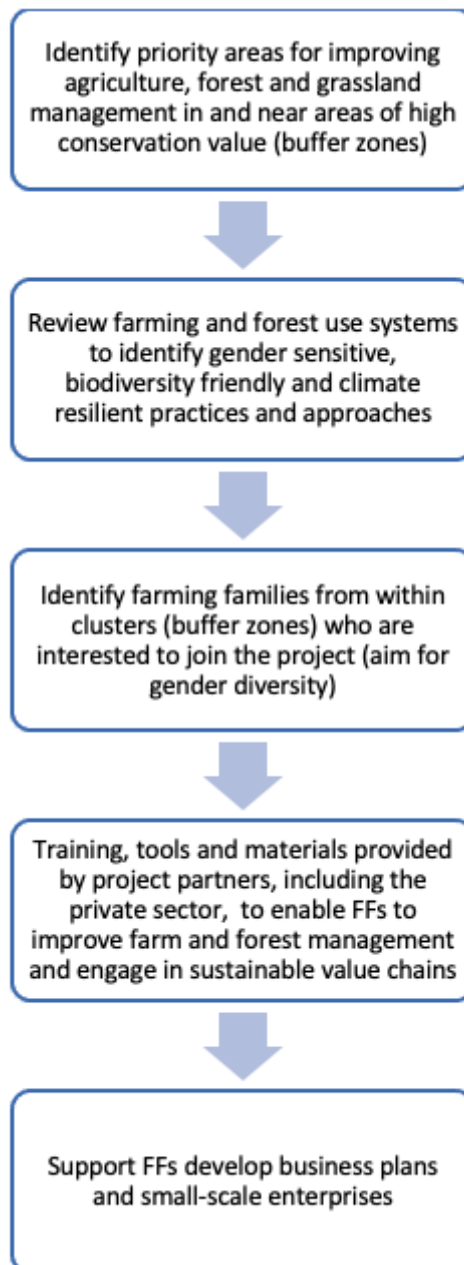


Figure 10 Farming Families Process

Output 2.1.1: Options for gender sensitive, biodiversity friendly and climate resilient practices and approaches have been identified by a review of the farming and forest use systems (gender and age disaggregated) of the target provinces.

177. This Output geographically focuses on the priority areas identified in Output 1.1.5 (protected areas and sites identified as priorities for biodiversity conservation and their buffer zones) and builds on existing and potential value chains and associated gender sensitive, biodiversity friendly and climate resilient practices and approaches. Using FPIC, the Project will support key partners to identify current and potential demand, sustainable off-take parameters, values and marketability of key farm and forest products and assess key existing and prospective practices and approaches in terms of their impacts on biodiversity, gender equality and resilience to climate change. The assessment will seek to identify new or emerging sources of food, fiber and extracts. The most suitable options will be ranked using FAO guidelines, including for gender equality, sustainability, and potential for scaling up and securing market share. Constraints to gender sensitive, biodiversity friendly and climate resilient practices and approaches will be documented and shared with partner projects and agencies and other stakeholders. The primary focus will be on supporting project partners to identify the needs and interests of customary landowners in farming and forest use systems and marketing biodiversity friendly, climate resilient, economically viable goods and services. The emphasis of this output includes identifying farming families within the targeted buffer zones that are willing and able to link to biodiversity friendly, climate resilient value chains, matching these interests with the commodities that are most likely to have ongoing viability and linking farming families with project partners that are most suited to providing relevant, enduring support.

? Activity 2.1.1.1 Develop the capacity and capability of, and equip, partner organization staff to deliver extension services to FFs and support Outcome 2.1.

- ? Activity 2.1.1.2 Review lessons learned on farming and forest use systems (gender and age disaggregated) and gender sensitive, biodiversity friendly and climate resilient practices from past and current projects and programs, published literature and other sources.
- ? Activity 2.1.1.3 Through highly participatory processes, assess gender sensitive, biodiversity friendly and climate resilient practices in priority sites.
- ? Activity 2.1.1.4 Enable extension services staff of partners to identify farming families that are interested in gender sensitive, biodiversity friendly and climate resilient practices, with an emphasis on women farmers where practicable.
- ? Activity 2.1.1.6 Communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Targets: Gender sensitive, biodiversity friendly and climate resilient practices and approaches identified in 10 clusters (groups of farming families within a buffer zone) in and near areas identified as priorities for biodiversity conservation (in Output 1.1.4 and 1.1.5).

Indicators: Number and type of options for gender sensitive, biodiversity friendly and climate resilient practices and approaches identified.

Project partners: NARI, NRI, FPDA, DAL, SIB, Coffee Industry Corporation (CIC), and potentially ACIAR, TADEP, and SPISARD.

Collaborating projects/programs: STREIT, Maket Bilong Vilis Fama, FairTrade, SIMLESA, PACD.

Co-financing agencies: DAL, (possibly ACIAR, EU, Australian Department of Foreign Affairs and Trade, New Zealand Ministry of Foreign Affairs and Trade).

Output 2.1.2: At least 1,000 farming families (FFs) are implementing improved farming and forest management systems, including forest restoration and agroforestry, based on biodiversity friendly and climate resilient practices.

178. This output uses the information from Output 2.1.1 to develop the capacity of at least 1,000 FFs to be apply gender sensitive, biodiversity friendly and climate resilient farming and forestry practices (whether for semi-subsistence or commercial purposes) around targeted protected areas and areas of HCV (as identified in Output 1.1.4). This output assumes that successful landscape level interventions require the establishment of a change agency:

?The success of any agricultural transformation relies on how well millions of smallholders and small- and medium-size enterprises can be helped to change farming practices as quickly and effectively as possible. The critical enabler, without which an agricultural transformation is likely to fail, is a frontline ?change agent? that helps farmers modify their practices. Change agents are people who farmers trust and interact with regularly. The high-level objectives of a transformation are realized in practice only when they are effectively translated to smaller, on-farm shifts? Change agents provide the critical interface with farmers. To catalyze this, a change agent might be the person providing extension knowledge, offering financing for farming inputs such as fertilizer, aggregating crops, or facilitating marketing services.?[63]

179. To achieve this output, the extension services of government, NGOs and the private sector will be harnessed as change agents for the project. The change agents will be tasked with the responsibility for enabling farming families in each cluster (a cluster refers to the group of farming families within a buffer zone) to make improvements to farming and forest management systems in support of the project's target of 190,000 ha of landscapes under improved practices. **The Project will focus on change agents (partners) that have the most potential for sustaining support to farming families beyond the life of the project and also scaling up efforts to reach beyond the project target sites. The Output (and many of the other outputs) include a activity to communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.** Key activities to deliver this Output include:

? Activity 2.1.2.1 Enable extension staff of partners to support farming families in each cluster to identify:

- o Their aspirations for developing/improving farming and forest management systems, including forest restoration and agroforestry.
- o Their current capacity (production, processing, storage, handling, marketing, branding, certification, business, financial, and management skills) and financing (credit, insurance, investment, markets and price premiums) and their needs for biodiversity friendly and climate resilient farming and forest management practices (e.g., improvements to livestock husbandry, seed stock, planting material, crop cycles, nutritional requirements).

? Activity 2.1.2.2 Train, equip and support FFs in each cluster to improve farming and forest management systems, focused on needs identified in Activity 2.1.2.1.

? Activity 2.1.2.3 Identify and promote supportive enabling conditions for, and remove constraints to, biodiversity friendly and climate resilient farming and forest management practices.[64]

? Activity 2.1.2.4 Monitor and evaluate and communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

Target: At least 1,000 farming families adopt biodiversity friendly and climate resilient management practices.

Indicator: Number of men and women farmers that adopt biodiversity friendly and climate resilient management practices. The area of targeted landscapes under improved practices (GEF core indicator 4)..

Project partners: Possibly CARE & TADEP Family Farms MiBank, PMBL, WMBL, NARI NRI, UPNG faculty of Ag Vudal, ANU, SPISARD, PACD.

Collaborating projects/programs: TADEP Family Farm and CARE and University of Canberra Family Farm Teams, PNGWiADF, MVF, PNG Women in Coffee Association (Ms Cathy Pianga, Mr and Mrs Jon Yogiyo), STREIT, PACD.

Co-financing agencies: DAL, STREIT.

Output 2.1.3: Assessments of specific gender sensitive, biodiversity friendly and climate resilient value chains in each FF cluster conducted, and improvement plans prepared.

180. This Output focuses on assisting FF clusters (a cluster refers to the group of farming families within a buffer zone) to develop targeted improvement plans for gender sensitive, biodiversity friendly and climate resilient value chains in each of the FF clusters identified in Output 2.1.2. It takes the information generated in Output 2.1.1 and focuses on a) assessing specific value chains within each FF cluster and b) supporting clusters of FFs and their FFPOs to develop improvement plans for the most promising value chains. This includes identifying opportunities for marketing products and services from farms, forests and protected areas, and identifying needs for improving the enabling environment. Potential value chains to be explored include:

- 1) Commodities: bulk coffee and specialty/high value niche coffee. Supporting the Coffee Industry Corporation, grower co-operatives, private industry extension services, and microfinance for new and improved technology such as de-mucilage machines. The PNG Women in Coffee Association based in Mount Hagen has expressed keen interest in collaborating with the Project in both EHP and WHP.
- 2) Produce: bulk sweet potato, vegetables (peanuts, corn, banana, cassava, potato), and niche markets for honey, tea, fruit (apples, citrus, grapes, passionfruit), and NTFPs such as *Karuka* (*Pandanus julianettii*), and *Marita* (*Pandanus conoideus*).
- 3) Agroforestry: for timber and protein, e.g., *Moringa* (*Moringa oleifera*), aromatics/oils, florals for honey bee food, bamboo for food and structural use, and artisanal products (mats, baskets, wall panels, roofing, fencing and firewood). Some traditional forest products have cultural, medicinal and/or structural attributes that may have potential to be marketed.
- 4) Livestock: beef, mutton, goats, pigs, chickens and aquaculture. These commodities readily value add and can complement vegetable production by providing a market for stockfeed and supplements and reduce wastage of vegetables.

As mentioned above, and in Section B: Environmental and Social risks from the project, the Project will develop and apply a range of safeguards to ensure a focus on biodiversity friendly and climate resilient value chains and to mitigate any adverse outcomes.

181. Key activities to deliver this Output include:

- ? Activity 2.1.3.1 For each FF cluster (Output 2.2.2), assess the potential for improving specific value chains or groups of value chains, including by using the knowledge gained in Output 2.1.1

and from lessons learned in past and current projects and programs, published literature and other sources.

? Activity 2.1.3.2 Through a facilitated participatory process, identify the most promising value chains or groups of value chains for each FF cluster.

? Activity 2.1.3.3 In each FF cluster, support FFs and their FFPOs to develop value chain improvement plans that include:

- o Needs for improving enabling conditions for specific value chains (e.g., cold chain improvements for perishables, centralized buying and processing facilities, communications (mobile and data provision), use of decision support systems; accessing finance (microfinance, underwriting of loans based on incentives to grow crops sustainably), accessing weather and climate data (linking local weather stations to provide real time information to improve forecasting).
- o Capacity (leadership, governance, technical, business, financial, and management skills) and financing (credit, insurance, investment, markets and price premiums) needs for improving production values.

? Activity 2.1.3.4 Support the development of Provincial and Produce Marketing Offices for the EHP and WHP, stabilization funds (e.g., Growers Associations), and levies for research and development that enable the improvement plans and the associated small-scale enterprises (Output 2.1.4).

? Activity 2.1.3.5 Support FFs and their FFPOs to lobby for improved enabling environments (e.g., road maintenance and communications).

? Activity 2.1.3.6 Communicate lessons on farm and forest improvement plans to support evidence-based policy making and action and promote replication.

Target: At least 10 cluster-level improvement plans prepared.

Indicators: Number of value chain assessments completed. Number of value chain improvement plans prepared

Project partners: possibly CARE & TADEP Family Farms MiBank, PMBL, WMBL, NARI NRI, UPNG faculty of Ag Vudal, ANU, PNGWiADF, CIC, SPISARD, PACD.

Collaborating projects/programs: TADEP Family Farm and CARE and University of Canberra Family Farm Teams, PNGWiADF, ACIAR, MVF, CIC Roadmap 2030, PACD.

Co-financing agencies: DAL, STREIT.

Output 2.1.4: FFs and their FFPOs in each FF cluster have developed bankable business plans and used these plans to develop viable, gender sensitive, biodiversity friendly, climate resilient small-scale farm enterprises.^[65]

182. This Output builds on the improvement plans developed in Output 2.1.3 and on lessons learned and capacity built in Output 2.1.1 and to 2.1.4. The project will support relevant government agencies, NGOs and private sector entities to partner with targeted commercial entities that are operating in EHP and WHP. Private sector entities in particular have substantial extension services, training and mentoring programs for farmers, have established value chains, experience with verification and certification schemes and have the financial capability to encourage and enforce sustainable practices.

183. Through the combined effort of government agencies, NGOs and relevant commercial entities, FFs and their FFPOs will be supported to develop bankable business plans that will assist them to secure finances, market access and business support services and develop viable, gender sensitive, biodiversity friendly, climate resilient small-scale farm enterprises. This output assumes

that at least 50 per cent of FFs supported in Output 2.1.2 will be interested in developing small-scale farm enterprises. Key activities to deliver this Output include:

? Activity 2.1.4.1 Identify government agencies, NGOs and commercial entities that are willing to support FFs and their FFPOs to develop biodiversity friendly and climate-resilient production options into small-scale farm enterprises.

? Activity 2.1.4.2 Review lessons learned on small-scale farm enterprises and business plans and related technologies for biodiversity friendly and climate-resilient products from Output 2.1.1 and 2.1.2 and past and current projects and programs, published literature and other sources.

? Activity 2.1.4.3 Support government agencies, NGOs and commercial entities to assist up to 500 FFs and their FFPOs to develop bankable business plans for biodiversity friendly and climate-resilient products and their related technologies.

? Activity 2.1.4.4 Support government agencies, NGOs and commercial entities to assist up to 500 FFs and their FFPOs to develop/improve their small-scale farm enterprises.

? Activity 2.1.4.5 Communicate lessons on business plans for forest and farm product value chains to support evidence-based policymaking and action and promote replication.

Target: Up to 500 bankable business plans prepared and their small-scale farm enterprises operating successfully.

Indicators: Number and type of bankable business plans developed by FFs and their FFPOs (gender and age disaggregated). Number and type of viable, gender sensitive, biodiversity friendly, climate resilient small-scale farm enterprises successfully operating (gender and age disaggregated).

Project partners: possibly CARE & TADEP Family Farms MiBank, PMBL, WMBL, NARI NRI, UPNG faculty of Ag Vudal, ANU, PNGWiADF, CIC, SPISARD.

Relevant projects/programs: TADEP Family Farm and CARE and University of Canberra Family Farm Teams, PNGWiADF, ACIAR, MVF, CIC Roadmap 2030, PACD.

Co-financing agencies: STREIT, NARI, DAL.

Outcome 2.2: Improved biodiversity conservation in targeted protected areas (including CCAs)

184. Whilst Outcome 2.1 focuses on promoting biodiversity friendly farming and forest use systems, Outcome 2.2 focuses on addressing governance and capacity barriers to the effective management of protected areas. The Outcome draws on the data, decision support systems and planning generated under Outcome 1.1 (addressing information and knowledge barriers) to support stakeholders to a) develop protected area (including CCA) plans and b) develop capacity and capabilities to effectively manage these areas. It also draws on Output 3.1.3 which aims to strengthen national and provincial policy and regulations which guide the management of protected areas. It is assumed that the improved management of protected areas will help conserve threatened species and habitats while providing new and more sustainable livelihood opportunities for local people.

Outcome indicators: Trend of globally threatened indicator species and habitats in targeted protected areas are improved.

185. This Outcome has three Outputs. The first output prepares management plans for the gazetted protected areas in the targeted provinces. The second helps communities plan community conserved areas. The third seeks to improve the management effectiveness of the protected areas.

Output 2.2.1: Review of the five existing gazetted protected areas in the two target provinces conducted and Statements of Management Intent (SMI) developed, and management plans prepared.

186. This output draws on the data and methodologies generated in Component 1 and focuses efforts on developing SMI and management plans for the protected areas within WHP and EHP. Having clear and achievable SMIs and management plans is a prerequisite for identifying and addressing capacity and capability barriers to protected area staff and other stakeholders effectively managing protected areas. A critical element of this component is to ensure that the SMI and management plans are developed in a highly participatory manner and negotiated with all customary landowners who are likely to be affected by any change in management of the protected area. The output will ensure that local arrangements governing use of natural resources in protected areas are fair and sustainable, and continue to support traditional livelihoods, that communities, customary landowners and protected area staff are enabled to sustainably manage the protected areas, and that Conservation and Benefit Sharing Agreements with customary landowners are developed. It is anticipated that the outputs under Outcome 2.1. will help mitigate and compensate customary landowners for any agreed reduction in access to resources in protected areas. This output directly contributes to improving management effectiveness - Output 2.2.3. Key activities to deliver this Output include:

- ? Activity 2.2.1.1 Review lessons learned on management effectiveness of targeted protected areas in EHP and WHP from past and current projects and programs, published literature and other sources (see also Output 2.2.3).
- ? Activity 2.2.1.2 Using participatory approaches with CEPA, CCDA, PNGFA and relevant provincial, local or district level government staff and local communities from the targeted provinces undertake management effectiveness reviews of protected areas including a review existing protected area METT Summaries to develop the Statement of Management Intent and guide the preparation of the management plans for the targeted protected areas (see also Output 2.2.3).
- ? Activity 2.2.1.3 Assist CEPA, CCDA, PNGFA and relevant provincial, local or district level government staff and local communities from the targeted provinces to identify and promote supportive enabling conditions for improved management of targeted protected areas.
- ? Activity 2.2.1.4 Support stakeholders to identify capacity (leadership, governance, technical, business, financial budgeting, project planning and management skills), financing (credit, insurance, investment, markets and price premiums) and other needs for improving the management of targeted protected areas.
- ? Activity 2.2.1.5 Support targeted stakeholders to prepare Statements of Management Intent and management plans for the targeted protected areas through highly participatory negotiated processes, obtain approval and mobilize resources for implementation of the plans (capacity is used in Output 2.2.2), including ensuring arrangements for use of natural resources in protected areas are fair and sustainable, and continue to support traditional livelihoods, and Conservation and Benefit Sharing Agreements with customary landowners are developed.
- ? Activity 2.2.1.6 Communicate lessons on protected area management effectiveness and planning to support evidence-based policymaking and action and promote replication.

Target: Review of five existing gazetted protected areas conducted, Statement of Management Intents (SMI) developed and management plans prepared or revised (2 plans in EHP and 3 in WHP).

Indicators: Number of reviews completed, number of Statement of Management Intents and management plans prepared or revised.

Project partners: EHP; provincial, district and local level governments, local communities, USAID, Wildlife Conservation Society (WCS), Partners with Melanesians (PWM), Research Conservation Foundation (RCF), Advancing PNG Women Leaders Network Inc (APNG WLN), PNG Tourism Promotion Authority (PNG TPA), PNG Coffee Industry Corporation Limited, CARE International and Fresh Produce Development Agency (FPDA), National Agricultural Research Institute (NARI).

Relevant projects/programs: The International Fund for Agricultural Development (IFAD) has been supportive of the PNG's government's focus on making PNG self-sufficient in food supply and has funded the Fresh Produce Development Agency (FPDA) to lift the industry and has been supporting local communities in Eastern Highlands. The Ona Keto reforestation projects in Marafunga and Kofena support communities in protecting and managing forests in EHP. The PNG Herbal Society in the EHP focuses on the conservation of indigenous herbal plant species. The Research Conservation Foundation (RCF) is involved in conservation and awareness education work in the Crater Mountain Wildlife Management Area (CMWMA).

Co-financing agencies: CEPA, other potential financing agencies in EHP include the Wildlife Conservation Society (WCS), RCF, Partners with Melanesian (PWM), PNG Tourism Promotion and Advancing PNG Women Leaders Networking (PNGWLN). Potential financing agencies in WHP include the provincial government and local communities, Hope Worldwide, National Forest Inventory (NFI), Trans Niugini Tours (TNT), Women in Coffee Association and PNG Tourism Promotion Authority (PNG TPA).

Output 2.2.2: Targeted customary landowners (women, men and youth) supported to plan five Community Conserved Areas (CCAs) under relevant policies and laws, and to enhance land management and conservation practices..

187. This output draws on the data and methodologies generated in Component 1 and focuses efforts on supporting communities to develop plans for the effective management of the CCAs identified in Output 1.1.10. This output directly contributes to improving management effectiveness - Output 2.2.3. Regional protected areas, which include CCAs, can be approved and gazetted through provincial or local level government legislation or by using one of the PA Bill mechanisms (to be developed). They do not need to demonstrate that they are a critical component of the national protected area network, as their significance can be at a local and regional level.^[66] Key activities to deliver this Output include:

- ? Activity 2.2.2.1 Review lessons learned on identification, planning and management effectiveness of community conserved areas (CCAs) from past and current projects and programs, published literature and other sources.
- ? Activity 2.2.2.2 In each prioritized site, facilitate community consultation workshops for customary land owners to identify their aspirations for developing and managing CCAs and to identify a) the state and trend of and threats to environmental, cultural, social and economic values of the proposed CCAs, and b) risks to and opportunities for establishing and managing the CCAs.
- ? Activity 2.2.2.3 Support targeted customary land owners to identify capacity (leadership, governance, technical, business, financial, and management skills), financing (credit, insurance, investment, markets and price premiums) and other needs for establishing and managing CCAs and develop capacity and capabilities of targeted stakeholders.
- ? Activity 2.2.2.4 Use participatory approaches with customary land owners, other stakeholders and CEPA to seek gazettal of existing CCAs, to develop and obtain approval for new CCA management plans and secure resources for implementation of CCA management plans.
- ? Activity 2.2.2.5 Communicate lessons on CCAs to support evidence-based policy making and action and promote replication.

Target: Five CCA land use and management plans prepared, their management system approved, and the areas are under improved management.

Indicators: Number of community conserved area (CCA) land use plans prepared. **The extent that targeted protected areas are under improved management for conservation and sustainable use (GEF Core indicator 1).**

Project partners: Provincial, district and local level governments, NARI, PNG FA, DAL. Other potential partners include: Asian Development Bank (ADB), Japanese International Cooperation Agency (JICA), PNG TPA, local communities, Trans Niugini Tours, WCS, CARE International, Hope Worldwide PNG.

Relevant projects/programs: ADB project *Highlands Region Road Improvement Investment Program*-Project 1.

Co-financing: same as per 2.2.1.

Output 2.2.3: The management effectiveness of five existing protected areas, including existing CCAs improved.

188. There is a pressing need to further develop the enabling conditions for the effective management of CCAs. This includes supportive policy, appropriate incentives and financing mechanisms, adequate technical advice, suitable approaches to addressing social, cultural, environmental and economic challenges, and mechanisms for integrating traditional knowledge and Western science.

189. This Output focuses on priority areas and species for conservation that were identified in Outcome 1 and draws on the information collected in Outcome 1 and Outputs 2.2.1 and 2.2.2 to address governance, and capacity barriers to achieving the effective management of the prioritized protected areas. It identifies governance, capacity, financing and other needs for improving the management of targeted protected areas, including CCAs. It contributes information on governance needs to Output 3.1.1 which aims to strengthen national and provincial regulatory frameworks. It also aims to assist stakeholders to secure necessary resources for improving management effectiveness.

190. Similar to Output 2.2.2, this output will involve highly participatory, negotiated processes with customary landowners and will ensure that local arrangements governing use of natural resources in protected areas are fair and sustainable and that Conservation and Benefit Sharing Agreements with customary landowners are developed. Key activities to deliver this Output include:

- ? Activity 2.2.3.1 Using lessons learned in Output 2.2.1 and 2.2.2, support stakeholders to improve governance, develop capacity, and secure financing and other needs for improving the management of targeted protected areas.
- ? Activity 2.2.3.2 Use participatory approaches with relevant customary land owners, CEPA, CCA and PNGFA staff, relevant provincial, district and local staff, and targeted protected area managers to undertake or update management effectiveness reviews based on a new or revised METT **being developed by IUCN/CI** (see also Output 2.2.1).
- ? Activity 2.2.3.3 Assist CEPA, CCA and PNGFA staff, relevant provincial, district and local staff, targeted protected area managers, and customary land owners, to identify and promote supportive enabling conditions for improved management of PAs.
- ? Activity 2.2.3.4 Use PNG's National Protected Areas Forum and other avenues to communicate lessons on protected area management effectiveness to support evidence-based policymaking and action and promote replication.

Target: Five (275,000 ha) protected areas (including existing CCAs) under improved management for conservation.

Indicators: The extent to which targeted PAs are applying effective management tools (using the revised METT). The extent that targeted protected areas are under improved management for conservation and sustainable use (GEF Core indicator 1).

In addition, the following indicators have been listed for individual PAs in the METT (i.e., these are not project indicators):

- Baiyer river
- Population of invasive species reduced by 60 per cent
- Animal protein sales [from wildlife] reduced to 60 per cent
- Management Plans and Budget allocation through an MOA/MOU with WHP and Baiyer District Authority implemented as planned
- At least 40 per cent of communities are educated on climate change awareness and mitigation measures.
- Crater Mountain
- About 40 per cent of the beneficiaries linked to CMWA are benefiting from improved livelihoods
- Population of tree kangaroo species improved by 60 per cent
- Population of invasive species reduced by 60 per cent
- Number of people illegally hunting reduced to 10 per cent.
- Jimi valley
- Population of invasive species reduced by 60 per cent
- Animal protein sales [from wildlife] reduced to 60 per cent
- Management Plans and Budget allocation through an MOA/MOU with WHP and Baiyer District Authority implemented as planned
- At least 40 per cent of communities are educated on climate change awareness and mitigation measures.
- Mt Gahavisuka PP
- At least 60 per cent of communities are aware of climate change measures
- More than 60 per cent of the PA is managed and monitored for invasive species
- More than 60 per cent of the people are educated on visitor management
- More than 60 per cent of the youth and young people participate in cultural activities.
- Hogave CA
- Road impacts reduced by 30 per cent
- 50 per cent (1,000ha) of forests are protected from unsustainable agricultural practices and proper land use and management systems are in place
 - 50 per cent of people living within the PA are informed of human footprints on environment and PA resource use and management systems are in place.

Project partners: - provincial, district and local level governments, PNG FA, PNG TPA, FPDA, TNT, PNG Tourism Industry Association (PNG TIA).

Relevant projects/programs: Kokop Village Eco-Forestry & Conservation Project (KVEDO Inc) in Mt. Hagen. The Australia Incentive Fund Program supporting RCF in EH. The WASH project funded by Australia that aims to improve health standards and livelihoods of rural people. The Ventilated Improved Pit (VIP) latrines project that aims to reduce water borne diseases.

Co-financing: CEPA.

Component 3: Strengthening the enabling environment and governance structures for integrated landscape/land use planning, coordination and management

191. This component addresses land use governance and regulatory barriers in the target Provinces (Barrier B). The emphasis of this component is not on supporting the development of new policies, laws and regulations but on identifying and addressing gaps and overlaps in existing policy and law and encouraging more effective implementation of, and synergies between, these policies and laws, including between national, provincial and local levels.

192. **Estimated GEF budget:** US\$ 352,432

Outcome 3.1: Integrated decision support systems for land use management of the targeted landscapes are enabled by adequate policies and methodologies.

193. Developing a clear understanding of the state, trend and causes of land degradation and unsustainable land use practices is an essential step to mitigating direct and root causes of environmental degradation. Such an understanding helps stakeholders to build their confidence to plan and implement changes gradually and cost effectively. Decision support systems can also help with the identification of incentives that are most likely to encourage farming families to adopt more productive, biodiversity friendly, climate resilient and sustainable land use practices.

194. However, the benefits of integrated decision support systems can only be realized through effective and complementary policies, institutional arrangements and methodologies across sectors, including agriculture, forestry, infrastructure development, biodiversity conservation, and climate change. This Outcome seeks to improve policies, institutional arrangements and methodologies that enable the effective use of integrated decision support systems for land use planning and management.

195. **Outcome indicator:** The extent to which integrated decision support systems at national and provincial levels (WHP and EHP) are supported effectively by improved policies and methodologies.

196. This Component has two linked Outputs. The first output focuses on improving the regulatory frameworks for the conservation and sustainable use of multi-functional landscapes. The second seeks to improve national and provincial policy and regulations on agricultural, fisheries and forestry commodity trading.

Output 3.1.1: Strengthened provincial (2) regulatory frameworks for the conservation and sustainable use of multi-functional landscapes.

197. The project will collaborate with existing programs and projects to a) strengthen coordination and alignment between national and subnational levels and b) provide support to improve existing provincial regulatory frameworks for the conservation and sustainable use of multi-functional landscapes. The National REDD+ strategy emphasizes the importance of integrated sub-national planning through strengthening provincial, district and community level planning, which is core to this project. As both WHP and EHP share a border with Madang Province, effective collaboration between projects will enable ridge to reef biodiversity conservation in the north-central part of PNG. Key activities to deliver this Output include:

- Activity 3.1.1.1 Analyse lessons learned on national and provincial regulatory frameworks and land use systems for the conservation and sustainable use of multi-functional landscapes from past and current projects and programs, published literature and other sources.

- Activity 3.1.1.2 Support key agencies and other targeted stakeholders to assess the need, and potential, for improving relevant provincial regulatory frameworks for the conservation and sustainable use of multi-functional landscapes.

- ? Activity 3.1.1.3 Support participatory, consultative processes that promote improvements to targeted provincial regulatory frameworks for conservation and sustainable use of multi-functional landscapes.

Target: Two provincial regulatory frameworks, including the Protected Areas Policy Implementation Plan (PAPIP), support integrated decision support systems for the conservation and sustainable use of multi-functional landscapes.

Indicators: The extent to which provincial regulatory frameworks support the conservation and sustainable use of multi-functional landscapes,.

Project partners: PNGFA (including FRI), CEPA, Provincial governments, NARI, DAL.

Relevant projects/programs: PNG Biodiversity Programme Agency (USAID), Papua New Guinea Sustainable Landscapes (SL) (formerly Papua New Guinea and Solomon Islands Forest Governance Program), Community-based Forest and Coastal Conservation and Resource Management (CbFCCRM) in Papua New Guinea, Forest Carbon Partnership Facility (FCPF) REDD+ Readiness Project, PNG Biodiversity Programme, Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea, NZAID, AUSAID, ADB.

Co-financing agencies: CEPA, possibly the Center for Environmental Law and Community Rights (CELCOR) with the support of USAID, provincial governments.

Output 3.1.2: Provincial policy and regulations (4) on agricultural, fisheries and forestry commodity trading strengthened to support gender sensitive, biodiversity resilient practices and approaches.

198. While Output 3.1.1 is focused on strengthening regulatory frameworks for the conservation and sustainable use of multi-functional landscapes, Output 3.1.2 plays a complementary role by enabling key government agencies and other stakeholders to support improvements to laws, policies, and regulations governing value chains of selected forest and farm products. Currently, there are very limited provincial regulatory frameworks related to agriculture and forestry. Securing sustainable value chains of selected forest and farm products can provide strong incentives for farming families to adopt more productive, biodiversity friendly, climate resilient and sustainable land use practices. Value chains that are socially responsible, ecologically sustainable, and economically viable and that support gender equality and provide opportunities for youth employment and women's empowerment require effective laws, policies, and regulations. Accordingly, this Output seeks to improve understanding of the enabling environment required for Outputs 2.1.1, 2.1.2, 2.1.3, 2.1.4 and 2.1.5 which are focused on promoting biodiversity friendly and climate-resilient production options for small-scale farm enterprises. Key activities to deliver this Output include:

- Activity 3.1.2.1 Review and assessment of the effectiveness of relevant laws, policies, and regulations governing value chains of selected forest and farm products, including an analysis of impacts on women and youth.
- Activity 3.1.2.2 Support key stakeholder agencies to identify needed improvements to laws, policies, and regulations governing value chains of selected forest and farm products, using participatory processes.
- Activity 3.1.2.3 Support participatory, consultative processes that promote improvements to targeted regulatory frameworks for value chains of selected forest and farm products.
- ? Activity 3.1.2.4 Communicate lessons from the process to support wider policies and action that promote replication.

Target: Four provincial policies and regulations on agricultural, fisheries and forestry commodity trading strengthened.

Indicators: The extent to which provincial policies and regulations on agricultural, fisheries and forestry commodity trading support biodiversity friendly and climate resilient land use.

Project partners: CEPA, DAL, FPDA, Coffee Industry Corporation, Provincial governments and possibly CELCOR.

Relevant projects/programs: PNGFA (including FRI), CEPA, Provincial governments, NARI, DAL.

Co-financing agencies: CEPA, WHP and EHP provincial governments.

Component 4: Effective knowledge management, monitoring and evaluation

199. Component 4 promotes the scaling up and sustainability of project outcomes by ensuring that lessons are captured and shared and that systems developed with the support of the project, including a monitoring, evaluation and learning system, are relevant and useful to stakeholders.

Outcome 4.1: Stakeholders and the project benefit from the project's knowledge management and monitoring and evaluation systems.

200. **Outcome indicator:** Increase in knowledge of stakeholders on the value of biodiversity and sustainable land use practices at local, provincial, and national levels.

201. **Estimated budget:** US\$ 661,797

202. There are two Outputs under this Outcome. The first output is the establishment of a monitoring, evaluation and learning (MEL) system that will be useful beyond project end. The second output focuses on disseminating lessons and best practices from the project to a broad range of stakeholders, including through development of farmer field schools. The second output focuses on sharing knowledge and encouraging scaling up and sustainability of project outcomes.

Output 4.1.1: Monitoring and evaluation of project progress on a regular basis using harmonized, gender and age disaggregated, monitoring and learning approaches (at local and national level).

203. The Project will emphasize collection of disaggregated data by customary landowner group and geographical location. Because COVID-19 restrictions did not allow for the adequate collection of disaggregated data during project design phase, budget has been set aside to collect these data during the first year of the project, including through an Environmental and Social Management Plan (ESMP) audit and during data collection activities in Components 1 and 2. Key activities to deliver this Output include:

? Activity 4.1.1.1 Assess the strengths and weaknesses of existing baseline information and monitoring methodologies and develop a comprehensive monitoring, evaluation and learning (MEL) system that draws on relevant information collected, and tools and approaches developed, in Components 1 to 3 and lessons learned from other projects and programs.

? Activity 4.1.1.2 As necessary, complete the baseline spatial, socio-economic and environmental analyses of project area, using tools such as the OpenForis toolkit and building on existing monitoring systems established in CEPA and through REDD+.

? Activity 4.1.1.3 Conduct training in MEL and the need for gender and age disaggregated data for targeted partners.

? Activity 4.1.1.4 Support the continuous management and operation of the MEL system for the duration of the project and establish mechanisms to enable the sustainable operation of the system.

? Activity 4.1.1.5 Support key agencies to establish a mechanism to regularly communicate findings and trends with key stakeholders, including policymakers, senior bureaucrats, civil society groups, the private sector and development partners.

? Activity 4.1.1.6 Support the mid term and final evaluations and other audits of the project and the preparation of a final project report that summarizes project results, highlights impact on social, economic and environmental conditions and outlines lessons learned.

Targets: One functioning MEL system that is suited to national and local contexts. Mid term and final evaluations completed.

Indicators: Functioning MEL system that is suited to national and local contexts. Mid-term review completed. Final Evaluation completed.

Project partners: CEPA, PNGFA, CCDA, Provincial governments, UNEP GEF project (if approved).

Relevant projects/programs: UNEP GEF project (if approved), STREIT.

Co-financing agencies: CEPA.

Output 4.1.2: Knowledge sharing strategy developed and lessons and best practices disseminated in appropriate formats at local and national level

204. The relatively small scale of the Project compared to the challenges faced by communities and biodiversity in West Highland Province and East Highland Province means that to stimulate transformational change at a landscape scale the project must include actions that enable scaling up and sustainability of project outcomes. This Output focuses on developing and implementing the knowledge strategy. One key element will focus on farmer families, enabling them to engage in two-way knowledge sharing with other farmers and key stakeholders, as a means to promoting biodiversity friendly and climate-resilient production options for small-scale farm enterprises. Key activities to deliver this Output include:

- ? Activity 4.1.2.1 Review lessons learned from past and current projects and programs, published literature and Outcome 2 of this project on knowledge management and exchange networks including lessons from Farmer Field Schools and Forest and Farm Producer organizations.
- ? Activity 4.1.2.2 Develop and communicate a project communications and knowledge management strategy.
- ? Activity 4.1.2.3 Develop and maintain a project website, implement regular media outreach, including bi-annual press releases, and support bi-annual exchange events between project beneficiaries and other key projects and programs in PNG.
- ? Activity 4.1.2.4 Using participatory approaches with CEPA, CCDA, PNGFA and relevant provincial, local and district level government staff and local communities from the targeted provinces, identify existing knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations and assess their potential, and as necessary support the establishment of new networks.
- ? Activity 4.1.2.5 Develop capacity and capabilities of targeted knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations.
- ? Activity 4.1.2.6 Support knowledge exchange network activities within the targeted provinces and link these to other networks nationally and regionally, including through bilingual articles published on the website and through information disseminated via social media, publications, and provincial, national and regional conferences and workshops.
- ? Activity 4.1.2.7 Communicate lessons on knowledge exchange network to support evidence-based policymaking and action and promote replication.

Target: Eight major project outputs disseminated. Five Two-way knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations operating.

Indicators: Number and type of project outputs disseminated. Number and type of knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations operating

Project partners: CEPA, PNGFA, CCDA, DAL and provincial governments.

Relevant projects/programs: STREIT, UNEP GEF project.

Co-financing agencies: CEPA.

6) Alignment with GEF focal area and/or Impact Program strategies

205. The proposed project focuses on the GEF's Biodiversity focal area - BD-1-1 *Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors*, and BD-2-7 *Improving Financial Sustainability, Effective Management, and Ecosystem Coverage of the Global Protected Area Estate*.

206. For BD 1-1 the project includes activities that support:

? Developing policy and regulatory frameworks at national and provincial levels that require the use of mitigation frameworks and provide incentives for biodiversity and climate-positive land use.

? Spatial and land-use planning aimed at improving how the target provinces address land/wetland/sea and resource use on a landscape scale. It seeks to improve spatial data on biodiversity and economic development and introduce land use planning frameworks that seek to maximize economic production whilst protecting biodiversity.

? Improved production and infrastructure development practices to be more biodiversity and climate positive. The project focuses on economic sectors that have substantial and/or cumulative impact on biodiversity (agriculture (e.g. coffee), forestry, fisheries, extractive industries and infrastructure). It will develop and promote mitigation frameworks that use spatial data to identify areas where development impacts should be avoided and areas where development will have minimal, no or positive impact. It will include the development of methodologies, promotion of stakeholder participatory mechanisms and technical capacity building in commodity chain verification and certification, payment for environmental services and biodiversity offsets.

207. The project will support the government's plans for the Highlands, focusing on priorities for the protection of globally important biodiversity, climate change Adaptation and livelihoods. The development of comprehensive spatial data sets will enable integrated land use planning through the identification of key ecosystem hotspots, key species and critical carbon stocks to be protected and suitable areas for biodiversity friendly and climate resilient agriculture and forest management.

208. The mainstreaming of biodiversity conservation within forest and farm management will enable sustainable flows of ecosystem services, protect wildlife species and help achieve climate change objectives, whilst also improving livelihoods and food security.

209. Innovative approaches and practices (including through extension services, farmer fields schools, forest-farm facilities), including drawing substantially on the expertise and capacity within the private sector, will support small scale farmers in sustainable intensification of NTFPs, coffee and cocoa to increase production and improve livelihoods. Targeted efforts will focus on strengthening local supply chain enterprises to become more profitable from the development of a commodity industry that is traceable, sustainable and deforestation free.

210. For BD 2-7, The project acknowledges that most PNG forests and wetlands are managed by customary landowners which places them into the category that GEF describes as indigenous peoples and local communities (IPLCs). The projects supports GEF's aims to strengthen three elements of a sustainable protected area system: 1) effective protection of ecologically viable and climate-resilient representative samples of the country's ecosystems and adequate coverage of threatened species at a sufficient scale to ensure their long term persistence; 2) sufficient and predictable financial resources available, including external funding, to support protected area management costs; and 3) sustained individual, collective and institutional capacity to manage protected areas such that they achieve their objectives.

211. The project also supports GEF aims to promote the participation and capacity building of indigenous peoples and local communities, especially women, in the design, implementation, and management of protected area projects through established frameworks such as Indigenous and Community Conserved Areas. The project will support:

- Effective protection of the country's ecosystems and threatened biodiversity, notably through regional protected areas (community conserved areas) and policy development, and

•Development of sustained individual and institutional capacity to manage protected areas such that they achieve their conservation objectives, both through the project's work on improving spatial data (component 1), improving management effectiveness and capacity building (Component 2).

7) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTE, LDCF, SCCF, and co-financing

212. The project will assist national and provincial governments to mainstream biodiversity across sectors in target landscapes and support the implementation of the new Protected Areas Policy by enabling inclusive conservation through regional protected areas, notably community conserved areas. Without the project it is highly unlikely that there will be enough government budget and other resources allocated to the issues identified in the baseline for the two target provinces.

213. Through improving spatial data, supporting integrated land use planning, enabling value chains and promoting changes to policies and laws, the project is expected to have transformative impact on the conservation of biodiversity and carbon stocks as well sustainable socio-economic development in the targeted landscapes. The project will enable improved livelihoods, mitigate uses of natural resources that lead to deforestation and degradation and potentially create jobs.

214. By taking an integrated approach to planning and linking this to priorities for conservation and development as well as to improvements to value chains based on biodiversity friendly and climate resilient production, the project will assist customary landowners and other stakeholders to address threats to ecosystems.

8) Global environmental benefits (GEFTE) and/or Adaptation benefits (LDCF/SCCF)

215. The Project is expected to contribute to multiple global environmental benefits as well as socioeconomic benefits. The Project aims to mainstream biodiversity in priority sectors and landscapes so as to protect habitats and species through improved management of protected areas, areas of high conservation value and associated buffer zones, while enabling customary landowners to develop sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces.

216. By supporting customary landowners to apply innovative and integrated approaches in the target landscapes and by enhancing enabling policy and planning frameworks, the Project has significant potential to generate global environmental benefits, notably the conservation and sustainable use of globally significant biodiversity by mainstreaming biodiversity conservation to harness ecosystem services and safeguard threatened species and by improving protected area management effectiveness.

217. Benefits to globally significant biodiversity found within EHP and WHP include the preservation of intact and slightly modified forests resulting in greater habitat connectivity, reduced pressure on PAs and associated buffer zones and improved conservation of IUCN Red-Listed species (see Table 10).

Table 10 Globally significant biodiversity within EHP and WHP that will be supported by the project

Mammals	Goodfellow's Tree Kangaroo (<i>Dendrolagus goodfellowi</i>) EN, Doria's Tree Kangaroo (<i>Dendrolagus dorianus</i>) VU, Eastern Long Beaked Echidna (<i>Zaglossus bartoni</i>) VU, New Guinea Pademelon (<i>Thylogale browni</i>) VU
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Plants	<p>Trees: <i>Nothofagus nuda</i> CR, <i>Nothofagus crenata</i> VU, <i>Podocarpus archboldii</i> VU, <i>Podocarpus polystachyus</i> VU, <i>Cinnamomum kami</i> VU, <i>Cinnamomum vacciniifolium</i> EN, <i>Cinnamomum piniodorum</i> VU, <i>Cinnamomum frodinii</i> EN, <i>Eurya fragilis</i> CR, <i>Lithocarpus vinkii</i> VU, <i>Eucalyptus deglupta</i> VU, <i>Gmelina smithii</i> VU, <i>Actinodaphne tomentosa</i> VU, <i>Cryptocarya flavisperma</i> CR, <i>Cryptocarya forbesii</i> EN, <i>Cryptocarya nothofagetorum</i> EN, <i>Cryptocarya splendens</i> EN, <i>Cryptocarya xylophylla</i> EN, <i>Discocalyx brassii</i> EN, <i>Ficus sclerosycia</i> CR, <i>Ilex stenura</i> VU, <i>Neonauclea acuminata</i> VU, <i>Neolitsea teschneriana</i> EN, <i>Litsea crenata</i> EN, <i>Litsea globosa</i> VU, <i>Litsea alveolata</i> VU, <i>Litsea versteeghii</i> EN, <i>Litsea habbemensis</i> VU, <i>Litsea fulvosericea</i> EN, <i>Cryptocarya ledermannii</i> VU</p> <p>Shrubs: <i>Schefflera simbuensis</i> VU.</p> <p>Herbs: <i>Paphiopedilum papuanum</i> EN.</p> <p>Orchids: <i>Dendrobium kauldorumii</i> EN, <i>Bulbophyllum alveatum</i> VU, <i>Bulbophyllum decarhopalon</i> VU, <i>Bulbophyllum ptychantyx</i> VU, <i>Bulbophyllum sceliphron</i> CR, <i>Bulbophyllum thelantyx</i> VU, <i>Bulbophyllum tinekeae</i> EN, <i>Dendrobium crispilinguum</i> VU, <i>Dendrobium geotropum</i> VU, <i>Dendrobium pachythrix</i> EN, <i>Mediocalcar stevenscoodei</i> EN, <i>Dendrobium magistratus</i> VU.</p> <p>Tree Ferns: <i>Alsophila eriophora</i> VU.</p>
Birds	New Guinea Harpy Eagle (<i>Harpyopsis novaeguineae</i>) VU, Blue Bird of Paradise (<i>Paradisornis rudolphi</i>) VU, Pesquet's parrot (<i>Psitttrichas fulgidus</i>) VU
Amphibians	Frogs: <i>Choerophryne siegfriedi</i> CR, <i>Cophixalus nubicola</i> VU, <i>Glossogobius macrocephalus</i> VU.
Insects	Dragonflies: <i>Lanthanusa cochlear</i> VU, <i>Palaeosynthemis nigrostigma</i> VU.
Fungi	<i>Cetrellopsis papuae</i> EN, <i>Sticta alpinotropica</i> EN.
Fish	<i>Glossogobius macrocephalus</i> VU

218. These global environmental benefits will be realized through a focus on areas of high value conservation both within and in buffer zones adjacent to protected areas. The project will improve the collection, analyses, storage and sharing of spatial data, the use of decision support systems and the availability of mapping and other tools (Outcome 1). It will improve customary landowner's access to key value chains for sustainably harvested products (Outcome 2.1) and improve biodiversity conservation in targeted protected areas, including CCAs (Outcome 2.2) and their buffer zones. It will also seek to enable integrated decision support systems for land use management (Outcome 3).

219. The proposed project addresses the conservation of globally significant biodiversity by:

? Supporting the Government at the national level to improve the quality of spatial data, to develop and apply integrated decision support systems and implement the Government's new protected area policy, thereby contributing to PNG's NBSAP and commitments to CBD Aichi targets.

? Improving information and its flow from local to national level and vice versa to help the Government at provincial and national levels to better monitor forest resources and enable communities to use information to manage landscapes in ways that conserve biodiversity, build climate resilience and improve livelihoods.

? Supporting provincial, district and local level authorities to improve spatial data and decision support systems to better mainstream biodiversity considerations into participatory land use planning.

? Supporting provincial, district and local level authorities and customary landowners to enhance biodiversity conservation through the expansion and improved management of protected areas, including community conserved areas, and through conservation actions across the landscape in buffer zones outside protected areas.

? Enabling customary land owners and their FFPOs to improve the management of high conservation value forests including by improving connectivity between remnant forest patches and within buffer zones.

? Enabling customary landowners to improve forest and farm value chains for commodities that are biodiversity friendly and climate resilient.

220. The project will incentivize customary landowners to conserve and sustainably manage forest and farm areas in buffer zones around protected areas, to address the drivers of environmental degradation and reduce threats to globally significant biodiversity. Overall, the project will increase the area of landscapes (190,000 ha) under improved management to benefit biodiversity and people and seek to reduce the area of habitat loss in areas that contain globally significant biodiversity.

221. The project will assist customary landowners in the buffer zones to:

? Improve food security through the sustainable and resilient production of agricultural and forestry products.

? Increase livelihoods through participation in income generating activities based on increased and sustainable flows of ecosystem services.

222. GEF investment will facilitate improvements to the enabling environment and improved sharing of knowledge and data. By enhancing the management of biodiversity, forests and land at landscape level, the project will generate important co-benefits in the form of ecosystem services, including provisioning services, hydrological functioning and reduced greenhouse gas emissions.

As a result of improved management of forests and farms and improved resilience of communities and ecosystems, there will be reduced vulnerability to climate change-related risks.

Table 11 Summary of Global Environmental benefits of the project

Global Environmental Benefits	<p>? Conservation and sustainable use of globally significant biodiversity</p> <p>? Co-benefit: Reduced GHG emissions and enhanced carbon stocks</p>
Relevant GEF-7 Core Indicators	<p>Core Indicator 1</p> <p>? 5 community conserved areas newly created</p> <p>? 274,988 ha of terrestrial protected areas under improved management effectiveness</p> <p>Core Indicator 3 Area of land restored</p> <p>? 800 ha</p> <p>Core Indicator 4: Area of landscapes under improved practices</p> <p>? Area of landscapes under improved management to benefit biodiversity = 190,000 ha</p> <p>Core Indicator 6: Greenhouse gas emissions mitigated</p> <p>? Carbon sequestered or emissions avoided in the Agriculture, Forestry and Other Land Use sector 1,031,551 metric tons of CO₂e.</p>
Alignment with GEF-7 Focal Areas	<p>BD Objective 1.1 Mainstream biodiversity across sectors as well as landscapes and seascapes</p> <p>? Spatial and land-use planning will help ensure that land and resource use is appropriately situated to maximize production while conserving biodiversity. Conservation objectives will be better met through targeted investments in spatial and land use planning and 190,000 ha. of forest and farmland will be under improved management for biodiversity conservation.</p> <p>? Improved agriculture and forestry production practices will yield biodiversity-positive outcomes.</p> <p>? A range of threatened species will benefit from improved conservation values within the area.</p> <p>BD Objective 2.7. Address direct drivers to protect habitats and species and Improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate</p> <p>•Management effectiveness of protected areas, including community conserved areas will be improved.</p>
Innovation, sustainability and potential for scaling up	<p>? Improved collaboration between CEPA and other agencies and organisations at national level.</p> <p>? Improved collaboration between national agencies and provincial government, districts and customary landowners</p> <p>? Engagement of farmers in sustainable agriculture through capacity building and links to markets.</p>
Gender	<p>? Encourage the participation of women in the design and implementation of project activities.</p> <p>? Create an enabling environment for women's representation in decision making bodies, committees, consultations, workshops, and training.</p> <p>? Women and men are provided equal access to natural resources and opportunity to generate socio-economic benefits from improved forest and land-use management.</p> <p>? Ensure gender-responsive design, collection, monitoring and reporting of biodiversity and socioeconomic data (see Gender Action Plan for more details),</p>

223. Although the project is not focused on climate change mitigation, it is expected that the project will reduce GHG emissions by an estimated 1.3 million tCO₂e during the 10 years after completion of the project through the conservation of biodiversity, reduced deforestation and forest

degradation and restoration of degraded forest lands. Additionally, the project is expected to generate Adaptation benefits by incorporating measures to increase the resilience of biodiversity, ecosystems and livelihoods to climate change.

9) Innovativeness, sustainability, potential for scaling up and capacity development

224. *Innovations.* The project will introduce innovations at multiple levels via (1) improvements to spatial data quality, completeness and accessibility through technology including land use monitoring systems, and digital services for market information; (2) enhancing governance, regulatory frameworks, policies for and implementation of integrated land use planning and multi-stakeholder coordination mechanisms; and (3) building competencies for accessing value chains for biodiversity friendly and climate resilient commodities.

225. While spatial data and to some extent DSS are already used at national level, their accessibility and usefulness at sub national is very limited. Component 1 of the project provides several innovative approaches to generating, sharing and using spatial data and DSS at sub national level. These innovations have a twofold focus, the first focus is to provide provincial and sub provincial levels with the data and tools needed to identify areas of high conservation value and opportunities for mitigating harm and capturing opportunities for conserving biodiversity and improving livelihoods. This approach will enable planners to identify where very limited government resources can be best applied to support the needs and interests of customary landowners while also considering national policy objectives. The second innovative focus is to provide the tools and approaches that enable customary landowners to ensure their needs and interests are prioritized in any land use planning exercise and they are able to identify and capture opportunities priorities to improve forest and farm management and benefit from biodiversity friendly value chains.

226. The focus of policy and regulatory change within the project is innovative in the sense that it is not focused on seeking to influence national policy, but instead focuses on translating national policy into relevant provincial policy and regulation and building the enabling conditions in EHP and WHP for biodiversity conservation and livelihoods that are based on biodiversity friendly and climate resilient value chains.

227. *Sustainability and potential for scaling up.* 1. The Outcomes of the Project are expected to be sustainable as the project builds on existing institutions, and PNG's Protected Area Policy that recognises customary landowners are essential stakeholders in the effective management of protected areas and surrounding landscapes. Moreover, the project focuses on existing social norms and practices of customary landowners and seeks to link these with emerging markets for biodiversity friendly, climate resilient goods and services.

228. The project will work closely and in full partnership with provincial and sub provincial government staff, NGOs, relevant projects and programs, the private sector and, most critically, customary landowners. The aim is to strengthen the capacity of farming families to engage in sustainable markets based on biodiversity friendly, climate resilient land use. The Project builds on experience in PNG that has demonstrated that the farming family approach provides opportunities for recognizing men and women in a household as joint leaders in improving farming practices and linking to sustainable markets (Component 2). To promote sustainability of the farming family concept, the Project will work with key partners such as the PNG Women in Coffee Association that have extensive experience in improving conditions for farmers and linking them to sustainable markets

229. Analysis of agricultural value chains will provide the foundation for focused planning and future funding to mainstream biodiversity values into the sustainable intensification of agriculture (Output 2.1.1). The embedding of principles based on biodiversity friendly and climate resilient land use into value chains will help the system self perpetuate and continue to adapt and improve (Output 2.1.2).

230. The participatory and inclusive approaches to integrated landscape planning and management in the targeted landscapes (Component 1) are expected to generate success stories and innovative practices that provide incentives for local people to conserve biodiversity and lessons that can be replicated and scaled up beyond the project boundary. The project will draw on successful experience elsewhere in PNG, including integrated planning efforts undertaken and DSS developed in New Britain, and adapt these for the highlands. The project includes activities in most outputs to communicate best practices and lessons from the process to support evidence-based policymaking and action and promote replication.

231. The spatial data, DSS, web-based applications and mapping systems (Component 1) are all designed to integrate with and enhance national and provincial efforts with these issues and also be readily adaptable by other provinces. The improvements planned for the national data base and web site will be beneficial to all provinces in PNG as well as nationally.

232. The Project will seek to engage the Department of Transport (DoT) in landscape level planning and capacity building exercises in an effort to encourage them to undertake road rehabilitation that supports improved travel times, reduced vehicle maintenance costs, increased frequency of cheaper transport for market goods, less wastage of consigned fresh produce and improved delivery of health education with better business opportunities. Improving the planning and resourcing of sound transport infrastructure will help sustain the intensification of agriculture and attract agricultural entrepreneurs and increase employment and returns from both informal and formal sectors.

233. While much of the required legislation is in place at national level, the Project seeks to improve sustainability at provincial and sub provincial levels by improving the enabling policy, legal and regulatory framework (Component 3), enhancing capacity for integrated land use planning (Component 1), and scaling up landscape-level action for integrated conservation and sustainable supply chain development (Component 2).

234. Finally, the project will work in close collaboration with other projects and programs and it has activities in most outputs to communicate lessons to support evidence-based policy making and action and promote replication. In particular, the Project will work with NGOs, the private sector and government extension agencies to develop self sustaining approaches to training for men, women and youth farmers to apply sustainable land use practices.

235. The project is not of sufficient scale to achieve a landscape wide transformational change to farm and forest management by itself, but it can help create momentum for change and scaling up of productivity and delivery. Once a good foundation of improved value chains to Lae or Madang have been achieved, then it will be feasible to expand into the Port Moresby market. Once consistent delivery of the right type and quality of sustainably produced agricultural products, including vegetables demanded by urban populations, is achieved, then scaling up of volumes produced in EHP and WHP can be achieved. This will require innovation by and cooperation between farming families, government extension agencies and the private sector.

236. Whilst the Project is unlikely to have adverse environmental and social risks and impacts, the extent to which biodiversity conservation is achieved and long-term sustainability of project results depends on the decision-making processes of customary landowners and the potential for farming families to engage in land use practices and markets that are biodiversity friendly, climate resilient and economically viable. To encourage positive, long-term outcomes, the project will apply FPIC procedures so that customary landowners are able to make well-informed decisions.

237. The Project includes a significant focus on developing local capacities in the target provinces. This, and a knowledge management strategy to be developed by the project, will help secure long-term sustainability of project outcomes. In addition to training of targeted stakeholders, the Project includes the development of a series of guidelines and training modules that can be used beyond the life of the project and by other provinces. The Project will focus on developing the capacity of intermediaries (government extension agencies, NGOS, CSOs and the private sector) who will provide the greatest opportunity to continue to develop the capacity of stakeholders beyond the life of the project.

238. The Project emphasizes building local ownership for project outcomes including by a) strengthening provincial and sub provincial institutions that are able to apply national policy and frameworks to local contexts, undertake highly participatory integrated landscape approaches and utilize and contribute to the DSS, b) emphasizing customary landowner farming families as the core of the project, c) delivering project activities through a range of partnerships, including with NGOs and the private sector, that help build local ownership and improve relevance, d) facilitating co-financing to ensure partners have a financial interest in the success of the project.

10) Summary of changes in alignment with the project design with the original PIF

233. Project design considered concerns from the GEF that achieving the described outputs in only four years might not be feasible and the request that activities, outcomes and outputs be reassessed in project design and possibly adjusted/reduced to be feasible in the given timeframe and budget.

234. Key changes to the project design since the PIF include the following (see also Annex B):

? The objective of the project was further focused - *To conserve threatened species and habitats, improve the management of protected areas, areas of high conservation value and associated buffer zones, and enable sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces*

? The project has been redesigned to enable a phased approach whereby the project initially focuses on completing baseline analyses and stakeholder consultations, collecting spatial data, developing decision support systems, identifying key stakeholders and their needs as well as areas of high conservation value and analyzing farming systems and value chains. This information and the DSS will be used in the other outcomes.

? Outputs have been adjusted to reduce overlap and provide a clearer description of how the outputs are connected. For example, Output 3.1.2 was merged with Output 3.1.3 and moved to Component 1.

? The intent of the spatial data and decision support tools and associated planning systems has been clarified and the role of customary landowners identified more clearly. The aim is not to

replicate top-down planning systems that have been shown to be not successful in the context of customary landowner situations.

? The focus on improving policy (Component 3) was significantly reduced from national and provincial to provincial only to recognize where the key needs and opportunities lie and to remain more firmly within the resources available to the project and the currently existing baseline. A key emphasis has, however, been placed on strengthening regulatory frameworks for the conservation and sustainable use of multi-functional landscapes, and supporting improvements to laws, policies, and regulations governing value chains of selected forest and farm products at provincial level.

? Budgets have been substantially reworked to reflect realistic costs of Component 1, reduced focus of Component 3 to provincial level and transfer of some outputs from Component 3 to Component 1. These changes from the PIF are as follows:

- o Component 1 increased by US\$ 577,306
- o Component 2 slight decrease of US\$ 18,765
- o Component 3 major decrease of US\$ 856,500
- o Component 4 slight decrease of US\$ 13,041
- o Addition of M&E as separate budget line of US\$ 311,000
- o PMU as per PIF.

? A section on COVID was added to guide the project to manage this risk. However, it should be noted that the COVID-19 situation in PNG during the project design was very dynamic and the assumption that the situation regarding restrictions will ease by project start remains to be tested.

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- [51] FPDA 2018 Fresh Produce Development Authority Accessed on 25.05.2021 <https://www.agriculture.gov.pg/fresh-foods/>
- [52] Further provisions for zoning are articulated under Section 28 of the Draft Protected Areas Bill

[53] Section 14 of the Draft Protected Areas Bill provides for Categories of Protected Areas; Section 15 on Special Management Areas; Section 17 on Provincial Governments and Protected Areas; and Section 18 on Local Level Governments and Protected Areas.

[54] Environment Act 2000

[55] OLLPG 1998

[56] Protected Area Policy, 2014

[57] CEPA, 2020; pp. 56-57 ? GEF 4 Lessons Learnt Report

[58] OCHA, 2017. Papua New Guinea: El Niño Early Action Plan.
<https://reliefweb.int/report/papua-new-guinea/papua-new-guinea-el-ni-o-early-action-plan-2017>

[59] Kuleshov K., Inape K., Watkins A., Bear-Crozier A., Chua Z., Xie P., Kubota T., Tashima T., Stefanski R. and Kurino T. 2019. Climate Risk and Early Warning Systems (CREWS) for Papua New Guinea. DOI: 10.5772/intechopen.85962.
<https://www.intechopen.com/books/drought-detection-and-solutions/climate-risk-and-early-warning-systems-crews-for-papua-new-guinea>

[60] <http://www.fao.org/in-action/png-multipurpose-national-forest-inventory/fr/>

[61] <http://png-nfms.org/portal/>

[62] The cluster level training approach has been described by the Bougainville Cocoa Families Support Project (BECOMES), 2020.

[63] Boettiger S Denis N. Sanghvi, S 2017 Successful agricultural transformations: Six core elements of planning and delivery. Agriculture and Chemicals Nov 2017
<https://www.mckinsey.com/industries/chemicals/our-insights/successful-agricultural-transformations-six-core-elements-of-planning-and-delivery#>

[64] This will require a dedicated extension services team, provision of production, processing, storage, handling, marketing (including niche markets), branding, and certification information.)

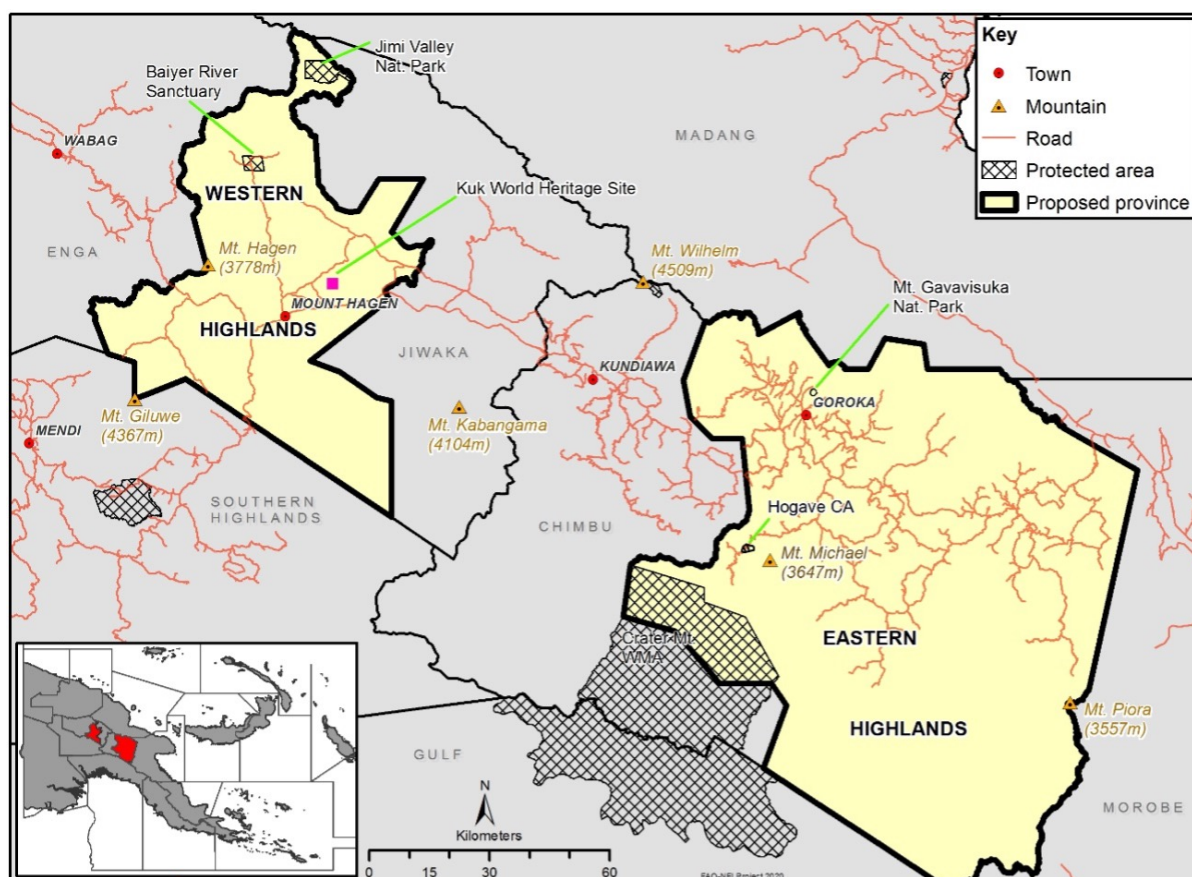
[65] The project will review and adapt relevant, existing and past efforts in PNG to develop value chains including but not limited to the work of USAID on conservation enterprise to help develop strong theories of change and value chains underlying the activities

[66] Leverington, F., Wolnicki, M., Sabi, J., Peterson, A., Mitchell, D., Suruman, B. and Kalim, K. (2019) Establishing new protected areas in Papua New Guinea, PNG Protected Area Management Guideline No.PA2 version 1, PNG Conservation and Environment Protection Authority, Port Moresby.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

1. A general description of EHP and WHP and the existing protected areas has been provided above. The project will focus on the existing PAs, planned community conserved areas, other areas of high conservation value and the associated buffer zones. The width of the buffer zones will be determined during project implementation through participatory consultative processes with customary landowners. It was impractical and inappropriate for the detailed locations of project sites to be developed during project design as this needs to be undertaken through a negotiated process with customary landowners that is beyond the scope and duration of a project design phase.
2. A map of the project is included in Annex D of the CEO ER. The Western Highlands is located at 5.6268° S, 144.2593° E and the Eastern Highlands is located at 6.5862° S, 145.6690° E.



1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

n/a

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

The Stakeholder Engagement Plan is attached below as separate Annex I.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

1. The stakeholders relevant for the project were identified by CEPA and FAO engaged experts. They are broadly categorized as National Level Stakeholders (NLS) and Provincial and Local

Level Stakeholders (PLLS). They comprise national, provincial and local Government of PNG agencies, the private sector, civil society organisations (CSO), academia, provincial and district administrations, and local communities.

2. The complex nature of land management and governance in the highlands necessitates the involvement of a diverse range of stakeholders. Extensive consultation with local stakeholders was not feasible during the project preparation phase due to COVID-19 restrictions. Consultations at the national level for the project preparation commenced with the National Inception Workshop where the stakeholders were introduced to the concept and contents of the project and were asked to provide their feedback and suggestions for the project. A visit to WHP then ensued including a Provincial Inception Workshop and visits to select PLLS. Stakeholder consultations will be organized for EHP during the first year of project implementation. The Project has been designed to be implemented in phases that will allow the project staff and partners to consult with customary landowners, civil society, local and provincial authorities, private sector, and producer groups to further pinpoint key sites and activities. A detailed stakeholder engagement plan has been prepared and this plan should be updated during the first year of project implementation.

Table 12 Roles of stakeholders in project implementation

Stakeholders	Administrative Levels	Expected roles/responsibilities
? Customary landowners	Local	Customary landowners are the primary focus of component 2 and the agreement of customary landowners is essential for all activities of the project that have the potential to impact their rights and livelihoods.
? Provincial, district and local level governments	Regional and local	Provincial governments in the target provinces are key stakeholders who will play key roles in spatial data collection and preparation of land use plans. Selected district and local government staff will be supported to engage in the provincial level planning and potentially to develop local level integrated land use plans. These stakeholders will also be involved in supporting improved forest and farm use and in identifying policy reforms.
? PNG Conservation & Environment Protection Authority (CEPA)	National	As GEF Operational Focal Point, CEPA ensures the alignment of GEF strategic areas and country priorities as well as performs overall coordination of GEF funded projects and coordination of activities related to biodiversity and protected areas management.
? Papua New Guinea Forest Authority (PNGFA)	National, Regional and District	Co-ordination with project implementation and overall coordination of activities associated with timber production legality, traceability and compliance to national legality standards; data collection on timber production; building capacity of regional and district staff on improving data accuracy, archiving and documentation for national reporting. Key role in forest inventory work undertaken by the project
? Department of Agriculture and Livestock (DAL)	National, Regional and District	Co-ordination with the project and overall coordination on activities related to sustainable agricultural production of key commodities and improvement of value chains

Research institutes /universities: National Agriculture Research Institute (NARI), University of PNG (UPNG), PNG Forest Research Institute (FRI), University of Technology, University of Goroka	National	NARI as a specialized national institution for agriculture research will provide extension research needed for enhancing sustainability of farming system and improving the value chains along with UPNG and FRI
NGOs: TNC, BRC	National, regional and district	NGOs will be engaged in the implementation of the project especially in activities related to capacity building of farmer beneficiaries. Lessons from TNC's work in New Britain will be adapted for the highlands.
Private Sector: PNG Forest Industries Association. Business Council of PNG Coffee Producers Association	National, Regional and District	Private companies will be engaged given their experience with improving the competitiveness of sustainably produced target products in key markets

3. Consultations were held with international and local civil society organizations including The Nature Conservancy (TNC) and Binatang Research Centre (BRC) during the project development phase. The private sector, PNG Forest Industries Association, Coffee Producers Association, and Coffee Industry Corporation, were consulted to identify the issues and opportunities for achieving biodiversity conservation while improving human livelihoods through sustainable development.

4. Existing projects that are relevant to the proposed project have indicated a willingness and interest in collaboration, including sharing of knowledge, providing opportunities for training and farmer to farmer exchange and cooperation on the development of communication and policy reform messages.

5. Working with customary landowners will require a considered and respectful approach that may take significant time and effort by government and project staff. Project activities directly focused on customary landowners or likely to affect these landowners can only be undertaken with their free, prior and informed consent (FPIC). The ESMF provides information on how FPIC will be implemented with customary landholders, noting the complexity of gaining FPIC in the context of the highlands, and as a consequence some outputs of the project have been designed to only be achieved towards the end of the project timeline.

6. In the project design phase, stakeholders had several opportunities to provide inputs, expectations, concerns into the project development. Consultations were held, as far as practical under COVID-19 restrictions, with key agencies at national, provincial and local levels, as well as with civil society organizations, NGOs, private sector entities, and academic and research organizations.

7. Staff of CEPA and FAO guided the overall project development process. Consultation processes included surveys, focus group sessions, workshops, face to face and electronic interviews. Stakeholders consulted during project design were supportive of the project planned outputs and provided suggestions on activities, partners and co-funding that were incorporated into the project. Key suggestions provided and issues identified by stakeholders are summarized in Annex I. These included:

? Provincial and District Development Plans from the two provinces, where available, must be consulted to align the project's intended output with the provincial needs.

? Access to information on biodiversity and other key areas has been identified by the stakeholders as lacking. Stakeholders have suggested the project to consider supporting setting up of centralized information center or system to host data and information from the project as well as for the provinces.

? There is poor coordination between intergovernmental organisations at the different administrative levels. province and district, national and provincial, district and district.

? Capacity of CEPA, the lead government agency, to support protected areas in the two provinces is minimal at present, and / or has been restricted by financial constraints.

? Almost all the target protected or proposed protected areas will have management issues due to inconsistent government support, no capacity development initiatives, politics and other issues.

8. Highly participatory stakeholder consultation during project implementation will be further built up in year one with Inception Workshops to be held at provincial level so that key stakeholders including representatives from communities, local administrative bodies, government authorities, church, women and youth groups, CSOs, network groups, academia, and private sector actors to further ground and build accountability and ownership of the project and create opportunities to participate in the development of action plans for the landscape. The workshops will identify trade off and the need for adjustments of plans that may be required to enable coordination with national agency workplans, thus avoiding duplication of work and budget. The Project will seek to engage relevant and interested church, women and youth groups, CSOs, and network groups as local level project partners, given their importance in local level development and conservation activities within the two Provinces.

9. Provincial Working Groups will be established as platforms for stakeholders to participate in and influence project implementation, share ideas, lessons learned and knowledge gained, and monitor actions. Stakeholders in Provincial Working Groups will elect representatives to attend PSC meeting at national level to share information on progress, identify constraints to implementation at landscape level and, together with Project Steering Committee (PSC) members, agree on further actions.

10. The Project Steering Committee at national level will include co-financing government agencies, non-government, private sector and representatives from Provincial Working Groups as permanent members. Specific line agencies, national CSOs, network groups, academia, private sector, and international organizations may be invited to attend PSC meeting from time to time as appropriate. The PSC will meet at least bi-annually to review progress and constraints encountered, gain inputs from invited organizations, and make decisions on issues related to project implementation.

11. Communication, sharing and learning events will be organized throughout the project duration including Bi-annual exchange visits, Annual Multi Stakeholders Consultation/Forum, Knowledge Management and Learning events, press conferences, and the use of social media platforms for exchanging views and suggestions by project participants and the public. The Project Management Unit (PMU) together with CEPA will organize field visit by high-level decision makers annually so they can gain knowledge from stakeholders at the landscape level.

Table 13 Roles of stakeholders in project implementation

Stakeholder	Responsibility	Role in the project
Government		

<p>PNG Conservation and Environment Protection Authority (CEPA)</p>	<p>CEPA is responsible for:</p> <ul style="list-style-type: none"> ? Environment management, biodiversity protection and policy development, ? Administration and implementation of international environmental conventions and treaties, ? Pollution control and the regulation of hazardous substances, ? Environmental Impact Assessments of major projects including infrastructure, forestry, agriculture, mining and petroleum proposals. ? Biodiversity assessment and data management ? Hydrological investigation, data collection and analysis, ? Coordination of donor funded programs, ? Education & Awareness. 	<p>As GEF Operational Focal Point, CEPA ensures the alignment of GEF strategic areas and country priorities as well as performs overall coordination of GEF funded projects and coordination of activities related to biodiversity and protected areas management</p> <ul style="list-style-type: none"> ? The lead government partner for the project providing overall oversight, ? Liaising closely with the GEF agency FAO, ? Provide advisory and supervision to the operational partner, ? Chair of the Project Steering committee (PSC), ? Overall monitoring of the project
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<p>PNG Forest Authority (PNGFA)</p>	<p>PNGFA is responsible for;</p> <ul style="list-style-type: none"> ? The management, development and protection of the Nation's forest resources and environment in such a way as to conserve and renew them as an asset for succeeding generations; ? The maximization of PNG participation in the wise use and development of the forest resources as a renewable asset; ? The utilization of Nation's forest resources to achieve economic growth, employment and creation and industrial and increased "down-stream" processing of forest resources; ? The encouragement of scientific study and research into forest resources so as to contribute towards sound ecological balance, consistent with the National development objectives; ? The increased acquisition and dissemination of skills, knowledge and information in forestry through education and 	<p>Co-ordination with project implementation and overall coordination of activities associated with timber production legality, traceability and compliance to national legality standards; data collection on timber production; building capacity of regional and district staff on improving data accuracy, archiving and documentation for national reporting. Key role in forest inventory work undertaken by the project</p> <ul style="list-style-type: none"> ? Member of the PSC ? Provide advisory to the OP ? Technical Partner ? Carry out activities of the project related to biodiversity and forest assessments and land use
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Department of Agriculture and Livestock (DAL)	<p>(DAL) is the lead government agency responsible for the management of the agriculture sector in Papua New Guinea. Its mandate is to provide policy advice and technical and administrative support for optimal performance of the sector. These include;</p> <ul style="list-style-type: none"> ? contributing strategic leadership and direction to the sector, ? coordinating and monitoring national agricultural development programs, ? providing advice that leads to an environment that facilitates investment and supports new initiatives, ? facilitating and supporting effective partnerships between stakeholders, and ? enhancing systems and delivery mechanisms for capacity building (extension, training, information) 	<p>Co-ordination with the project and overall coordination on activities related to sustainable agricultural production of key commodities and improvement of value chains</p> <ul style="list-style-type: none"> ? Member of the PSC ? Advisory to the OP ? Technical Partner ? Carry out activities of the related to land use, agriculture and market value chains ? Carry out capacity development activities on farming
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Climate Change and Development Authority (CCDA)	<p>CCDA is mandated under the Climate Change (Management) Act 2015 with the responsibility to contribute toward global efforts in mitigating greenhouse gas emissions, through low carbon development that fosters economic growth and social welfare for the people's wellbeing and prosperity. Pursuant to Part II Section 10 of the Climate Change (Management) Act 2015, CCDA's purpose is to:</p> <ul style="list-style-type: none"> ? Promote the management and sustainable development of climate change mitigation and adaptation actions, ? Implement any relevant obligations of the State under applicable rules of International Law and agreements related to climate change, ? Act as PNG's Designated National Authority (DNA) for the purposes of the Paris Agreement and any such other or subsequent arrangements or agreements made under the Paris Agreement, and related purposes. Under these 	<ul style="list-style-type: none"> ? Member of the PSC ? Advisory to the OP ? Technical Partner ? Carry out activities of the project
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Provincial Administrations of EHP and WHP	<ul style="list-style-type: none"> - The PAs are responsible for the administration of the province. 	<p>Provincial governments are key stakeholders who will play key roles in spatial data collection and preparation of land use plans. Selected district and local government staff will be supported to engage in the provincial level planning and potentially to develop local level integrated land use plans. These stakeholders will also be involved in supporting improved forest and farm use and in identifying policy reforms.</p> <ul style="list-style-type: none"> ? Member of PSC ? Chair of Provincial Working Group providing advisory to PMU and Technical Partners ? Support and participate in the activities conducted by the Technical Partners
District Development Agencies of the districts in EHP and WHP	<ul style="list-style-type: none"> - The DDAs are responsible for administrating the districts in the provinces as well are responsible for managing developments in the districts. 	<ul style="list-style-type: none"> ? Member of the Provincial Working group ? Support Technical partners and participate in activities of the project
Local communities, NGOs and CSOs		
The Nature Conservancy (TNC)	<ul style="list-style-type: none"> - TNC is a global environmental nonprofit organization that supports land and sea conservation initiatives. 	<p>NGOs will be engaged in the implementation of the project especially in activities related to capacity building of farmer beneficiaries. Lessons from TNC's work in New Britain will be adapted for the highlands.</p> <ul style="list-style-type: none"> ? Support conservation activities

Wildlife Conservation Society (WCS)	<ul style="list-style-type: none"> - WCS is an international non-government organization that supports conservation of wildlife. Its aim is to conserve the world's largest wild places in 14 priority regions in the world. WCS in PNG is headquartered in Goroka EHP and currently works in three major geographic locations in PNG; Manus Island, New Ireland and the Bismark Forest Corridor (BFC) which includes EHP, Chimbu, Jiwaka and Madang provinces. WCS partners with other organisations to address deforestation and supports conservation of biodiversity and tries to strengthen and diversify local livelihoods. 	<ul style="list-style-type: none"> ? Operational Partner for the project ? Manages the operations including finance, procurement, recruiting and implements the project. ? Member of the PMU, PSC, PWG, TP
Baiyer River Wildlife Sanctuary (Ugini clan)	<ul style="list-style-type: none"> - Initial customary landowner of the BRWS before being bought an gazette by the government. - Live in the vicinity, but outside and surrounding the boundary of BRWS. 	<ul style="list-style-type: none"> ? Primary beneficiary of project outputs
Crater Mountain Wildlife Management Area (Customary landowners in the EHP side of CMWMA)	<ul style="list-style-type: none"> - Customary landowners in the EHP side of CMWMA. 	<ul style="list-style-type: none"> ? Primary beneficiary of project outputs

Jimi Valley National Park (300 customary landowners live outside the park)	- Customary landowners of the park.	? Primary beneficiary of project outputs
Mt Gahavisuka Provincial Park (Ganakoiha and Anupazuha Clan from Nagamiza Village)	- Customary landowners of the park.	? Primary beneficiary of project outputs
Hogave Conservation Area (Laivolo, Mula and Kevoma clans)	- Customary landowners of the CA	? Primary beneficiary of project outputs
Velotige Proposed Conservation Area (Sonohinekave, Foyufa, Arikaufa, Huhile and Zowaukove clans from the Akameku area)	- Customary landowners of the CA	? Primary beneficiary of project outputs
Kuk Early Agricultural Site (Kawelka Kundubo and Kawelka Puntbo clans from the Kawelka Tribe.)	- Customary landowners of the KEAS.	? Primary beneficiary of project outputs
Academic and research institutions		

National Agriculture Research Institute (NARI)	<p>NARI is government funded research organization that conducts and fosters applied and adaptive research into:</p> <ul style="list-style-type: none"> ? any branch of biological, physical and natural sciences related to agriculture; ? cultural and socioeconomic aspects of the agricultural sector, especially of the smallholder agriculture; ? matters relating to rural development and of relevance to PNG. And ? responsible for providing technical, analytical, diagnostic and advisory services and up-to-date information to the agriculture sector in PNG. 	<p>NARI as a specialized national institution for agriculture research will provide extension research needed for enhancing sustainability of farming system and improving the value chains along with UPNG and FRI</p> <ul style="list-style-type: none"> ? Technical partner ? Provide extension research needed for enhancing sustainability of farming system and improving the value chains along with the other research organizations. ? Carry out capacity building for the project in training farmers.
PNG Forest Research Institute (FRI)	<p>- FRI is the research directorate of PNGFA and facilitates research on the PNG's forest resources. This includes research forest biodiversity, forest monitoring, timber products and planted forests.</p>	<ul style="list-style-type: none"> ? Technical Partner ? Provide expertise and support in the conduction, analysis and reporting of the biodiversity/forest assessments.

New Guinea Binatang Research Center (BRC)	- BRC is a world-renowned local non-government organization that focuses on tropical ecology research and training in PNG.	? Technical Partner ? Provide expertise and support in the conduction, analysis and reporting of the biodiversity/forest assessments.
University of Papua New Guinea (UPNG), PNG University of Technology (PNGUOT), University of Goroka (UOG),	- These are the leading academic institutions in PNG in key areas relevant to the project such as technology, education, biology and conservation	? The project will seek advice and support from these leading institutions in the use of technology, capacity building and training.
Australian Center for International Agriculture Research (ACIAR)	- ACIAR brokers, facilitates, invests in and manages strategic partnerships with public and private research institutions to improve the productivity and sustainability of agricultural systems and the resilience of food systems in partner countries. One of current initiatives by ACIAR in PNG is a reforestation and agroforestry project in EHP.	? Technical Partner on farmer training in agriculture initiatives such as reforestation and agroforestry.
Development agencies		
Development partners, including UN agencies, International Development Banks (IDBs) and donors.	- The development agencies are the key non-government agencies that have been supporting PNG through the various initiatives and projects in the various sectors.	? The project will utilize the lessons learnt from these agencies and coordinate with their existing projects and initiatives. ? Technical Partner.

Fresh Produce Development Agency	- FPDA is a national government agency responsible for facilitating the development of the horticulture and fresh produce industry in PNG. From production to marketing, FPDA's primary function is to be a source of information relating to commercial horticultural activities across the country.	? Technical Partner.
Private sector		
PNG Forest Industries Association	- PNGFIA is an association of industries and individuals who are involved in the forest products	Private companies will be engaged given their experience with improving the competitiveness of target products in key markets
Business Council of PNG	- BCPNG is the lead organization representing the private sector in PNG across all sectors, promoting the importance and role of economic growth, freedom and enterprise. They work with the government and other associated bodies to frame policy, take part in debate and support initiatives that generate economic growth for the well-being of PNG and its people.	? Support component 2

Coffee Association	Producers	Supports association members in PNG in the coffee industry. -	? Support Component 2 improvement to coffee production and marketing
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Hilans?Fres Limited	- Tininga	<p>- Hilans Fres is a key private sector in that enables vegetable and fruit growers in the Highlands to have improved access to major markets, It is the largest supplier of fresh produce throughout PNG. Their markets include large supermarket chains, catering supply companies, universities and mining sites. Ongoing commitment to farmer training through tailored extension & technical support in using approved seed varieties, correct use of agrochemicals and following good agricultural practices. Hilans Fres employs trained agronomists that go out and work with farmers to help them improve their crop yields and germination rates. They invest in specialist equipment to improve transportation of produce from farm to cool store. These transportation systems ensure produce quality is maintained right from the farm to plate. They invest in cool stores and cooling systems which allow for the rapid removal of heat from produce thus substantially improving the transportation</p>	<p>? Highlands Fres will be a key private sector the project will seek to engage to enable improved markets and value chains for the farmers. The project will seek to learn from their extensive knowledge on farmer training.</p>
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Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; Yes

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

1. A gender analysis and **Gender Action Plan** (GAP) are provided in Annex H3.
2. The project has been designed to support customary land owners to improve forest and farm management through gender sensitive, biodiversity friendly and climate smart actions that also support the development of sustainable value chains that provide livelihoods. The project activities include a gender sensitive focus, recognizing that gender roles are deeply entrenched in cultural systems.
3. PNG has very clearly defined gender divisions, which is set in the socio-cultural context of various communities. Ownership and control of assets and resources (including natural resources) and power over decisions is predominantly in the hands of men. Women's control over use of income and participation in making decisions in the use of income is generally low, especially among rural households.
4. Environmental degradation and climate change adversely affect women whose livelihoods largely depend on natural resources for food, wood, fuel, and water. Overall, women in rural areas are highly vulnerable because of their dependency on natural system, their limited capacity to earn income and engage in markets and their inability to influence both household and community decisions. Moreover, the Highlands Region has a very strong patrilineal system.
5. Gender inequality is a sensitive issue that has been at the forefront of PNG's social issues over the past 10 years. Despite numerous government action to promote gender equality, inequality issues persist. Gender inequality in rural areas is more pronounced than in urban areas and the lack of community welfare support and protection for women, youth and children puts a strain on efforts to promote gender equality.
6. As a member of the United Nations, PNG has signed numerous human rights treaties to address gender inequality but implementing these treaties have been slower than intended. PNG's Constitution recognizes freedom and liberty of all persons regardless of age, sex, race, ethnicity or religion and protects the rights of every human in the country. However, there are no specific

gender laws addressing gender inequality in the agriculture, livestock, climate change, biodiversity and conservation sectors. Nonetheless, the DAL, PNGFA and research institutions such as NARI have done tremendous work in reviewing and ensuring their policies are gender sensitive. CEPA, CCDA and other agencies are yet to show the same commitment to gender equality mainstreaming. The push for a whole of government approach to service delivery by key agencies such as the Department of Personnel Management, is encouraging bureaucrats to implement the National Public Service Gender Equality and Social Inclusion (GESI) Policy in their respective departments. A strategy to set up GESI Focal Points in all government offices is slowly gaining momentum and relevant implementing partners, including sub-national governments, are mandated to align with these general orders.

7. There have been various national government policies developed to focus on mainstreaming gender equality principles into the workplace and community, including the PNG Policy for Women and Gender Equality 2011-2015, the Gender Equality and Social Inclusion (GESI) in the workplace policy, and the National Strategy to Prevent and Respond to Gender Based Violence developed in 2016 which sets out decade long measures to address gender-based violence (GBV) in all facets of society. However, the implementation of these policies and strategies by government agencies has been slow due to weak legal and enforcement systems, limited professional service providers, poor coordination among relevant stakeholders, lack of priority for gender issues and, most importantly, the inability to reconcile cultural values with Christian and democratic values.

8. During the project design phase, plans were made to undertake stakeholder consultations for the gender analysis in WHP and EHP. However, COVID-19 pandemic restrictions on travel and meeting precluded stakeholder consultations in EHP. While gender gaps within WHP have been identified through a gender analysis and solutions to address gender inequalities have been integrated into the project Gender Action Plan (GAP), comprehensive gender analysis will need to be conducted during the first year of the project.

9. Women in the Highlands do almost 85 per cent of the farming, but income is usually controlled by the husbands or a male relative. As such, many women and youth miss out on benefits derived from farming and livestock. Women in rural areas face considerable gender-based discrimination especially in leadership and decision-making roles because of strong patrilineal traditions. Traditionally women are regarded as child bearers, domestic workers and are expected to accord all respect to their husbands both young and old. Pre-existing cultural norms such as polygamy and bride price payment reinforce gender inequality practices and restrict women's freedom of movement or association which affects her access to basic services or means of earning income. The Highlands region has some of the most violent and unsafe places in the country because of the high number of tribal fights, ethnic clashes, sorcery related killings and violence against women. It is difficult for women to have a say in important issues affecting them or their society.

10. Gender mainstreaming in the project will include:

? Wide consultation with women, women's groups and youth to capture their views and experiences, incorporate these into plans, decisions support systems, policies and laws and enable equal access to project activities from the preparation to implementation and evaluation.

? Ensuring women and men have equal participation and representation in all stages of the project and its activities and equal access to wealth creation and distribution of benefits generated by project interventions.

? Targeted training and technical assistance for women and targeted gender training for men.

? Applying equal opportunity recruitment within the PMU.

11. Through cooperation with the government partners, the project aligns with the FAO Policy on Gender Equality 2020-2030 and FAO Gender Mainstreaming Guidelines which are consistent with national gender equality laws, policies and strategies.

12. The project will seek to promote gender equality in access to and control of natural assets, technologies, services, decision-making processes, products and income from forest/farm landscapes in WHP and EHP with a view to enhancing food security, wellbeing and climate resilience of rural households. The project will also seek to improve the capacity of key stakeholders to better understand the roles of women and to be more effective at participatory design and implementation of gender-sensitive interventions that are appropriate to local knowledge and skills, resources, time availability, interest, and ingenuity.

13. Budget has been allocated to women's empowerment and to support to women-led Forest and Farm Producer Organizations (FFPOs), for example the Women in Coffee Association. The project will recruit a gender specialist to support the gender mainstreaming objectives of the project. The spatial data, web portal and decisions support systems under Component 1 will be developed in consultation with women stakeholders and include gender and age disaggregated information and knowledge. Component 2 seeks to identify and promote gender sensitive, biodiversity friendly and climate resilient practices and forest and farm management approaches and support women led farms as a means to developing biodiversity friendly and climate-resilient products, technologies and value chains. Component 3 aims to strengthen the enabling environment and governance structures for integrated landscape/land use planning, coordination and management that support gender sensitive practices and approaches. Component 4 includes using harmonized, gender and age disaggregated, monitoring and learning approaches and sharing of gender-based knowledge and gender specific data.

14. The GAP provides details of gender-responsive activities to address gender differences and gaps, gender-differentiated impacts and risks, and to develop opportunities to promote the empowerment of women that support project objectives and outcomes. Gender integrated activities strategically focus on prevention, promotion, minimizing gender disparities, empowering women to develop skills sets, access techniques and knowledge, and advocacy aimed at transforming negative cultural beliefs that exaggerate gender inequality practices.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

1. The private sector especially in the forestry and coffee industries will be involved in the project implementation. This includes supporting the value chains of local SMEs, FFPOs.
2. The project targets interventions at small scale enterprises with a view to building capacities of the private sector at the local level and linking these enterprises to local and national markets. The direct beneficiaries of this approach are small-scale farmers and value chain actors representing local private sector within the project boundary.
3. Component 2 is geared towards private sector engagement. It includes a focus on using a farmer family and clusters of farmer families to enhance local private sector capacity and fostering entrepreneurship through value chain development of forest and agricultural products to building biodiversity friendly and climate resilient market chains in vulnerable communities. The interventions aim to link smallholder producers, and particularly women, to markets, introduce sustainable supply chains, and create improved and sustainable revenues from forest and agricultural commodities.
4. The project will seek to learn from, and potentially seek the support of, private sector organizations such as Innovative Agricultural Investments (IAI), Tininga's Hilans Fres, New Guinea Highlands Coffee (NGHC) and Monpi Coffee Exports as well as commodity associations such as the Women in Coffee Association.
5. IAI has Joint Venture (JV) operations in Hela Province with the provincial government and with the urban based-supermarket chain Andersons in Tari. These operations use a centralized processing facility model with out-growers either contracted to supply fruit vegetables or chickens to the facility, or farmers supplying surplus produce at factory door prices. They have arrangements to utilize land for farming crops to ensure supply that is sufficient for operational continuity and economic viability. For the chicken feed component of the operation the facility facilitates the production of corn grown by families in the local communities to blend into chicken feed.
6. IAI also has a JV with the Southern Highlands Provincial Government for the agricultural industrial centre in Pangia. This facility sources potatoes from several surrounding provinces and makes potato chips. This operation aims to capture a market that is currently met through the importation of large quantities of processed frozen chips. IAI's agricultural industrial centres manage value chains from the farm through the cold chain, quality assurance, packaging, transport and marketing. IAI provides extension services, training and mentoring of the farmers they engage with and supports hundreds of jobs and farming families.
7. Tininga's Hilans Fres improved fruit and vegetable bulk and retail operations emerged from a Public Private Partnership (PPP) with the International Finance Corporation (IFC). IFC provided funding for Hilans Fres to build and operate a central processing facility and engage personnel to deliver tailored extension and technical support. Funding enabled Hilans Fres to put in place a complete value chain from paddock to plate.
8. NGHC and MONPI Coffee Exports are both based in Goroka (EHP) and have facilities in Mt Hagen (WHP). These organizations export coffee they buy from growers throughout the highlands. NGHC and MONPI are required to meet international quality assurance standards and biosecurity requirements to export coffee. They also add further value by having supply chains and mills that are internationally organically certified and they supply a fast-growing niche market for specialty coffees. MONPI and NGHCE are linked to international parent companies (NGHCE is a subsidiary

of Neumann Kaffee Group, MONPI is linked to ECOM). These arrangements enable access to global value chains.

9. Sustainable sourcing and certification programs require MONPI and NGHCE and similar organizations to have substantial extension and training programs for supplier-growers. NGHCE has recently produced a series of training videos for the coffee growing community as part of a five-part series covering coffee certification, good agricultural practices and processing techniques, gender issues and community development. MONPI employs a similar model.

10. NGHC and MONPI have quality assurance (QA) programs to promote sustainability in the agricultural practices of their suppliers. The QA programs are driven by consumer demand for evidence of responsible sourcing from low impact practice agriculture. Commercial operators have the financial capability to encourage and enforce sustainable practices that is largely beyond the capacity of government institutions.

11. The PNG Women in Coffee Association (WICA), a not-for-profit association established in 2012, is a platform for PNG women and youth involved in the coffee value chain. Its Secretariat is based in Mt. Hagen, WHP. It has 6,680 members ? most of whom are coffee growers, and women in coffee businesses including co-operatives. The Pacific Horticultural and Agricultural Market Access Program (PHAMA) WICA to help the association become an effective representative of the thousands of women coffee groups and farmers in the country. The Project will seek to partner with WICA and PHAMA to promote the empowerment of women and further develop opportunities for women in WHP and EHP to engage in coffee value chains.

[1] <https://phamaplus.com.au/media/brewing-a-better-future-for-women-in-coffee/>

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Section A: Risks to the project

1. The risks to the project that have been identified can be mitigated through effective management by the project and through the support of government staff and the project governance system. Table 14 summarizes the risks to the project and the mitigation measures that may be required to manage the risks.

Table 14 Risks to the project

Description of risk	Impact	Probability of occurrence	Mitigation actions	Responsible party
Lack of political will to support the project activities	H	L	Awareness raising among decision makers combined with a strong stakeholder involvement plan. Key agencies will be members of the project steering committee.	PSC PMU

Lack of coordination among concerned ministries and local government authorities	H	M	Clear project institutional arrangements that specify roles and responsibilities of those concerned as set out in the national guidelines that are supported by the project. Key agencies will be members of the project steering committee.	PSC
Limited cooperation on data and information sharing among stakeholders	M	L	MoUs with the key stakeholders to collect and supply required data and information and requirement for the project to provide compiled data back to data custodians	PMU PSC
Gender mainstreaming hindered by resistance from local, provincial and national stakeholders	M	L	Clear communication on gender equality is one of the key aims of the project. The project includes gender disaggregated requirements for data collection and monitoring. Women farmers will be specifically supported and groups of women farmers supported to join commodity associations.	PMU
Lack of interest by customary landowners	H	L	Clear stakeholder engagement strategy and effective identification of and negotiation with interested landowners. Specific local needs and opportunities are assessed under Component 2. Conservation approaches and production technologies and techniques will be carefully matched with the specific local needs and opportunities to ensure highly targeted and sustainable impacts. Interventions will be based on needs expressed by customary landowners.	PMU Provincial, district and local officials

Low and/or declining commodity prices (including for coffee) affect viability of value chains and relevance of the project	H	M	The project will work in close consultation with other projects, government agencies and private sector entities that are focused on sustainable commodity value chains to identify risks and opportunities with commodity prices and support FFPOs to identify and select commodities and value chains that minimize risk, are climate resilient and biodiversity friendly	PMU Provincial, district and local officials
Climate change impacts (such as droughts, floods, extreme weather events) may adversely affect project outcomes	M	M	A climate risk screening has been undertaken and mitigation measures have been built into the project design. Generally, the project is anticipated to enhance the resilience of biodiversity and livelihoods to the adverse impacts of climate change. Generally, the project is anticipated to enhance the resilience of biodiversity and livelihoods to the adverse impacts of climate change.	PMU Provincial, district and local officials

<p>Restrictions on project activities, reduced co-financing and willingness of stakeholders to engage due to the COVID-19 pandemic and post COVID recovery. The COVID-19 pandemic began during project design and continued throughout generating challenges for stakeholder consultations. The impacts of the COVID-19 pandemic on the economy, livelihoods, forests, and biodiversity are yet to be clearly known, but at landscape and local levels the impacts may include an increase in dependency of forest and agricultural resources and loss of employment and income.</p>	M	M	<p>The rapidly changing situation will require the project to undertake further consultations and baseline assessments, including on the impacts of the COVID-19 pandemic, to inform Adaptations to the project in response to emerging situations. The PSC will use this information to adapt the delivery of project results effectively to respond to emerging situations and requirements. The Project will adapt interventions to support relevant aspects of the Government's COVID-19 and related restrictions and recovery measures.</p> <p>By supporting biodiversity positive farm and forest activities of farmers, communities and plantation managers the project will help build sustainable livelihoods and improve resilience. The project will support producer organizations in linking with forest and farm product markets and encourage use of value-chain networks to improve market efficiencies and biodiversity outcomes. If there are changes in co-finance, then partners will seek alternative options while ensuring continuity and fairness of resource allocations to ongoing initiatives in the two provinces. The project will implement a COVID safe plan address COVID related travel and meeting restrictions by using, as far as practical, digital training and local facilitators and partners. The project will ensure that safe practices are followed by the project team and partners.</p>	PMU Provincial, district and local officials
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Risks to the Project related to the COVID-19-pandemic and aftermath

2. From 3rd January 2000 to 27 September 2021, there have been 19,523 confirmed cases of COVID-19 with 226 deaths in PNG. Under Section 9 of the National Pandemic Act 2020, the Government has issued a range of restrictions on travel, gatherings and meetings. The Government's Niupela Pasin (new normal in PNG) outlines basic health precautions for a new culture ? as individuals, as families, as communities. It is the new culture in health facilities, schools, workplaces, churches and other places of worship, business, transport, Governments and in all places of interaction.
3. There is widespread community transmission of COVID-19 in most districts and provinces.^[4] The impact of the pandemic on business and daily life has been substantial due to travel and meeting restrictions, closure of venues, restrictions on operating hours and self-isolation rules. As mentioned earlier, the COVID-19 restrictions limited opportunities for consultations at national, provincial and local levels and this has affected the level of detail that could be provided in the project design. Accordingly, it is recommended that the baseline be completed in year one of project operation, COVID-19 restrictions permitting.
4. The COVID-19 pandemic has affected the WHP and EHP. The extent of the impact is significant and the emergence of new variants and potential for new waves of the pandemic mean that it is difficult to predict the exact nature of risks to the project or the risk that the project activities may pose to environmental and social conditions. It is clear, however, that the COVID-19 pandemic and associated restrictions and health impacts are aggravating risk and are likely increasing vulnerability of some project beneficiaries. The pandemic may also impact the ability of partners to co-fund and deliver activities for the project.
5. The project includes activities that can improve resilience and reduce vulnerability of targeted communities. For example, it supports the development of community conserved areas and enables targeted farming families to strengthen agricultural and forestry value-chains. The project also seeks to strengthen cooperation between government agencies to improve land use and forest management, increase gender mainstreaming and enable communities to share knowledge.
6. By strengthening local communities and biodiversity friendly value chains, adaptive capacities for planning and natural resource management will be improved and resilience to change and shocks such as pandemics and climate change will be improved. Landscape planning and improved coordination between government agencies and other stakeholders will help in the identification of and response to risks and opportunities. The project's approach to gender equality and women's empowerment will enable communities to respond to challenges and seize biodiversity and climate friendly opportunities more effectively.
7. To manage risks related to the COVID-19 pandemic, and post pandemic response, the project will:
 - ? Implement a COVID-safe plan in accordance with the government's strategy and official health advice.
 - ? Effectively apply the monitoring and evaluation plan and knowledge management strategy and undertake scenario planning (e.g., a) quick recovery, b) ongoing restrictions and economic slowdown, c) worsening situation and recession) to:
 - o Identify key risks and opportunities (e.g., from post-COVID- recovery efforts).
 - o Assess impacts of project activities on stakeholders, partners and projects staff.
 - o Inform planning of mitigating actions, including phasing of project interventions and options for digital training and provision of data and information.
 - ? Ensure that the PMU and PSC are able to adapt the delivery of project results effectively to respond to emerging situations and requirements.
 - ? Ensure timely and relevant communications with stakeholders.

Climate risks

?An updated climate risk screening has been uploaded as Annex H4 in the Environmental and Social Risks section.

[1] H: High; M: Moderate; L: Low.

[2] <https://covid19.who.int/region/wpro/country/pg> (accessed 6th August 2021)

[3] <https://covid19.info.gov.pg/controller-directives/> (accessed 6th August 2021)

[4] <https://www.smarttraveller.gov.au/destinations/pacific/papua-new-guinea> (accessed 6th August 2021)

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

6.a Institutional arrangements for project implementation.

1. The institutional arrangements for project implementation include:
 - ? A Project Steering Committee.
 - ? An Operational Partner (OP) ? Wildlife Conservation Society (WCS) as the Executing Agency that manages the Project Management Unit.
 - ? Technical Partners
 - ? A Provincial Working Group in each Province (Figure 11).
2. CEPA will establish and host a **Project Steering Committee (PSC)** at national level to govern the project and provide technical and policy guidance. The PSC will meet at least twice a year and organize ad hoc meetings if required, to ensure: i) Oversight and assurance of technical quality of outputs; ii) Close linkages between the project and other ongoing projects and programs relevant to the project; iii) Timely availability and effectiveness of co-financing support; iv) Sustainability of key project outcomes, including up-scaling and replication; v) Effective coordination of the work of partners under this project; vi) Review and endorsement of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget for submission to FAO by CEPA; vii) provide strategic guidance to the Project Management Unit (PMU) and any other executing partners. The PSC will include representatives from:
 1. CEPA
 2. PNGFA
 3. CCDA
 4. DAL
 5. Provincial Governments of EHP and WHP
 6. One representative from each of Provincial Working Groups.
3. Representatives from other institutions, including from the Technical Partners, may be invited by the chair to participate in the PSC as observers, or to provide technical inputs, on an as needed basis.
4. The members of the PSC will act as Focal Points for the project within their respective agencies. Focal Points will: (i) technically oversee activities in their sector; (ii) ensure a two-way exchange of information and knowledge between their agency at the national and at provincial level; (iii) facilitate the provision of co-financing to the project; (iv) review and endorse financial and progress reports

prepared by the OP for CEPA to submit to FAO; and (v) facilitate and collaborate with FAO for mid-term review and termination evaluation of the project.

The project organization structure is as follows:

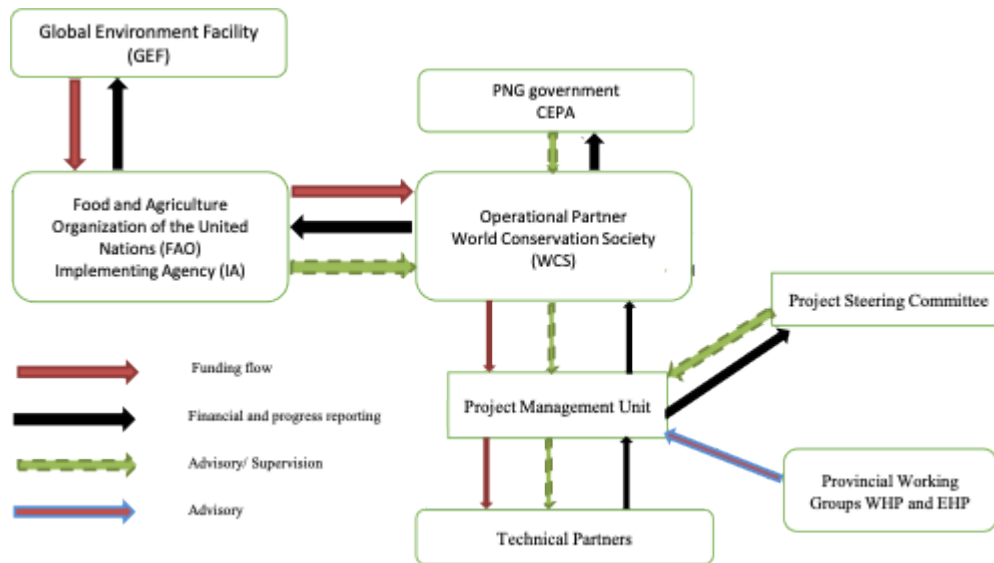


Figure 11 Project institutional arrangements

5. The government will designate a **National Project Director (NPD)**. Located in CEPA, the NPD will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. He/she will also be responsible for supervising and guiding the Project Coordinator (see below) on the government policies and priorities. The NPD (or designated person from lead national institution) will chair the Project Steering Committee which will be the main governing body of the project.

6. The Wildlife Conservation Society (WCS) as the **Operational Partner (OP)** will have the overall executing and technical responsibility for the project, with FAO providing oversight as GEF Agency as described below. WCS will act as the lead executing agency and will be responsible for the day-to-day management of project results entrusted to it in full compliance with all terms and conditions of the Operational Partnership Agreement signed with FAO. As OP of the project WCS is responsible and accountable to FAO for the timely implementation of the agreed project results, operational oversight of implementation activities, timely reporting, and for effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements.

7. It should be noted that the results to be implemented by the OP and budgets to be transferred to the OP are non-binding and may change due to FAO internal partnership and agreement procedures which may not have been concluded at the time of project submission.

8. **Technical Partners** will comprise of the partner organisations and service providers engaged through contracts and Letters of Agreement (LoA) to provide the capacity and technical expertise to implement the project's activities. The Technical Partners include the government partners and institutions such as PNGFA, NARI, CCDA, DAL and the private sector entities.

9. A **Provincial Working Group** will be established in each of the two provinces to provide advisory services to the PMU. They will comprise of the officers designated by the provincial and district administration, representatives of the private sector, academia and CSOs including local NGOs, women's groups and target community representatives.

10. A **Project Management Unit (PMU)** will be co-funded by the GEF grant and established by the OP. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a Chief Technical Adviser (CTA ? part time), a National Project Coordinator (NPC ? full time) and the PMU staff described below.

11. The **Chief Technical Adviser (CTA, part time)** will provide high level support to all project operations and supervise all staff. The CTA will mentor the **National Project Coordinator (NPC)** to develop his/her capacity to manage complex projects. Together with the NPC, the CTA will oversee daily implementation, management, administration and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. They will be responsible for:

- i) Coordination with relevant initiatives.
- ii) Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels.
- iii) Ensuring compliance with all Operational Partners Agreement (OPA) provisions during the implementation, including on timely reporting and financial management.
- iv) Coordination and close monitoring of the implementation of project activities.
- v) Tracking the project?s progress and ensuring timely delivery of inputs and outputs.
- vi) Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project.
- vii) Approving and managing requests for provision of financial resources using provided format in OPA annexes.
- viii) Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports.
- ix) Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO as per OPA reporting requirements.
- x) Maintaining documentation and evidence that describes the proper and prudent use of project resources as per OPA provisions, including making available this supporting documentation to FAO and designated auditors when requested.
- xi) Implementing and managing the project?s monitoring and communications plans.
- xii) Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan.
- xiii) Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the PSC and FAO.
- xiv) Preparing the first draft of the Project Implementation Review (PIR).
- xv) Supporting the organization of the mid-term and final evaluations in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED).
- xvi) Submitting the required OP six-monthly technical and financial reports to FAO and facilitate the information exchange between the OP and FAO, if needed.
- xvii) Informing the PSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support.

12. The NPC will oversee daily implementation, management, administration, and technical supervision of the project, under the guidance of the CTA and within the framework delineated by the PSC (see Annex M for the ToR). The CTA and NPC will assist in building the capacity of project staff on project management and on key tools and methodologies developed by FAO and others.

13. In addition, the PMU will include the following staff:

- ? An **Administrative and Finance Officer** will manage administrative, financial, contractual and logistic arrangements including organization of meetings/forums/workshops/and panels. More specifically, s/he will maintain records of receipts and disbursements, draft administrative correspondence, oversee procurement and payments, maintain up-to-date inventories, manage travel authorizations, maintain petty cash, coordinate mailing services and communication with project stakeholders and any other tasks as required.
- ? A **Monitoring and Evaluation (M&E) Officer** will be responsible for monitoring progress implementation, knowledge management and communications. The officer will also support the design and implementation of the integrated decision support system (Output 1.1.4) and the land use monitoring systems for the two target provinces (Output 1.1.8).
- ? A **Biodiversity Officer** will provide technical oversight of the biodiversity and work closely with CEPA, PNGFA and the two provinces to implement elements of Component 1 and the high conservation value and protected area elements of Component 2. In addition, the Biodiversity Officer will support the M&E officer and Communication, Knowledge Management and Learning Officer.
- ? A **Communication, Knowledge Management and Learning Officer** will develop a knowledge management strategy and manage communications (stories, articles, and press releases, the project website (in Tok Pisin and English), and social media platforms) for all Components, and conduct participatory knowledge sharing and learning events, including facilitating workshops and meetings (Component 4).
- ? A **Safeguards and Gender Officer** will be employed to develop and oversee the implementation of the ESMP, GRM and GAP and support community mobilization and institutional development.
- ? A **Value Chain and Agriculture Officer** will work with DAL and the private sector to assist with implementation of Component 2.
- ? A series of short-term **national consultants** will be engaged to undertake specific technical tasks including policy and legal reviews, land use planning design, DSS, web site and web-based application development, spatial data system development and value chain assessments. ToRs are included as Annex N.

14. The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role, FAO will utilize the GEF fees to deploy three different actors within the organization to support the project (see Annex J for details):

- ? The Budget Holder, the FAO representative in PNG, will provide oversight of project execution.
- ? The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee.
- ? The Funding Liaison Officer(s) within FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

15. FAO responsibilities, as GEF agency, will include:

- ? Administrate funds from GEF in accordance with the rules and procedures of FAO.

- ? Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s) and other rules and procedures of FAO.
- ? Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned.
- ? Conduct at least one supervision mission per year, and
- ? Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress.
- ? Financial reporting to the GEF Trustee.

6.b Coordination with other relevant GEF-financed projects and other initiatives.

16. A summary of Coordination with other relevant GEF-financed projects and other initiatives is provided in Table 17.

Table 17 GEF financed projects and other ongoing initiatives the project will coordinate with

Project	Relevant Outcome
GEF 7 UNEP-CEPA Integrated land management, restoration of degraded landscapes and natural capital assessment in the mountains of Papua New Guinea [relevant to the landscape approaches to be used in the Project]	1, 2, 3
GEF 6 UNDP-CEPA Sustainable Financing of Papua New Guinea's Protected Area Network [relevant to the landscape approaches to be used in the Project]	2
FAO-WCS Sustainable Wildlife Management (Eastern Highlands, Simbu, Jiwaka Provinces)	1 and 2
FAO-EU Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea (STREIT PNG)	2
UNDP-EU Strengthening integrated sustainable landscape management in Enga Province, PNG	1, 2, 3
USAID PNG Biodiversity Programme	1 and 2
IFAD, DAL and FPDA Market for Village Farmers Project - Maket Bilong Vilis Fama (MVF)	2
ACIAR Enabling community forestry in Papua New Guinea	2
GEF 7 UNDP-CCDA? Establishing System for Sustainable Integrated Land-use Planning Across New Britain Island in Papua New Guinea	1 and 2
World Bank The PNG Agricultural Commercialization and Diversification Project (PACD)	2
Papua New Guinea Sustainable Landscapes (SL) activity	2

^[1] Note that FAO is currently considering decentralizing evaluations and should this happen, the approach to mid-term and final evaluations will need to be adjusted accordingly.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

1. The Government of PNG has made strong commitments to protect its rich natural resources and ecosystems while promoting sustainable food systems to ensure the livelihoods of its people. These objectives are integrated into PNG's Vision 2050 (2009), which recognizes the great potential of its natural resources to improve the country's socioeconomic development through 7 strategic focus areas. This is translated into economic policies and sectoral interventions through PNG's Development Strategic Plan 2010-2030.

2. To pursue more integrated green growth, PNG has launched an ambitious Strategy for Responsible Sustainable Development for Papua New Guinea (StaRS 2014), which prioritizes green agriculture, conservation of forest and biodiversity and SME development. The project is aligned with PNG's Vision 2050 and its Green Growth Strategy (STaRS 2014).

3. Furthermore, PNG's Medium Term Development Plan III 2018-2022 strives for inclusive Economic Growth including with renewed focus on agriculture and key commodities.

4. The project will support the PNG's Development Strategic Plan 2010-2030 gender goal - all citizens, irrespective of gender, will have equal opportunity to participate in and benefit from the development of the country.

5. PNG is a global leader in promoting the REDD+ mechanism and its National REDD+ Strategy provides the strategic direction and overall framework to address drivers and emissions from deforestation and landscape degradation. PNG has endorsed its first Protected Areas Policy, which offers sustainable finance schemes to communities engaged in biodiversity conservation.

6. The National REDD+ strategy offers sustainable finance schemes to communities engaged in biodiversity conservation. The project supports PNG's REDD+ strategy in the following areas:

- Strengthened land-use and development planning ? by assisting with the development/updating of provincial integrated land use plans

- Strengthened environmental management, protection and enforcement ? by strengthening conservation planning and strengthening access to information and increasing community and land holder awareness of their legal rights and requirements for environmental management and development planning

- Enhanced economic productivity and sustainable livelihoods ? through the development of biodiversity friendly and climate resilient agriculture and strengthening and expansion of extension services and support to rural communities.

7. The project supports the goals of PNG's National Biodiversity Strategy and Action Plan, notably:

- Goal 1- To conserve, sustainably use, and manage the country's biological diversity.

- Goal 2 - To strengthen and promote institutional and human capacity building for biodiversity conservation, management, and sustainable use.

- Goal 3 - To strengthen partnership and promote coordination for conserving biodiversity.

8. The project contributes to the PNG Policy on Protected Areas by supporting the following pillars:

1. Protected Areas, Governance and Management ? by supporting customary landowners in their initiatives to establish effective protected areas on their lands.

2. Sustainable livelihoods for communities? by building capacity, supporting and empowering communities, customary landowners and protected area staff to sustainably manage protected areas.

4. Managing the Protected Area network ? by supporting the establishment of a relevant, comprehensive, adequate, representative, and resilient PNG Protected area network in the target provinces, according to the range of reserve types and network design principles established in the policy.

9. The project will support PNG's plans for agricultural development including the Cocoa Industry Strategic Plan and the Coffee Industry Strategic Plan. If practicable, the project will consider providing support to improve farming practices in and near the Kuk World Heritage site, with a view to protecting the outstanding universal values of the site.

10. In its Nationally Determined Contribution (NDC, 2016), PNG stated that adaptation is a high priority for the country. Of the nine prevalent hazards identified in the NDC, the Project will address Food Insecurity caused by crop failures due to droughts and inland frosts, Water and Sanitation and Landslides, by assisting the most vulnerable people to implement biodiversity friendly and climate-resilient practices. Appropriate land use planning and monitoring, biodiversity and forest conservation and restoration will reduce the risk of flooding and landslides and maintain the water quality and steady supply. Support to the farmers on value chains for sustainably harvested products and climate-resilient practices will improve food security against the impacts of climate change.

[1] Government of Papua New Guinea, "Papua New Guinea National Biodiversity Strategy and Action Plan."

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

1. Knowledge management is critical for the success of the project as lack of information and knowledge has been identified as a barrier to success. The project will adopt two core knowledge management approaches: 1) Dissemination and maintenance of on-line based database and learning forums; and 2) Promotion of a knowledge sharing culture and coordination with key stakeholders.
2. To successfully implement these approaches, the project plans to employ a national communication specialist who will develop a communications and knowledge management strategy within the first six months of the project inception. The strategy will draw on the extensive experience in knowledge management and communication of CEPA, PNGFA, CCDA, DAL, WCS and FAO as well as other project partners. The communication and knowledge management strategy will seek to maximize the potential for lessons learned by the project to be used to:
 - Adapt project management and implementation.
 - Influence national, provincial and local approaches to planning and land use practices.
 - Inform key policy processes at national and provincial level to accelerate and improve policy reforms, including through supported targeted, highly focused, multistakeholder policy workshops.
3. The national Communication, Knowledge Management and Learning specialist will produce key knowledge products in locally acceptable formats using electronic materials for webpage, ICT, radio, paper, or other appropriate means. Knowledge products will be in English and Tok Pisin and translated into local languages and/or visual communications for people with low literacy levels. The project will promote a culture of knowledge sharing and coordination for data collection and analysis in PNG. This includes promoting enhanced coordination among line agencies, provincial and local governments, and grass root actors working together towards improved transparency in spatial data for the agriculture, forestry and land-use sectors.
4. The project includes a focus on developing and sharing guidance on integrating biodiversity conservation criteria into forest and land use planning and practice; and the development of spatial data

and DSS, focusing on globally important ecosystems and species. To promote scaling up and sustainability, Output 4.1.2 aims to ensure that the project's knowledge and lessons learned are shared at the national level and with other relevant sites in PNG and regionally. As the project will have relevance to the national level, adjacent countries and more broadly, knowledge and communication products that have national and international relevance will be produced in both Tok Pisin and English languages. Knowledge and communication products at provincial level and below will be in Tok Pisin.

5. The project-funded specialist on Communication, Knowledge Management and Learning, in consultation with its implementing partners and local communities, will develop a communications and knowledge management strategy (the strategy) within the first six months of the project inception. The strategy will utilize the extensive experience in knowledge management and communication of FAO, Government agencies and project partners. The strategy will include clear requirements for determining the languages that are to be used for each type of knowledge and communication product. The strategy will be periodically reviewed and updated. The project will draw on and contribute to existing knowledge management efforts of relevant government agencies, programs and projects.

6. The communications and knowledge management strategy will incorporate the need for the project to maintain a website (Tok Pisin and English) and engage actively in social media to share knowledge with stakeholders. Because village level stakeholders also access information and knowledge by visiting government offices and attending meetings and workshops, the strategy will include activities that focus on two-way sharing of knowledge with village stakeholders. The strategy will emphasize:

? Empowering stakeholders to create and share information through participatory discussions, group training and online networks, including through the use of tools such as Community of Practice, Peer Assist, After Action Review, Storytelling, and Dialogue, to share information.

? Production and dissemination of knowledge in a timely and coordinated manner to all key stakeholders to inform the inclusion of biodiversity and livelihood concerns in policy and planning processes. This will include strong linkages with the Project's monitoring and evaluation system and using tools such as quarterly briefings, emails, seminars, publications on specific issues, briefings, and blogs, policy labs and e-bulletins.

? Building synergies with existing knowledge management platforms in the country and internationally, including through project partners, CEPa, PNGFA and WCS websites and communication channels, PNG's Clearing House Mechanism under the CBD, and FAO to ensure the project activities build on the existing knowledge and best practices and any new knowledge generated by the project is shared widely and effectively within the country and internationally. As part of project monitoring and evaluation, a lessons learned document will be prepared and made available online before project end. This document will also be provided to the final evaluation team.

7. The strategy will consider the following objectives.

? **Enhancing knowledge generation** through action learning with communities, partner institutions, and individual experts. The project will produce a range of planning tools and guidance, training manuals, extension materials and other materials to be used for awareness, and capacity development.

? **Improving knowledge sharing**, using the power of partnerships to achieve project outcomes, and ensuring knowledge products are in appropriate languages.

? **Influencing policy and practice** through sharing of evidence (e.g., policy briefs, policy dialogues, website, social media, workshops, training, reports and publications). The strategy will seek to maximize opportunities for lessons learned by the project to adapt project management and implementation and influence forest and land use policies and practices.

? **Resourcing and capacity development** for knowledge management, including sufficient budget for translation and interpretation.

8. The relevant KM budget and key deliverables are shown below.

Deliverable	Timeline	Budget (USD)
1. Communication, KM&L Officer	Years 1-4	117,500
2. Communications and knowledge management strategy developed	Within the first six months of the project inception	(covered by the above)
3. Strategy implemented	Years 1-4	(covered by the above)
4. Publications	Years 1-4	40,000
5. Contract to support government agencies to improve communications (Output 4.1.1)	Years 1-4	5,000
6. Project web site (Output 4.1.2)	Year 1	10,000
Total Budget		172,500

[1] A policy lab involves bringing together a group of stakeholders that want to develop a regulatory framework. It uses user-centric methods and competencies to test, experiment and learn to develop new policy solutions. <https://www.vinnova.se/en/m/Smart-policy-development/what-is-a-policy-lab/>

9. Monitoring and Evaluation

Describe the budgeted M and E plan

1. The project M&E and reporting will follow FAO, GEF and relevant government requirements. As required by the GEF evaluation policy the project will develop a detailed and fully budgeted Monitoring and Evaluation Plan for the entire duration of the project. This M&E plan will describe the intended approach to monitoring and evaluation across the project, project rationale, the theory of change, results framework and of Specific, Measurable, Achievable, Relevant and Time (SMART) indicators.

2. Logical frameworks and the project's theory of change should align, where appropriate, to the GEF's results frameworks. Project M&E Plan will contain the following:

- ? **SMART indicators** for results and implementation linked appropriately to the GEF results frameworks (including core indicators), and including the following:
 - ? Applicable GEF indicators on global environmental benefits identified at each replenishment cycle
 - ? Socioeconomic co-benefits and sex-disaggregated / gender-sensitive indicators (where relevant)
 - ? Project site geographic coordinates
 - ? Additional process and/or performance indicators that can deliver reliable and valid information to management
- ? Project **baselines**, with a description of the problem to be addressed and relevant indicators
- ? Periodic implementation reports, midterm reviews, and terminal evaluation
- ? Organizational set-up and budgets for both monitoring and evaluation, where the budget for evaluation should be explicit and distinguished from monitoring activities.
- ? It is also recommended that the M&E plan and reporting also track risks and progress related to issues such as social and environmental safeguards, stakeholder involvement, co-finance and other relevant information.

3. The project results, as outlined in the project results framework (Annex A1), will be monitored regularly, reported annually and assessed during project implementation to ensure the project

effectively achieves these results. The M&E system will also facilitate learning, replication of the project's results and lessons that will feed the project's knowledge management strategy.

4. The project will address monitoring and evaluation (M&E) at a number of levels:

1. ***Internal results-based adaptive management:*** the project's results framework (see Annex A1) sets out SMART indicators at outcome and output level. These will be monitored in accordance with the M&E plan.

2. ***GEF-7 Core Indicators*** (see Annex), which are linked to and reconciled with selected indicators in the results framework, will be used for reporting global environmental benefits to GEF at project mid-term and end, in support of programmatic monitoring and adaptive management across the GEF portfolio.

Monitoring Plan Monitoring Arrangements

5. For the purposes of the project, monitoring is defined as the continuous or periodic process of collecting and analyzing data to measure the performance of the project and its associated activities. Evaluation is defined as the systematic and independent assessment of the project, along with their design, implementation, and results, with the aim of determining the relevance, efficiency, effectiveness, impact, and sustainability of the project.

6. From FAO side (as GEF Implementing Agency for this project), project oversight and supervision will be carried out by the Budget Holder (FAO representative for PNG) with the support of the Lead Technical Officer and Funding Liaison Officer and relevant technical units in FAO headquarters. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits are being delivered v) appropriate social and environmental safeguards are being applied v) the project is being executed in highest possible technical standards, and (as appropriate) using best available FAO and other guidelines and tools

7. The FAO-GEF Coordination Unit and HQ Technical units will provide oversight of GEF financed activities, outputs and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.

8. Day-to-day project monitoring will be carried out by the Operational Partner (OP). Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception phase, the results matrix will be reviewed to finalize the identification of i) outputs ii) indicators iii) targets and iv) any missing baseline information

9. A detailed M&E plan, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc) will also be developed during project inception by the Operational Partners, with support from FAO.

Monitoring and Reporting

10. In compliance with FAO and GEF M&E policies and requirements, the Operational Partner, in consultation with the PSC and PTF will prepare the following i) national and state level Project inception reports; (ii) State level and national (overall) Annual Work Plan and Budget (AWP/B); (iii) State level and overall project six monthly Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing reports; and (vii) Terminal Report. In addition, the Core Indicators included in Annex F will be used to monitor Global Environmental benefits and updated regularly by the OP.

11. **Project Inception Report.** Project inception workshops will be held within two months of project start date and signature of relevant agreements with partners. During this workshop the following will be reviewed and agreed:

- the proposed implementation arrangement, the roles and responsibilities of each stakeholder and project partners;
- an update of any changed external conditions that may affect project implementation;
- the results framework, the SMART indicators and targets, the means of verification, and monitoring plan;
- the responsibilities for monitoring the various project plans and strategies, including the risk matrix, the Environmental and Social safeguards and Management Plan, the gender strategy, the knowledge management strategy, and other relevant strategies;
- finalize the preparation of the first year AWP/B, the financial reporting and audit procedures;
- schedule the PSC meetings;
- prepare a detailed first year AWP/B.

12. The OP will draft the inception report based on the agreement reached during the workshop and circulate among PSC members, BH, LTO and FLO for review within one month. The final report will be cleared by the FAO BH, LTO and the FAO GEF Coordination Unit and uploaded in FAO's Field Program Management Information System (FPMIS) by the BH.

13. **Results-based Annual Work Plan and Budget (AWP/B).** The draft of the first AWP/B will be prepared by the OP in consultation with the FAO Project Task Force and reviewed at the project Inception Workshop. The Inception Workshop inputs will be incorporated and subsequently, the OP will submit a final draft AWP/B to the BH within two weeks after the workshop. For subsequent AWP/B, the OP will organize a project progress review and planning meeting for its progress review and adaptive management. Once PSC comments have been incorporated, the OP will submit the AWP/B to the BH for non-objection, LTO and the FAO GEF Coordination Unit for comments and for clearance by BH and LTO prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project's Results Framework indicators to ensure that the project's work and activities are contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The AWP/B should be approved by the Project Steering Committee, LTO, BH and the FAO GEF Coordination Unit, and uploaded on the FPMIS by the BH.

14. **Project Progress Reports (PPR):** The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and to take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework *indicate annex number*, AWP/B and M&E Plan. Each semester the *indicate as appropriate Project Coordinator (PC) or Project Manager* will prepare a draft PPR, will collect and consolidate any comments from the FAO PTF. The *PC / PM* will submit the final PPRs to the FAO Representation in *indicate country* every six months, prior to 31 July (covering the period between January and June) and before 31 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the OP, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

15. **Annual Project Implementation Report (PIR):** The PIR is a key self-assessment tool used by GEF Agencies for reporting every year on project implementation status. It helps to assess progress toward achieving the project objective and implementation progress and challenges, risks and actions that need to be taken. Under the lead of the BH, the Project Coordinator / Project Manager will prepare a consolidated annual PIR report covering the period July (the previous year) through June (current year) for each year of implementation, in collaboration with national project partners (including the GEF OFP), the Lead Technical Officer, and the FLO. The PC/PM will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission and report these results in the draft PIR.

16. The BH will be responsible for consolidating and submitting the PIR report to the FAO-GEF Coordination Unit for review by the date specified each year *after each co-implementing agency's review for each respective output under their responsibilities (to be included for joint implementation only)*. FAO - GEF Funding Liaison Officer review PIRs and discuss the progress reported with BHs and LTOs as required. The BH will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat as part of the Annual Monitoring Review of the FAO-GEF portfolio

17. **Technical Reports:** Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The LTO will be responsible for ensuring appropriate technical review and clearance of technical reports. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.

18. **Co-financing Reports:** The OP will be responsible for tracking co-financing materialized against the confirmed amounts at project approval and reporting. The co-financing report, which covers the GEF fiscal year 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The co-financing report needs to include the activities that were financed by the contribution of the partners.

19. **Tracking and reporting on results across the GEF 7 core indicators and sub-indicators:** As of July 1, 2018, the GEF Secretariat requires FAO as a GEF Agency, in collaboration with recipient country governments, executing partners and other stakeholders to provide indicative, expected results across applicable core indicators and sub-indicators for all new GEF projects submitted for Approval. During the approval process of the (insert short project title) expected results against the relevant indicators and sub-indicators have been provided to the GEF Secretariat. Throughout the implementation period of the project, the OP, is required to track the project's progress in achieving these results across applicable core indicators and sub-indicators. At project mid-term and project completion stage, the project team in consultation with the PTF and the FAO-GEF CU are required to report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval.

20. **Terminal Report:** Within two months before the end date of the project, and one month before the Final Evaluation, the OP will submit to FAO (*to specify the unit in charge in HQ*) a draft Terminal Report. The main purpose of the Terminal Report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. The Terminal Report is accordingly a concise account of the main products, results, conclusions and recommendations of the project. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results.

MTR and Evaluation provisions

Mid-Term Review

21. As outlined in the GEF Evaluation Policy, Mid-Term Reviews (MTRs) or mid-term evaluations (MTEs) are mandatory for all GEF-financed full-sized projects (FSPs), including Enabling Activities processed as full-sized projects. It is also strongly encouraged for medium-sized projects (MSPs). The Mid-Term review will (i) assess the progress made towards achievement of planned results (ii) identify problems and make recommendations to redress the project (iii) highlight good practices, lessons learned and areas with the potential for upscaling.

22. The BH is responsible for the conduct of the Mid-Term Review (MTR) of the project in consultation with the FAO-GEF Coordination Unit halfway through implementation. He/she will contact the FAO-GEF Coordination Unit about 3 months before the project half-point (within 3 years of project CEO Endorsement) to initiate the MTR exercise.

23. To support the planning and conduct of the MTR, the FAO GEF CU has developed a guidance document **?The Guide for planning and conducting Mid-Term Reviews of FAO-GEF projects and programmes?**. The FAO-GEF CU will appoint a MTR focal point who will provide guidance on GEF specific requirements, quality assurance on the review process and overall backstopping support

for the effective management of the exercise and for timely the submission of the MTR report to the GEF Secretariat.

24. After the completion of the Mid-Term Review, the BH will be responsible for the distribution of the MTR report at country level (including to the GEF OFP) and for the preparation of the **Management Response** within 4 weeks and share it with national partners, GEF OFP and the FAO-GEF CU. The BH will also send the updated core indicators used during the MTR to the FAO-GEF CU for their submission to the GEF Secretariat.

Terminal Evaluation

25. The GEF evaluation policy foresees that all Medium and Full-sized projects require a separate terminal evaluation. Such evaluation provides: i) accountability on results, processes, and performance ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.

26. The Budget Holder will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the "GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects". FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team ? in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.

27. After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within 4 weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU. The BH will also send the updated core indicators used during the TE to the FAO-GEF CU for their submission to the GEF Secretariat

28. Timing and the frequency of reporting and field supervision will be aligned with the budgeting and reporting timing of the Government to ensure that findings and recommendations of those reports help in improved project planning. The monitoring and evaluation matrix with indicative budget and activities is presented in the Table 18.

Table 18 Project Monitoring and Evaluation Matrix

Activity	Responsibility	Timing	Budget (US\$)
Inception workshops/meetings at province level	OP	Within 3 months of the project launching	10,000
National Inception workshop	OP	Within 4 months of project launching	7,000
National completion workshop	OP	Within two months prior to the project's completion date	7,000
Provincial completion workshops		Within two months prior to the project's completion date	10,000
Provincial working group meetings		2 x per year	24,000
Gender audit	OP	Within first 24 months	20,000
ESMP audit	OP	By end of year 2	20,000
Project supervision visits	OP and CEPA	Every six months	117,500
Periodic monitoring	OP	Annually	
Field monitoring	OP	continuous	
Four monthly and annual progress reviews	OP	Every four months, annual	

Mid-term review	FAO	Beginning of third year of the project implementation	35,500
Terminal evaluation	FAO	Last quarter of the fourth year of the project implementation	60,000
Total			311,000

29. The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

1. Mainstreaming biodiversity into farm and forest management and improving management of protected areas and their buffer zones will trigger improvements in the production of ecosystem services for the benefit of both customary landowners and nature. The promotion of biodiversity-friendly, climate resilient farm and forest management practices and sustainable economic opportunities for customary landowners will provide opportunities and incentives, particularly for women and youth, to improve their livelihoods through the sustainable use of biodiversity. Diversifying livelihoods based on the sustainable use of biodiversity will increase resilience of rural communities and help them adapt to climate change. Vulnerability of farmers to climate influenced events, such as droughts and floods, will be decreased by improving the flow of ecosystem services (notably provisioning services such as food, NTFPs, timber, fiber and water), through biodiversity friendly and climate resilient management of forests and farmlands that enhance livelihood benefits and diversification.

2. An effective knowledge management strategy will enable sharing of good practice, increasing the capacity and capability of participating communities to improve agricultural and forest productivity while conserving biodiversity. It will also enable up-scaling and sustainability.

3. By targeting the project to high priority landscapes in the two provinces, improvements to biodiversity and livelihoods will be achieved. This will increase the area of landscapes under improved practices. By improving the management of buffer zones around protected areas, including community conserved areas, and improving agroforestry activities, the project will contribute to the improved conservation of several threatened species (notably, Tree Kangaroo, Birds of Paradise and Echidna) and reduce pressure on high conservation value areas within protected areas, including community conserved areas and buffer zones. A co-benefit of the project will be carbon sequestered/emissions avoided in the Agriculture, Forestry and Other Land Use sector.

Decent Rural Employment

4. In WHP and EHP, decent work is predominantly associated with livelihoods based on agriculture and to a lesser extent forest use. Decent work can be considered to include ?opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.?

5. The project has a strong focus on improving rural livelihoods through forest and frame management including by generating and distributing livelihood benefits through commercial activity and linking smallholders to financial institutions and markets which will incentivize local communities to manage forests and other natural resources sustainably and improve community-level resilience.

Table 19 provides a summary of how the project will support decent rural employment, based on the four pillars described in FAO's guidance material.

Table 19 Project Support to Decent Rural Employment

Prioritized Groups
<ul style="list-style-type: none"> - Customary landowners including: <ul style="list-style-type: none"> o Small-scale farm and forest producers, including contributing family workers o Small-scale processors and aggregators of farm and forest products o Women and youth within the above categories o Specific vulnerable groups (e.g., land poor and landless people, disabled people, elderly people, and single-adult households)
Pillar 1: Employment-creation and enterprise-development
<ul style="list-style-type: none"> - Participatory analyses with vulnerable groups on specific rural employment issues related to farms and forests - Ensure that relevant groups within the targeted rural areas are involved effectively in consultations - Consider the impact of technology and infrastructure options on the number and quality of jobs created - Women and men small-scale farm and forest producers supported in accessing fair markets and sustainable value chains - Women and men small-scale farm and forest producers and supported in accessing training, financial services, and other productive assets, with priority to rural businesses owned by women and youth - Provide Market Analysis and Development training on how to develop viable market options for forest and farm products. - Implement training for government agencies and project partners to enable them to undertake participatory approaches with local target communities
Pillar 2: Social protection
<ul style="list-style-type: none"> - Assess, document and disseminate institutional innovations and good practices of organized collective action, including through local groups, with strong impacts on social protection
Pillar 3: Standards and rights at work
<ul style="list-style-type: none"> - Socially responsible agricultural and forest production supported, specifically to reduce gender and age-based discrimination - Promote compliance with national labor legislation in the rural areas - Address the constraints of women, youth, and other specific groups workers in getting organized, notably through community forestry
Pillar 4: Governance and social dialogue
<ul style="list-style-type: none"> - Promote the inclusive participation of local people, particularly women - Support customary landowners to strengthen networks of producers and workers in the informal food and forest economy - Build capacity to empower forest and farm producers to organize into legalized associations and women to undertake leading positions - Undertake knowledge exchange events to refine and endorse the most promising approaches for climate-resilient forest and agricultural landscape management.

[1] <https://www.ilo.org/global/topics/decent-work/lang--en/index.htm>

[2] FAO, 2010. *Rural Employment, Guidance Material #1: Guidance on How to Address Decent Rural Employment in FAO Country Activities* (2nd ed.). <http://www.fao.org/3/i1937e/i1937e.pdf>

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Section B: Environmental and Social risks from the project.

1. The project has been screened against environmental and social risks and has been rated **?moderate risk?** in line with FAO's Environmental and Social Safeguards (see certification in annex). Potential adverse environmental and social impacts have been identified and mitigation measures included in the ESMF. The project will ensure free, prior and informed consent (FPIC) for customary landholders.
2. The Project will guarantee the application of the principle of FPIC of any indigenous peoples affected by the project. As mentioned previously, due to COVID-19 restrictions it was not possible to complete planned meetings with customary landowners in EHP to obtain their FPIC, thus additional activities have been built into the first year of project operation to secure FPIC, **in accordance with GEF and FAO safeguard policies.**
3. The Project is unlikely to have adverse environmental and social risks and impacts. The potential risks, impacts, and issues are low in magnitude, site specific, perceptible and have low probability of serious adverse effects to human health and/or the environment.
4. An Environmental and Social Management Framework (ESMF) was developed during project design to better identify the potential environmental and social risks and impacts and the appropriate mitigation measures to address these risks and impacts. Information/data relating to environmental and social conditions in PNG and in the project's target sites, including biodiversity and natural conditions of the area, and the legal, regulatory and policy regime within which the project will be implemented, were collected through desk study, review of government departmental data and as far as COVID-19 restrictions allowed, through participatory approaches including stakeholder consultations. It should be noted that while multiple sources of data are available from relevant government agencies, there are significant data gaps and a lack of coordination between agencies on data collection, analysis, storage and sharing.

5. The ESMF (see Annex H1) considered the potential impacts on physical, biological, socioeconomic, and cultural resources of project activities, and the potential transboundary and global impacts of establishing biodiversity corridors in the project area. It also reviewed applicable and institutional frameworks including national laws and regulations and obligations under international human rights law, international labour standards, and environmental treaties and agreements.
6. A climate risk assessment (Annex H4) indicates that the project is likely to be affected by adverse environmental impacts, but these are limited in scale and are not unprecedented. It is recommended that further evaluation of climate risks, including mapping of hazards and vulnerability at a sub-provincial level be undertaken by the Project.
7. The key environmental and social risks identified in the ESMF are:
 - ? Weak coordination and cooperation between national government agencies and between national and provincial government agencies and other stakeholders.
 - ? A lack of horizontal coordination across agencies which hinders data sharing, coordination and harmonization of efforts.
 - ? Lack of knowledge on the importance of biodiversity conservation.
 - ? Ineffective management of existing protected areas.
 - ? Limited impact from the sustainable utilization of biodiversity benefits to incentivize behavior change at the local level.
 - ? Climate change and compounding effect on environmental and social pressures.

Table 15: Potential social and environmental risks posed by project

Risk identified and applicable FAO safeguard standard(s)	Impact and Likelihood (Risk Classification)	Comments	Mitigation Action (s)
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<p>Risk 1: Adverse impacts to habitats (modified, natural, and critical) and/or ecosystems and ecosystem services, which includes legally protected areas (PA), proposed PAs, or recognized as such by authoritative sources or local communities (ESS 4, 5 and 6)</p>	<p>I = 3 L = 2 (Low)</p>	<p>Increased awareness on biodiversity hotspots may attract scientific research and recreational activities to these areas that could result in further impacts to the natural habitat and possible habitat loss.</p> <p>Increases in small-scale timber operations could lead to possible encroachment into forest conservation areas which could lead to adverse impacts or degradation of natural/critical habitats and ecosystems.</p> <p>The development of spatially explicit development plans at the subnational level will involve site visits, possible fencing, monitoring visits into areas of high biodiversity/protected areas which may cause some degree of impact to the natural habitat/ecosystems in that area.</p>	<p>? The Stakeholder Engagement Plan (SEP) and specific tools for WHP will set out the appropriate FPIC processes to follow for the community(ies) and the activity(ies) being implemented. This will involve the need for consensus from community leaders such as the village elders/chiefs prior to entry and clear understanding (preferably recorded and agreed to in writing) on the objectives of the development/engagement process. These processes are subject to specific sector PLRs on the process of SE and FPIC or project approvals e.g., as seen in forestry and in particular in FMAs.</p> <p>? The Fauna (Protection and Control) Act and Conservation Areas Act establishes clear legal provisions for the effective protection, management and enforcement of protective measure within critical habitats, ecosystems or environmentally sensitive areas.</p> <p>? The Environment Act identifies the measures to be taken to carry out an Environmental Impact Assessment (EIA) to ensure that that development activities, such as forest plantations or commercial agriculture, do not cross into PAs or adversely impact them.</p> <p>? The project will support sub-national governments to play a more central role in implementing environmental management activities through training and capacity building support to undertake monitoring and enforcement activities. These efforts will be aligned with the 2014 National Protected Areas Policy and 2017 Implementation Plan and further reinforced at this level through coordination and collaboration with CEPA and appropriate provincial or district environmental committees/officers in WHP.</p> <p>? Issues will also be addressed through mechanisms such as the Regional PA Roundtable (RPART), Protected Areas Forum (PAF) and MOUs with relevant government sectors/stakeholders guided by the PAP Implementation Plan. The development of a Management Plan (MP) is critical for all PAs. In the process of formulating a suitable MP, community planning, consultation and community resource zoning/mappings are critical.</p>
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<p><u>Risk 2:</u></p> <p>Risks to endangered species. (ESS 2)</p>	<p>I = 2 L = 2 (Low)</p>	<p>The PA policy focuses on strengthening monitoring and management capacity for all PAs including the development of species and land use management plans for target areas which would cover endangered species. This will limit the likelihood of any risks being posed to these critical habitats and ecosystems. However, this is limited only to recognized PA sites. Any area(s) that does not fall within PA sites or fails to be classified as such are vulnerable to this risk. E.g., forest conservation areas within FMA's.</p>	<p>? The Environment Act 2000, Conservation Areas Act, CEPA Act and the PA Policy contain key principles that are promoted within the CBD and are reflected in domestic legislation and policy.</p> <p>? Comply with the PA Policy which outlines the details of PNG's conservation and biodiversity objectives and how it aims to implement them in the national context and particularly at the subnational level.</p> <p>? Develop high quality but simple awareness raising information for different target groups including government officers, land owning communities, provincial, district and local level government officials.</p> <p>? Support PAs to incorporate a Species Management Plan (SMP) in their management plans to target priority species. The SMP should consider factors such as the species richness, population status, distribution range, conservation status (IUCN), and level of threat.</p>
<p><u>Risk 3</u></p> <p>Project may involve the application of pesticides that may have a negative effect on the environment or human health. (ESS 5)</p>	<p>I = 2 L = 2 (Low)</p>	<p>There has been a trend in PNG in recent years to intensify commodity agriculture and processing which has led to increased amounts of wastes, fertilizers and/or pesticides. There is a risk that this trend may continue as part of the activities under this project as part of Component 2 (landscape-level action for integrated conservation and sustainable supply chain development) if not managed well.</p>	<p>? Conduct awareness raising on sustainable farming practices coupled with dedicated training and capacity building on soil fertility management such as cover fallow, use of inorganic fertilizers (animal manure) and composting.</p> <p>? Consider promoting Integrated Pest and Disease Management (IPDM) techniques so farmers utilize cheaper but effective ways of managing pest and diseases on farm.</p> <p>? Comply with the Environmental Contaminants Act 1988 and its accompanying regulations is necessary to be aware of which pesticides are hazardous. The Project will not likely use pesticides but if it does it will develop a Pesticide Management Plan for each cluster.</p>

<p><u>Risk 4:</u></p> <p>Potential to involve temporary or permanent and full or partial physical displacement (ESS 6)</p>	<p>I = 4 P = 1 (Low)</p>	<p>Displacement is unlikely to occur during this project. However, if communities will have to relocate to other areas under customary ownership that have been negotiated for such purposes, there is likely to be an impact both on the displaced people and the host community in terms of loss of social cohesion, cultural identity, customs and traditions.</p>	<p>? In the event of displacement, adequate compensation will be paid to the displaced LOs and communities. The process of compensation for ?voluntary and compulsory land acquisition? is recognized in the Land Act 1996. Land-related compensation has always been a highly sensitive and problematic issue in PNG, so monetary compensation under the project will be mindful of past experiences and managed carefully.</p> <p>? The project is not likely to displace people but if this eventuates the project will develop a Temporary Resettlement Plan derived from similar experiences in PNG.^[4]</p>
<p><u>Risk 5:</u></p> <p>Possible economic displacement (e.g. loss of assets or access to resources due to land acquisition or access restrictions) (ESS 6)</p>	<p>I = 4 P = 2 (Low)</p>	<p>There is scope to explore the potential and possibilities available to diversify to other alternative enterprises (e.g. honey production) so as to maintain resilience among displaced and marginal farming families.</p> <p>Introduce improved techniques to improve productivity on specific food crops such as sweet potato.</p> <p>Introduce and encourage simple on-farm processing and storage to minimize perishability status of produce for income generation and family food security.</p>	<p>? Carry out surveying and/or social mapping of the various clans, villages and wards within the area (if not already done as part of the ward development planning process) conducted in parallel with the SE Planning process to determine the people/communities most vulnerable to economic displacement and to ensure that these people/communities and areas are safeguarded.</p> <p>? Develop a Livelihoods Action Plan (LAP) to provide reassurance to the LOs and local communities of the commitment of the project to meet obligations arising from any economic displacement. Undertake assessments to support the development of the LAP such as a community needs assessment (CNA) and/or a community benefits analysis (CBA).</p>

<p><u>Risk 6:</u> Project construction, or decommissioning poses potential safety risks to local communities. (ESS 7 and 9)</p>	<p>I = 2 P = 2 (Low)</p>	<p>Component 2 promotes sustainable livelihood options in that could include capacity building of small enterprises who may require construction or maintenance to existing business ventures such as eco-lodges, guest houses, fences, tanks or other forms of buildings.</p>	<p>? All personnel within construction sites must wear steel capped footwear and high-visibility jackets. These standards should be in compliance with the ISO standard or equivalent. These measures ensure that all risks posed as a result of the implementation of this project will be minimized.</p>
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<p><u>Risk 7:</u></p> <p>Support for employment or livelihoods may fail to comply with national and international labor standards (i.e. principles and standards of ILO fundamental conventions). (ESS 7 and 8)</p>	<p>I = 2 P = 2 (Low)</p>	<p>Capacity building actions in relation to component 2 may require that local communities are engaged to work in eco-lodges, canteens, as tourist guides, on small farms, etc. In these cases, remuneration will need to be given. Possible risks of non-compliance with national laws⁵ and international ILO conventions as it relates to fairness in remuneration, discrimination against women and prohibitions against child workers (minimum age) may arise.</p>	<p>? The Fairness of Transactions Act shall be considered in such circumstances and will only be recognized if ILGs are in place. Foreign/donor organisations who engage with and fund LO's or local communities need to work through some form of legal mechanism which would either be in the form of ILGs/Associations or landowner companies to safeguard against the likelihood of inequitable/unfair employment or business practices. ILGs are the most appropriate for LOs/local communities to set up under the Land Groups Incorporations Act. The minimum wage will be considered in the event of both formal and casual employment as set out by the regulations on Minimum Wages according to the rates set by the Minimum Wages Board set up as part of the Employment Act 1978.</p> <p>? The introduced forms of remuneration for local communities involved in activities will comply with international best practice as set out within the ILO Conventions on Equal/Fair remuneration, Discrimination against women and Prohibitions against Child workers (minimum age).</p> <p>? Risks concerning the possibility of engaging children or underage workers will be avoided by ensuring that the relevant PLRs on child protection (Lukautim Pikinini Act/the Child Welfare Act) and other key legislation on the protection and welfare of the rights of the child are followed.</p> <p>? Provide community support to establish cooperative societies and/or community-based groups in the process of becoming legally registered (e.g. as an association with the Investment Promotion Authority). This support could include training related to business development skills that would empower communities to seek and/or generate funding to offset the potential environmental damages done to their areas.</p> <p>? Incorporate the PNG Minimum Wages Rates and Conditions as baseline for any Project related work.</p>
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<p><u>Risk 8:</u> Loss of access to natural resources could exacerbate conflicts among project-affected communities and individuals.</p> <p>(ESS 9)</p>	<p>I = 3 L = 2 (Moderate)</p>	<p>Landowners and local communities outside of, but adjacent, to the selected project area(s) would be excluded from the project activities because they do not ?officially? fall within the boundaries of the selected sites. Conflict might be ignited between adjacent landowning groups which did not previously exist.</p>	<p>? Consensus on all measures to be implemented will be obtained from the LOs and local communities prior to implementation. This will minimize the likelihood of dispute or conflict arising in the future. This will be supported within the SEP.</p> <p>? Any disputes or grievances that arise over proposed actions/activities on land that is designated under the project will be dealt with in accordance with the Project?s GRM Guidelines. These Guidelines would also recognize the other existing informal and formal mechanisms in the event that it is insufficient to resolve the matter, e.g., the village courts or district courts in the pilot provinces.^[6] This also incorporates the semi-formal systems as well, such as the Alternative Dispute Resolution (ADR) track and courts in the country.</p> <p>? There will be written records of community consensus in a PA or CCA prior to project implementation, along with the application of FPIC. The project will ensure the PA/CCA community are fully aware of the potential risks and benefits of the Project, with adequate time provided to consider them. Where appropriate, MOUs can be entered into based on mutual understand and agreement of all parties concerned.</p>
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<p><u>Risk 9:</u> Adverse impacts on affected populations, particularly people living in poverty, marginalized individuals or groups, may be restricted from accessing or maintaining sources of income because they are not able to enforce their rights, due to a lack of basic education and civic awareness. (ESS 7, 8 and 9)</p>	<p>I = 3 P = 2 (Moderate)</p>	<p>There is a risk that vulnerable and marginalized populations (rural farmers), women (especially widows), orphaned children, disabled persons and migrants from other areas of PNG are likely to be excluded from project activities.</p>	<p>? To identify marginal potentially at-risk populations, and the potential human rights impacts, a full ESA will be undertaken in the first year of the project, including an ESMP. In addition, specific Community Engagement Plans (CEP) for the pilot clusters will provide for the inclusion of women.</p> <p>? All marginalized or vulnerable groups will be engaged throughout program implementation, as well as all impact assessment and management planning activities, including defining how they want to be engaged. Monitoring and evaluation of this engagement process will be conducted and involve a variety of stakeholders, including NGOs, CSOs, and/or community representatives.</p> <p>? Building on the SEP, the CEP and its approach will map community-based stakeholders (women groups, youth association, religious groups) and partners at the community level. These stakeholders and partners can provide local expertise and contacts to ensure that vulnerable and marginalized populations are not further adversely affected by the Project's activities.</p>
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<p><u>Risk 10:</u> The Project could potentially reinforce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits. (ESS 7, 8 and 9)</p>	<p>I = 3 P = 3 (Moderate)</p>	<p>There is a likelihood that male dominated customs/practices that reinforce inequality and social exclusion of females will be perpetuated within the project, especially in relation to the distribution of benefits, participation and land tenure and access. The absence of a mechanism for sector agencies to monitor ILG's (such as the details of clan composition, boundaries, objectives and participation disaggregated by gender and age) means that women will continue to be poorly represented at the local community level. This limits women's participation in decision making and active effective engagement in the project.</p>	<p>? Mainstreaming of gender considerations will be addressed in the project's Gender Action Plan and the SE Plan as well as within the proposed provincial plans for EHP and WHP. This will include:</p> <ul style="list-style-type: none"> o Undertaking the proactive inclusion of women's groups and representatives of marginalized groups in the capacity development training program and aiming to have a minimum of 40% representation by women. o Employing a cross-cutting strategy to have equal representation of women in visual communication materials. o Employing a tacit awareness approach for the communication materials that focuses on the implications of failing to include women in decision making around land-use planning. <p>? Gender specific guidelines will be developed according to the principles set out in the Policy for Women and Gender Equality and The Policy on Gender Equality and Social Inclusion (GESI). This will help to identify opportunities for collaboration with existing women's groups at the sub-national level, such as the National Council of Women and their local committees and help to counter the impacts of traditional practices and beliefs on male domination at the community level where these perceptions are deeply entrenched.</p> <p>? Specific training on women in leadership for both male and female participants in the target provinces will be guided by the findings of the CNA.</p>
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<p><u>Risk 11:</u> The project could potentially limit women's? ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services. (ESS 8 and 9)</p>	<p>I = 3 P = 3 (Moderate)</p>	<p>While PNG's Constitution calls for equality and participation of women in all economic activities and encourages their equal participation, there is no actual provision within forest or natural resource law which clearly details a process by which to enforce or achieve this right. The lack of specific inclusion of women within these specific PLRs and community activities that have the potential to help generate income can ultimately impact women and girls disproportionately to the rest of the project beneficiaries. The continued lack of sex-disaggregated data in collection of information management systems to develop spatial planning (data systems), as well as mechanisms for analyzing data, means that men's and women's differentiated needs, uses, skills, and knowledge on forests and natural resources are not being identified and included. This can adversely affect the successful planning and implementation of the project and have a more disproportionate impact on women because they perform the core labor in activities such as collection of firewood and gardening.</p>	<p>? The project will ensure there is gender specific training carried (e.g., training for conservation, agricultural and forestry extension officers). This also applies to members of the local community selected from protected area committees or for similar committees (e.g., PFMCs). The project will develop a means of assessing women's inclusion in actions and sub-actions.</p> <p>? The project will promote representation of women's interests and needs in ILGs especially as part of ILG boards/committees. Although this is guaranteed via law according to amendments to the Land Groups Incorporations Act 2009, specific effort will be made to ensure their involvement is meaningful and translated into important decisions made by the ILG Boards/Committees on behalf of women. It could be advantageous for the project to require that there be an inclusion of women in activities carried out in compliance with GESI and GEF and FAO guidelines.</p> <p>? To mitigate the risk of insufficient sex segregated data, the project will engage a gender expert who will be responsible for liaising with the relevant sub-national stakeholders to collect gender-specific or gender sensitive data/information. This will feed into data that are used to develop DSS used to design and develop programs, policies and plans as well as project activities.</p> <p>? Specific training on women in leadership for both male and female participants in the target provinces will be guided by the findings of the CNA.</p>
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<p><u>Risk 12:</u> There is a possibility that benefits from the project will not be distributed equally and fairly amongst the landowners and local community, which may create conflict between families, clans, tribes or neighboring communities. (ESS 7, 8 and 9)</p>	<p>I = 3 P = 2 (Moderate)</p>	<p>The limit in the ambit of support under the project may create division between LO groups within the project area(s) and those outside. This would make it difficult to manage and possibly lead to an increase in disparity of capacity, resources and knowledge.</p> <p>Marginalized/ vulnerable groups would not have an opportunity to benefit directly from these activities due to gender, physical disability or cultural/social status.</p>	<p>? A LAP will be developed to counter the concerns on possible interference with ongoing livelihood options/activities within communities and program sites. This will be developed as part of thorough stakeholder consultations between the project team, relevant sectors and community/LOs. All measures proposed will respect the needs of the community as a collective, the needs of women and children and LOs in the preservation of their cultural heritage and economic rights.</p> <p>? The SEPs and CEPs will take into consideration the guidance related to benefit sharing that is provided in the PA Policy in addition to any sector specific instruments.</p> <p>? Benefit Sharing Agreements (BSA) that are inclusive of the PA MPs will be developed between the PA communities and the relevant national or sub-national authorities. The execution of BSAs will be conducted in good faith and would include exercises to map land boundaries and identification of the beneficiaries, with the involvement of the relevant provincial lands officers and local landowners.</p>
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<p><u>Risk 13:</u> Lack of capacity by duty bearers to fulfil their mandated duties and obligations due to financial constraints or high-level political interference could also adversely impact the rights to access to information for customary landowners and local communities. (ESS 9)</p>	<p>I = 3 P = 3 (High)</p>	<p>Greater awareness raising and training on PA management or other related initiatives creates an expectation on the duty bearers to better manage the project at the community level, which could pose a further burden on them to meet these expectations in the absence of project resources (i.e. when the project ends). The project may unintentionally create a disparity in the individual capacities of the duty bearer involved in the project, and could lead to an inability to sustain the benefits of the initiatives over the long-term.</p>	<ul style="list-style-type: none"> ? The project will encourage regular consultations between the different agencies and sectors as well as within the various stakeholders at all levels and phases of implementation. ? A project working group (PWG) in each province that consists of relevant stakeholders from the various interest groups (LO/local community reps, government reps, CSOs and private sector) will monitor the progress of the various actions and activities under the project. The PWGs will have ToR that clearly articulate the roles and responsibilities of each institution/agency involved as well as their powers and functions to reduce the risk of overlapping mandates in the course of implementing the project ? The project will establish and build partnerships with local CSOs and the private sector to ensure that the benefits and positive impacts achieved will be sustained post-project. It will support the various levels of government to seek out or apply for proposals that have similar objectives to the project. ? The project will provide management training (e.g. project coordination, budgeting, fundraising, etc.) for PA communities based on the CNA. This will empower the PA CLOs and communities to use their rights to access information and/or pursue alternative sources of income generation in the event that there are high national-level financial constraints.
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<p><u>Risk 14:</u></p> <p>Potentially adverse impacts on sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices). This includes the possible inappropriate use of traditional knowledge in order to increase the profitability of livelihood activities without consideration for local customs</p> <p>(ESS 7 and 9)</p>	<p>I = 4 P = 2 (Moderate)</p>	<p>Due to the introduction of newer forms of commodity production, forest and environmental management, the traditional forms of resource management and the cultural significance of these methods could be lost amongst the younger generation creating a potentially adverse impact on the inheritance or transference of cultural knowledge. Cash and fresh crop production could become more attractive to the younger generation of LOs/local communities and eventually replace the traditional agricultural practices or forms of gardening that had been practiced in the past as a way and means of preserving the natural resource and traditional knowledge. There may be certain activities that focus on ensuring that sacred sites are effectively protected, however the possibility that sustainable livelihood options will occur within these PA?s poses a potential risk that the activities themselves may become an impediment to the protection of the cultural sites. This is likely if the LO?s/local communities focus more on the livelihood activities than the protection of the site itself. (Capacity building on small enterprises within PAs creates potential for the enterprise to become more profitable and thus become the</p>	<p>? The project will develop a Cultural Heritage Management Plan (CHMP). The CHMP will ensure that any introduced forms of environmental/forest/agricultural management within the wards and LLGs/villages does not interfere with or impede into existing traditional knowledge on the use of natural resources by ensuring that LO?s and local communities are involved in the process of developing these plans or training programs.</p> <p>? The younger generation will be specifically targeted within these activities to ensure that they understand how the traditional knowledge is being integrated into the new forms of resource management and that they are involved in carrying out these activities within the project sites.</p> <p>? To discourage the potential for commercial crops to replace interests in growing traditional subsistence crops for sustainable livelihoods, the project will introduce a Livelihoods Action Plan (LAP) which will develop measures for ensuring that there is consistency between the various management plans particularly in relation to the need for preservation of traditional/cultural knowledge.</p> <p>? Cultural and traditional significance, although not specified in the PLRs, will be addressed within the project as part of the CHMPs and outlined within specific guidelines as part of its implementation. The government entity mandated to enforce these policies and practices is the CEPA by virtue of the CEPA Act 2015, however, they will need to form committees in partnership with the relevant provincial governments, local level government, CSO?s private sector and LOs/local communities to help implement this plan.</p> <p>? The protection of traditional knowledge and the approach of PAs towards preserving will be documented in the Management Plan for each PA.</p>
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8. Implementation of the ESMF is included in the budget for the Project with an estimated cost for Safeguards outputs shown in Table 16. The budget associated with the implementation of the ESA and ESMP will be refined in the first quarter of Project operationalization.

Table 16. Estimated costs of ESMF implementation.

Item	Details	Cost (US\$)
Safeguards and Gender Specialist	Ongoing support to gender and safeguards	94,000
Gender and ESCP training	Inception training on ESMF, ESMP and gender-sensitive approaches	15,000
Travel costs	Initial and monitoring visits to the EHP and WHP by the specialist	125,000
GRM, FPIC and support to PWG	Operationalize the GRM as well as ongoing administrative costs	60,000
Communications/publications	Audiovisual, print and social media for communicating ESMP issues	12,000
Total		306,000

9. The ESMF provides guidance to the project to develop an **Environmental and Social Management Plan (ESMP)** in the first quarter of project implementation. The ESMP will need to identify measures to mitigate, monitor and manage the risks and impacts. The ESMP should use the mitigation hierarchy to identify social and environmental management measures to address the potential risks and impacts. It should also consider lessons learned from current and past projects and programs and existing policies and standards. In addition, the ESMP should provide a summary of the budgetary and other resources required to undertake any further required analyses and implement appropriate measures to mitigate risks and impacts.

[1] Impact scale: 4 denotes 'high impact' and 0 denotes 'no impact'.

[2] Likelihood scale: 4 denotes 'very likely' and 0 denotes 'very unlikely'.

[3] Refer to relevant provision of the Land Act section 10 and 11 on Voluntary and Compulsory Land Acquisition.

[4] An example of this is seen in the Caterets Islands in AROB, as part of the first CC refugee program in PNG in which the Caterets Islanders were relocated to the mainland Bougainville. The NGO directly involved in this process is Tulele Pesa and is run by a local woman from the area called Ursula Rakova.

[5] Unfair Transactions Act

[6] Example of this is seen in the Village, District and National Courts of the country as well as within the ADR Track which is also provided for under the respective laws of the country and particularly the Constitution of PNG sections 37 and 155.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
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Title	Module	Submitted
Annex H4 Climate Risk Screening	CEO Endorsement ESS	
Annex H2 FAO Screening Checklist	CEO Endorsement ESS	
Annex H1 ESMF 2021_11_23	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Objective: To conserve threatened species and habitats, improve the management of protected areas, areas of high conservation value and associated buffer zones, and enable sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces.							
Component 1: Strengthening integrated land use planning, coordination and management through improved spatial data and decision support systems							
Outcome 1.1 Investment and land use decision-making in EHP and WHP enhanced by using highly participatory and transparent decision support systems (DSS), backed by comprehensive land use and improved access to biodiversity information and linked spatial data.	The extent to which investment and land use decisions in EHP and WHP is enhanced using DSS and improved data sets (disaggregated by type, location and scale of investment) .	Limited spatial data is available at sub national levels and investment and land use decisions are not well informed by DSS	Investment and land use decisions in 1 province have demonstrably improved outcomes for biodiversity	Investment and land use decisions in 2 provinces have demonstrably improved outcomes for biodiversity	Project reports on the use of DSS and spatial data in land use and investment decisions Analyses of any changes in biodiversity resulting from changes to investment and land use decisions	Decision makers are willing to alter plans and practices to incorporate improved outcomes for biodiversity and avoid harm to high value conservation areas and species	PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output.1.1.1</u> Biodiversity/forest assessments conducted in two target provinces, including forest assessments supplementing the National Forest Inventory	Multipurpose provincial biodiversity/forest assessments completed. Extent that provincial biodiversity/forest assessments incorporate gender-based knowledge.	No comprehensive biodiversity or forest assessments exist for the 2 provinces. Some NFI site-level assessments exist for WH (3) and EH (4)	40 site level biodiversity/forest assessments completed	Multipurpose provincial biodiversity/forest assessments that incorporate gender-based knowledge completed in WHP and EHP	Copies of assessments data Assessment reports Scientific publications	PNGFA and CEPA can complete assessments in a timely manner Customary landowners and provincial governments support the assessments	PNGFA CEPA PMU FRI BRC
<u>Output 1.1.2</u> Spatial data including gender and age disaggregated socio-economic data, customary landowner aspirations, development plans and historical land use and land use change in the two target provinces, and key gaps and trends in data identified.	The extent that relevant data are available at provincial and sub provincial levels and being used to support land use management decisions (including gender and age disaggregated)	No comprehensive, integrated data sets exist at provincial or lower levels	Gender and age disaggregated spatial data for EHP and WHP collected, analyzed, and stored. Key gaps and trends in data identified.	Same as Mid-term target	Copies of data sets Reports on use of data sets Comparison with current land use maps (2020) and historical land use change maps (2000, 2015)	Data sharing protocol is coordinated and commenced Customary landowners are willing to participate in data collection and management process	CEPA DLPP PNGFA PMU Province and District Forest, Environment and Agriculture officers Community facilitators

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 1.1.3</u> Biodiversity, socio-economic and historical land use and land use change information of the target provinces is made available through web-interface database systems	PNG web portal enhanced and populated with data including land use maps. Gender and age search criteria available in the web portal	PNG web portal exists but do not contain comprehensive sub national data	PNG web portal operational with gender and disaggregated spatial data from WHP and EHP	Same as Mid-term target	Review of PNG web portal Reports of web portal functionality Copies of data bases in web portal	Stakeholders (including customary landowners) are willing to incorporate data onto their web platforms and assume responsibility for curating data	CEPA CCDA PNGFA PMU
<u>Output 1.1.4:</u> Integrated decision support system developed and tested for the Eastern and Western Highlands, based on Adaptation of lessons learned on decision support systems elsewhere in PNG	Decision support system is being used for integrated land use and investment decision making in EHP and WHP	Several decision support systems have been developed but are not fully operational and not integrated .	DSS systems that draw on the provincial biodiversity /forest assessments and gender information available for integrated land use and investment decision making	Same as Mid-term target	Project reports Operational user guide/manual of DSS System development report (administrator guide) of DSS	Government agencies and Provincial planners are willing and able to collaborate	CEPA PNGFA CCDA PMU Provincial government

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 1.1.5:</u> Web-based applications in existing platforms for improved coordination and land use planning are operating	Web-based applications in existing platforms have improved inter-operability and are accessible to decision makers at national, provincial and sub provincial levels for land use planning and related activities	Nil	Three web-based applications in existing platforms (2 provincial, 1 district) operational for improved coordination and land use planning	Eight web-based applications in existing platforms (2 provincial, 2 district, 4 local) operational for improved coordination and land use planning	Project reports Interviews with stakeholders	National and provincial stakeholders are willing and able to improve coordination of land use planning	PMU CEPA CCDA PNGFA
<u>Output 1.1.6:</u> Capacity to undertake integrated planning built amongst at least 100 planners (women and men) at provincial, district, local and ward levels	Number of planners who have skills to undertake integrated planning (disaggregated by gender).	Few records or experiences of integrated planning	50 planners have skills to undertake integrated planning	100 planners have skills to undertake integrated planning (10 provincial officers in the two provinces, 24 personnel from 12 district administrations, and 66 representatives of 33 local level governments, including ward levels)	Project reports Training reports (including number of certificates issued ? gender disaggregated)	Provincial planners are willing and able to collaborate	CEPA PNGFA CCDA PMU Provincial government

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 1.1.7</u> Priority areas and species for conservation and mainstreaming biodiversity defined through participatory approaches with customary landowners and key partners	Number and type of priority areas and species for conservation identified (High Conservation Value probability maps provide base for planning)	Some community conserved areas exist but there are significant gaps in knowledge of priority areas from a community perspective	Six priority areas and species for conservation and mainstreaming biodiversity defined	Same as Mid-term target	Reports on participatory approaches Copies of priority conservation areas and species for conservation and mainstreaming biodiversity identification reports.	Customary landowners and key partners are willing to collaborate with government and project staff to identify priority conservation areas.	CEPA PNGFA PMU Communities
<u>Output 1.1.8:</u> Participatory land and conservation planning assessments and mapping of up to 200,000 hectares of priority areas for agricultural improvement, conservation and forest/grassland restoration	Number of participatory land and conservation planning assessments and maps completed in and near priority areas for biodiversity conservation	A National Land-Sea Conservation Assessment was completed in 2017	Assessments and maps that identify priority areas for improving agriculture, forest and grassland management in and near priority areas for biodiversity conservation completed in one province.	Assessments and maps that identify priority areas for improving agriculture, forest and grassland management in and near priority areas for biodiversity conservation completed in both provinces.	Copies of assessments and maps	Customary landowners, LLGs and Districts are willing to collaborate with government and project staff to identify priority areas for improving agriculture, forest and grassland management.	CEPA PNGFA PMU Provincial governments

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 1.1.9:</u> Land use monitoring systems for the two target provinces established.	Land use monitoring systems being used effectively at provincial level	No near real-time land use monitoring system exist	Prototype land use monitoring systems with data of target areas being used effectively at provincial level	Operational land use monitoring systems, including gender-and age disaggregated data, of target areas being used effectively at provincial level.	Report of land use monitoring system Reports from M&E systems	Government agencies and Provincial planners are willing and able to collaborate	CEPA PNGFA CCDA PMU Provincial government
<u>Output 1.1.10:</u> Integrated decision support system used by stakeholders to identify sites of high importance for global biodiversity for at least four existing and potential Community Conservation Areas (CCA) and other protected areas, areas where deforestation and ecosystem degradation should be avoided, areas for restoration, and areas for economic development.	Number of CCAs effectively using the DSS to improve land use decision making and action	No integrated decision support systems are used for CCAs	At least two CCAs and other areas using the DSS	At least four CCAs and other areas using the DSS	Project reports Evidence of CCAs and other areas using DSS	Customary landowners, LLGs and Districts are willing to collaborate with government and project staff to use DSS	CEPA PNGFA PMU Provincial government CCAs

[illegible]

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Outcome 2.1:</u> Key value chains for sustainably harvested products strengthened/established and financial and market support mechanisms for forest and farm producer organizations made available	Farming families and forest and farm producer organizations are demonstrably benefiting from improved gender sensitive, biodiversity friendly and climate resilient value chains in WHP and EHP. The number of small-scale farmers with improved business arrangements.	Value chains exist, but are generally rudimentary, provide low value returns to individuals and enterprises, and business skills are weak	At least 500 farming families and their forest and farm producer organizations have identified biodiversity friendly and climate resilient value chains	At least 1,00 farming families and their forest and farm producer organizations have identified biodiversity friendly and climate resilient value chains. A least 500 farming families (of which 50% of beneficiaries are women) have improved business arrangements with biodiversity friendly and climate resilient value chains	Project reports Training reports Market and value chain analysis Employment statistics	FFPOs are willing to adopt new approaches and engage in markets	PMU PNGFA Provincial government

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 2.1.1</u> Options for gender sensitive, biodiversity friendly and climate resilient practices and approaches have been identified by a review of the farming and forest use systems (gender disaggregated) of the target provinces	Number and type of options for gender sensitive, biodiversity friendly and climate resilient practices and approaches identified	Limited documentation of gender sensitive, biodiversity friendly and climate resilient practices and approaches	Gender sensitive, biodiversity friendly and climate resilient practices and approaches identified in 12 sites in and near areas identified as priorities for biodiversity conservation	Gender sensitive, biodiversity friendly and climate resilient practices and approaches identified in 10 clusters (groups of farming families within a buffer zone) in and near areas identified as priorities for biodiversity conservation	Project reports Copies of reviews		PMU DAL
<u>Output 2.1.2</u> At least 1,000 farming families (FFs) are implementing improved farming and forest management systems, including forest restoration and agroforestry, based on biodiversity friendly and climate resilient practices.	Number of men and women farmers that adopt biodiversity friendly and climate resilient management practices. The area of targeted landscapes under improved practices	A wide range of farm and forest practices exist in the highlands but not all are biodiversity friendly and climate resilient	500 farming families (men and women) adopt biodiversity friendly and climate resilient management practices	At least 1,000 farming families (men and women) adopt biodiversity friendly and climate resilient management practices	Project reports	Farmers are willing and able to adopt biodiversity friendly and climate resilient practices The project can identify biodiversity friendly and climate resilient practices that are acceptable to local people	PMU NARI CIC/FPDA

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 2.1.3:</u> Assessments of specific gender sensitive, biodiversity friendly and climate resilient value chains in each FF cluster conducted, and improvement plans prepared.	Number of value chain assessments completed Number of value chain improvement plans prepared	Nil	At least 5 cluster-level value chain improvement plans prepared	At least 10 cluster-level value chain improvement plans prepared	Project reports Copies of assessments Copies of improvement plans	MFFs and their Forest and farm producer organisations (FFPOs) are willing to develop improvement plans and participate in assessments	PMU
<u>Output 2.1.4:</u> FFs and their FFPOs in each FF cluster have developed bankable business plans and used these plans to develop viable, gender sensitive, biodiversity friendly, climate resilient small-scale farm enterprises	Number and type of bankable business plans developed by FFs and their FFPOs (gender and age disaggregated). Number and type of viable, gender sensitive, biodiversity friendly, climate resilient small-scale farm enterprises successfully operating (gender disaggregated).	Some business plans exist	Nil	At least 500 bankable business plans prepared and 500 small-scale farm enterprises operating successfully	Project reports Copies of business plans Number of bank accounts opened Number of FFPO-business plans that received credit	MMFs and their FFPOs are willing to develop bankable business plans Time it takes to register plans No serious conflicts at community level	PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Outcome 2.2:</u> Improved biodiversity conservation in targeted protected areas (including CCAs)	Trend of globally threatened indicator species and habitats in targeted protected areas are improved.	National level protected area management effectiveness reports indicate substantial gaps in management effectiveness	The trend of targeted indicator species and habitats in 2 protected areas has improved	The trend of targeted indicator species and habitats in at least 4 protected areas has improved	Project reports Management effectiveness reviews	Protected area staff are willing and able to improve capabilities Ongoing funding can be provided by government or through other means for Pas There is sufficient time for gazettal/ approval of any new protected area or CCA	PMU CEPA
<u>Output 2.2.1:</u> Review of the five existing gazetted protected areas in the two target provinces conducted and Statements of Management Intents (SMI) developed and management plans prepared -	Number of reviews completed, number of Statement of Management Intents and management plans prepared or revised.	Few reviews exist Two plans for two sites exist in WHP	Review of two existing (gazetted) protected areas conducted Statement of Management Intents (SMI) developed and management plans prepared or revised	Review of five existing gazetted protected areas conducted, Statement of Management Intents (SMI) developed and management plans prepared or revised (2 plans in EHP and 3 WHP).	Project reports	Protected area staff are willing and able to develop/revise management plans	PMU CEPA Provincial government (WH) Local communities WCS PNGIBR GEF 6 project (collaboration)

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<p><u>Output 2.2.2:</u> Targeted customary landowners (women, men and youth) supported to plan five Community Conserved Areas (CCAs) under relevant policies and laws, and to enhance land management and conservation practices.</p> <p>-</p>	<p>Number of community conserved area (CCA) land use plans prepared.</p> <p>The extent that targeted protected areas are under improved management for conservation and sustainable use (GEF Core indicator 1).</p>	Several CCAs exist in the target areas	Two CCA land use and management plans prepared, management system approved, and the areas are under improved management.	Five CCA land use and management plans prepared, management system approved, and the areas are under improved management.	<p>Project reports</p> <p>Copies of CCA plans</p>	Customary landowners are willing and able to identify and plan for CCAs	<p>PMU</p> <p>CEPA</p> <p>Local communities</p>
<p><u>Output 2.2.3:</u> Management effectiveness of five existing protected areas, (including existing CCA) improved.</p>	<p>The extent to which targeted PAs are applying effective management tools (using the revised METT).</p> <p>The extent that targeted protected areas are under improved management for conservation and sustainable use (GEF Core indicator 1).</p>	National level protected area management effectiveness reports (and current PA-METT assessment) indicate substantial gaps in management effectiveness	Two protected areas under improved management for conservation	Five (275,000ha) protected areas (including existing CCA) under improved management for conservation	<p>Project reports</p> <p>Management effectiveness reviews</p> <p>Number of people trained in the PA-METT tool</p>	PA managers are willing and able to improve the effectiveness of PA management	<p>PMU</p> <p>CEPA</p>

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Component 3: Strengthening the enabling environment and governance structures for integrated landscape/land use planning, coordination and management							
<u>Outcome 3.1:</u> Integrated decision support systems for land use management of the targeted landscapes are enabled by adequate policies and methodologies	The extent to which integrated decision support systems at provincial levels (WHP and EHP) are supported effectively by improved policies and methodologies	Policies and methodologies that support integrated planning are inadequate or non-existent at provincial level New protected areas policy exists	Changes to provincial policies (EHP and WHP) needed to enable effective decision support systems and provincial and sub-provincial level identified	Changes to provincial policies (EHP and WHP) needed to enable effective decision support systems and provincial and sub-provincial level effected	Project reports on the effectiveness of policy and methodology for integrated planning Copies of changed policies and methodologies	National and Provincial levels willing and able to develop improved policies and methodologies in a timely manner	PMU Provincial governments
<u>Output 3.1.1:</u> Strengthened provincial (2) regulatory frameworks for the conservation and sustainable use of multi-functional landscapes	The extent to which provincial regulatory frameworks support the conservation and sustainable use of multi-functional landscapes	National Protected Area Policy exists PA Bill under development	One provincial regulatory framework, including the Protected Areas Policy Implementation Plan (PAPIP), support integrated decision support systems for the conservation and sustainable use of multi-functional landscapes	Two provincial regulatory frameworks, including the Protected Areas Policy Implementation Plan (PAPIP), support integrated decision support systems for the conservation and sustainable use of multi-functional landscapes	Reviews of regulatory frameworks Project reports	National and provincial policy makers are willing and able to strengthen regulatory frameworks in a timely manner	PMU CEPA PNGFA Provincial governments

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 3.1.2:</u> Provincial policy and regulations (4) on agricultural, fisheries and forestry commodity trading strengthened to support gender sensitive, biodiversity resilient practices and approaches	The extent to which provincial policies and regulations on agricultural, fisheries and forestry commodity trading support biodiversity friendly and climate resilient land use.	Nil Relevant agricultural, fishery and forestry studies exist	Two provincial policies and regulations on agricultural, fisheries and forestry commodity trading strengthened	Four provincial policies and regulations on agricultural, fisheries and forestry commodity trading strengthened.	Project reports Copies of policies and regulations	National and provincial policy makers are willing and able to strengthen regulatory frameworks in a timely manner	PMU CEPA DAL FPDA CIC Provincial governments
Component 4: Effective knowledge management, monitoring and evaluation							
<u>Outcome 4.1:</u> Stakeholders and the project benefit from the project's knowledge management and monitoring and evaluation systems	Increase in knowledge of stakeholders on the value of biodiversity and sustainable land use practices at local, provincial, and national levels Project governance and implementation is guided effectively by the project's M&E system	GEF 4 and 5 reports on M&E are available. GEF 6 currently considering these issues	More than 80% of targeted national and provincial (WHP and EHP) stakeholders are satisfied with project knowledge products The project steering committee and PMU are using the M&E results to guide project interventions	More than 80% of targeted national and provincial (WHP and EHP) stakeholders are satisfied with project knowledge products The project steering committee and PMU are using the M&E results to guide project interventions	Knowledge products use survey M&E system reports Project reports (PMU and Steering committee) Copies of disseminated materials	Project can develop an effective M&E system Project knowledge materials and approaches are relevant and useful to stakeholders	PMU

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
<u>Output 4.1.1:</u> Monitoring and evaluation of project progress on a regular basis using harmonized, gender disaggregated, monitoring and learning approaches (at local and national level)	Functioning monitoring, evaluation and learning (MEL) system that is suited to national and local contexts Mid-term review completed Final Evaluation completed	GEF 4 and 5 reports on MEL are available. GEF 6 project currently considering these issues	One functioning MEL system that is suited to national and local contexts Mid-term review completed	One functioning MEL system that is suited to national and local contexts Final evaluation completed	Project MEL strategy Project reports MEL baseline and follow up	The project can develop a cost effective, efficient and relevant participatory approach to MEL	PMU Provincial governments CEPA PNGFA DAL
<u>Output 4.1.2:</u> Knowledge sharing strategy developed, and lessons and best practices disseminated in appropriate formats at local and national level	Number and type of project outputs disseminated Number and type of knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations operating (gender disaggregated)	Previous GEF projects have communication plans that can provide guidance GEF 6 project has plans for PA forum	Four major project outputs disseminated Two Two-way knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations operating.	Eight major project outputs disseminated. Five Two-way knowledge exchange networks of Farmer Field Schools and Forest and Farm Producer organizations operating.	Project reports Copies of disseminated materials Reports from events by project sponsored participants	Project materials are relevant and useful to stakeholders Exchange visits adds value to project outcomes	PMU Provincial governments CEPA PNGFA DAL

[1] Note that target is 30% women and 70% men based on the reality of current demographic of planners

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

GEF comment	PPG action
<p>During PPG, it would be good to coordinate with the potential UNEP GEF-7 project as they are looking at similar issues around decision support related to natural capital.</p>	<p>The project design teams of FAO and UNEP coordinated the design of the two GEF 7 projects. The project design includes opportunities to share information between the two projects.</p>
<p>During PPG, please look to the various documents produced by USAID on conservation enterprise to help develop strong theories of change and value chains underlying the activities</p>	<p>The PPG reviewed the documents produced by USAID and other relevant agencies on conservation enterprise and took these into consideration while developing both theories of change and value chains.</p>
<p>3.1.2 ? Please refer to people by their titles (farmer, leader etc) rather than men and women. It is confusing to follow as written and there really is no point unless numbers are given for men and women.</p>	<p>Changes have been made to refer to which people are involved in the outputs</p>
<p>significant issue still remains with the question of restoration. 10,000 ha of restored land is a very large target. It's hard to justify the value of restoration, especially of agricultural land, for biodiversity given the associated costs. How would they be selected? Restoration implies a very poor condition being brought to a fairly moderate agricultural lands. It's difficult to justify for global biodiversity benefit purposes. This may be an issue of defining restoration and the particular activities envisioned and their biodiversity benefit. Also: the number of farmers in 2.1.2 doesn't seem to match the indicator</p>	<p>The restoration target was reduced in the PIF to 800 ha. Number of farmers has been addressed to match throughout the documents.</p>

<p>Germany would like to point out that due to the importance of Papua New Guinea as a mega-biodiverse country and its complexity, every project approach should be supported by all possible means. In current proposal, pragmatic local seems to be lacking and could potentially hamper project success. The overall project approach is very ambitious. Even though the proposal correctly recognizes that "the root causes of environmental problems in the highlands are complex and include demographic, economic, socio-political, scientific, technological, cultural, and religious root causes", the project approach does not fully grasp this complexity. We have concerns that achieving the described outputs in only four years might not be feasible and would therefore like to request that activities, outcomes and outputs are reassessed in the further project design and possibly adjusted/reduced to be feasible in the given timeframe and budget.</p>	<p>Outputs have been modified to be more realistic. The design of the project has been adjusted to focus more on the existing protected areas and other areas of high conservation value as well as on the buffers around these areas. This will help focus the project geography. However, it also introduces an element of risk insofar as people beyond the buffer zone may be aggrieved that they are not being supported by the project.</p>
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The project is unclear in several respects and raises a number of concerns. **The objective of this project needs clarification** ? the stated objective is biodiversity mainstreaming, but the main indicators of success are about protected areas.

The implications of the stated government push toward increasing agricultural intensification for the target provinces are unclear. This raises the question of leakage ? is loss of biodiversity simply shifting to lands that are not covered by the project? Some overall accounting of biodiversity lost/gained should be implemented, analogous to LDN neutrality, to ensure this is not taking place.

The role of IPLC empowerment and rights to make their own decisions about land use is under-emphasized or unclear. There is a narrative theory of change (TOC), but it is not well developed (simply 3 numbered paragraphs with no graphic) and does not enable clarity regarding the internal project logic. See STAP Primer on Theory of Change.

Indigenous people and local communities (IPLCs) are critical actors and stakeholders in this project but have not been consulted in project development. The problem description in this PIF is weak in terms of describing the political/social/economic context and drivers of environmental degradation. STAP strongly suggest these issues are fully addressed in the next stage of planning.

The objective of the project was amended - *To conserve threatened species and habitats, improve the management of protected areas, areas of high conservation value and associated buffer zones, and enable sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces.*

The rights of IPLC (note this term is not widely used in PNG, instead the term customary landowners has been used in the project) to make their own decisions has been clarified. The biodiversity assessment, spatial data and DSS elements of the project have been refined to ensure that ?leakage? issues can be monitored effectively. The project description has been substantially strengthened.

<p>The objective is not very clear. It is ?to mainstream biodiversity in priority sectors and landscapes? in two provinces. The emphasis on biodiversity mainstreaming is welcome, but mainstreaming is an approach to achieve biodiversity conservation objectives, and these are not specified. Mainstreaming in order to achieve what, exactly? For instance, improving biodiversity conservation and expanding forest cover while boosting local incomes? In any case, however, the project is not all about biodiversity mainstreaming, and the bulk of the benefits gained (in ha) (according to the indicators) appear to be focused on protected areas. It would be good to see this clarified.</p>	<p>The objective has been revised to <i>conserve threatened species and habitats, improve the management of protected areas, areas of high conservation value and associated buffer zones, and enable sustainable, biodiversity friendly, climate resilient livelihoods in Eastern and Western Highlands Provinces..</i></p>
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In component 1, who is intended to be using the tools and making investment and land use decisions? Presumably communities should be being empowered to make these decisions themselves about their land, given the land is virtually all communally owned, yet this section reads rather as if others will be making these decisions (albeit 'participatorily?'). Indeed, at a number of points the need for communities to agree to what happens on their land seems to be highlighted as rather a hindrance (e.g. pp 31, 33). This is particularly concerning in the light of the oil palm plans referred to above. **Emphasis needs to be given throughout to strengthening community rights and capacities for sustainable management of their lands and resources, with full respect for and reliance on FPIC throughout** ? this may be intended by the project, but it does not come through clearly. The STAP paper 'Local Commons for Global Benefits' provides relevant guidance on building community management of forests and wildlife that could usefully inform project development <https://www.stapgef.org/local-commons-global-benefits-indigenous-and-community-based-management-wild-species-forests-> and it would be good to **understand the broader context of deforestation/land use change better**. Is it the case that loss of biodiversity/forests in the provinces is expected over coming years, outside of the areas targeted by the project? Or will the project actually expand the extent of forest/biodiversity in the target provinces? This raises the broader issue of 'leakage?', and whether interventions may successfully conserve biodiversity in one area, but impacts simply shift elsewhere. Some form of accounting analogous to LDN neutrality would be really important in addressing this problem.

The intent of the spatial data and decision support tools and associated planning systems has been clarified and the role of customary landowners identified more clearly. The aim is not to replicate top-down planning systems that have been shown to be not successful in the context of customary landowner situations. The context of land use change has been clarified as far as currently available data allow. The project design has been adjusted to collect, assess and map spatial data to provide more reliable and accurate information on land use change and biodiversity. The biodiversity assessment, spatial data and DSS elements of the project have been refined to ensure that

<p>The outputs do appear to add up generally to the outcomes, (although in component 2 much relies on what constitutes 'green' value chains).</p>	<p>The Outputs have been revised and re-ordered to provide a more logical progression. The linkages between outputs and outcomes have been described. Activities to deliver outputs have been elaborated.</p>
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The **problem statement is not particularly clear**. There are some unclear aspects of the text: in the root causes section, the pif states that in the focal provinces 96% of cropland is subsistence agriculture, then goes on to state that (in this same area) farmers depend on coffee as a major source of cash income. It is not clear how these can both be true, subsistence agriculture generally being defined as agriculture to meet farmers' own subsistence needs rather than for sale. The cause of deforestation in the target provinces is indicated to be subsistence agriculture (p30), but then commercial agriculture is flagged as likely to be a future driver, linked to high population growth (p31). What will drive the shift to commercial agriculture that seems about to take place? The root causes do not seem to go very deep. In Table 1, for example, root causes are listed as poverty and unsustainable livelihood activities. But why are people poor and why are their economic activities unsustainable? There is a wealth of scholarship that examines why resource use tends toward unsustainability rather than sustainability, and it could have been usefully applied to understand this social-ecological system in more detail. There is almost no attention to power relations in this analysis, particularly those between local communities, political elites, and large corporations? are these not significant factors in understanding the current situation? It is hard to gain a clear picture of the operation of political/economic forces (historic/current) in explaining patterns of biodiversity degradation/resource extraction etc. It would be helpful to know more about, for example, the rights communities have to control their lands in situations where these are valuable to commercial interests for logging/mining/agriculture. Is the declaration of SABLs done with local agreement or without it?

The fact that customary landowners largely practice semi subsistence agriculture and depend on coffee as a major source of cash income are not exclusive. Perhaps the PIF should have used the term semi-subsistence rather than subsistence as most farmers do engage to an extent in markets. There are few major commercial influences in the WHP and EHP unlike other provinces where mining, commercial agriculture and forestry play a significant role in land use change. SABLs are not relevant to the EHP and WHP project locations and reference to SABLs has been removed. In WHP and EHP customary landowners own and manage almost all of the land.

The barriers listed as 'Information and knowledge barriers' appear to be barriers to successful businesses, rather than successful biodiversity conservation that also improves livelihoods. How are these necessarily linked to biodiversity conservation outcomes? Otherwise the barriers are fine.	The description of information and knowledge barriers has been revised.
The baseline given clearly and comprehensively summarises other projects that will be operating over the same period. However, it does not give a baseline in the sense of a scenario that can be contrasted with the alternative scenario - the one intended to be achieved through the intervention	The baseline has been revised. The business-as-usual approach has been contrasted with the alternative scenario.
Need to provide a feasible basis for quantifying the project's benefits	See above
The baseline is not sufficiently robust to support the incremental (additional cost) reasoning for the project	See above
specific lessons from similar or related interventions are described. There is reference to drawing lessons from some other projects (eg. USAID on p42) but the pif does not make clear what has been learnt - either re what works or (possibly more importantly) what doesn't - in these PNG systems.	The lessons learned have been elaborated
Need to improve text on how lessons inform the design of this project	See above

<p>The problem statement is not particularly clear. There are some unclear aspects of the text: in the root causes section, the pif states that in the focal provinces 96% of cropland is subsistence agriculture, then goes on to state that (in this same area) farmers depend on coffee as a major source of cash income. It is not clear how these fit together (e.g. any sequencing that may need to be followed ? like the CCA establishment of component 2 being dependent on the mapping of appropriate areas for CCAs in component 1) and no identification of critical assumptions ? a good TOC enables all these things to be simply illustrated. The TOC set out in components 1 and 3 is quite clear, but the TOC of component is not. It is not clear why support to PA management is in this component, which is mainly about incentive-based approaches to support greener forms of agriculture. A good TOC would also enable identification of critical assumptions that underlie each step in moving toward the overall objective (e.g. that markets for biodiversity-friendly products can be established). The STAP primer on TOCs would be very helpful in improving this.</p>	<p>The problem, statement has been clarified. The issue of coffee vs semi subsistence is explained above. Sequencing of activities has been explained. Assumptions have been provided. The PA component fits within Component 2 as this is where the project is seeking to apply a landscape approach that incorporates both farmland and protected areas. A ToC has been provided.</p>
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<p>Only a list of outputs and outcomes is provided, with little narrative explanation. In component 1, it is hard to understand how decisions on land use will be made. At some points the pif indicates priority areas for conservation, agriculture etc will be established through a participatory planning process (eg output 1.1.4, 1.1.5). At other points it seems the decision support system, based on spatial data, will inform identification of these. The emphasis on CCAs is welcome, but there is no analysis of how current CCAs are functioning and how customary landowners wish these to be supported. For component 3, this is described as building a regulatory/policy framework that provides incentives for biodiversity-positive land use (eg p43), but what are these incentives? Are we actually talking about incentivising biodiversity conservation on these lands, or just encouraging farming/extraction/harvesting practices that involve less damage to biodiversity than under business as usual? This needs clarification. On p43 the description of component 2 includes reference to payments for environmental services and biodiversity offsets. This does not seem to be well thought through at all, or integrated with/consistent with the rest of the project, where these aren't mentioned. PES and offsets generally require strong governance in place to be effective, and it needs careful consideration how effective these are likely to be in PNG. The description also makes reference to identifying places where development will be positive for biodiversity and forests ? given that the developments being referred to are commercial agriculture/forestry and infrastructure it would be good to see some reasoning of how this could be the case.</p>	<p>There is only vey limited information available for CCAs and what is available has been included in the project documents. The incentives have been described and PES has been removed as it is impractical for the scope of the project.</p>
<p>There is no identification of underlying assumptions. The mechanisms of change may be plausible ? it is hard to judge, as there is little narrative to explain how outcomes will be reached and what assumptions are being made.</p>	<p>Assumptions have been added</p>

Need to improve recognition of what adaptations may be required during project implementation to respond to changing conditions in pursuit of the targeted outcomes?	The project has been redesigned to enable a phased approach whereby the project initially focuses on collecting spatial data, developing decision support systems, identifying key stakeholders and areas of high conservation value and analyzing farming systems and value chains. This information will be used to adapt project interventions based on the interests and needs of customary landowners.
The number of beneficiaries seems rather small for a project of this scale.	Number of beneficiaries has been revised
Section 1.6 (p44) is rather vague ? this requires much clearer identification of the GEBs and how they are to be measured against what baseline.	GEBs have been revised and clarified
projected benefits both plausible and compelling in relation to the proposed investment need clearer explanation	Benefits have been elaborated

<p>Innovation - The use of spatial data is not particularly innovative globally, but represents an important innovation locally. There may be innovative elements in incentivising biodiversity-friendly farming/production practices, but as no detail is provided on these it is hard to say. Policy/regulatory changes may be innovative, but again as no detail is given on how these would shift to be more supportive of positive biodiversity outcomes, it is hard to say.</p>	<p>Innovation section has been redrafted. While spatial data and to some extent DSS are already used at national level, their accessibility and usefulness at sub national is very limited. Component 1 of the project provides several innovative approaches to generating, sharing and using spatial data and DSS at sub national level</p>
<p>Lack of clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors. Current text is very high-level and vague</p>	<p>Scaling up has been described and activities included in most outputs.</p>
<p>The pif indicates long-term sustainability (durability) will be achieved through strong involvement of communities and improved livelihoods, but IPLCs have not to date been involved in consultation for this project. It is therefore unclear whether communities are indeed demanding/supportive of the proposed interventions, and how they will be affected by development plans in the area. Gaining clear support and buy-in for the project from IPLCs in the target areas is an essential step to be prioritised in project planning.</p>	<p>The communities consulted expressed strong interest in the project</p>
<p>IPLCs have not been consulted in the development of this project. As successful implementation and durability of outcomes relies critically on their support, this is a serious concern. It is good to see FPIC highlighted at this point ? it is critical to all the planning of land use referred to throughout the document. They are critical to components 1 and 3 as well as 2, as they will be among primary decision-makers on land use and actors in governance structures.</p>	<p>The communities consulted expressed strong interest in the project</p>

<p>IPLCs are framed here as people who just need to agree to activities, while government players are viewed as key actors. In further project development STAP would like to language that rather emphasised the role of IPLCs as rights-holders and key decisionmakers around land use and conservation, to be empowered and supported through rights and capacities in order to make sound decisions regarding their land and resources.</p>	<p>Language has been adjusted and customary landowners are now the primary focus of the project</p>
<p>The project has identified gender differentiated dynamics among target communities and highlighted that it will be addressing these, although no specific approaches to address gendered decision-making, access to resources etc are identified at this point</p>	<p>A gender analysis and action plan have been developed and gender issues incorporated in the project activities.</p>
<p>Do gender considerations hinder full participation of an important stakeholder group (or groups)? If so, how will these obstacles be addressed? Yes, potentially. The pif indicates these obstacles will be addressed, but with little specificity at this stage.</p>	<p>A gender analysis and action plan have been developed and gender issues incorporated in the project activities.</p>

<p>There appear to be a considerable array of risks that could prevent this project reaching its objectives.</p> <p>Lack of political will appears a fundamental and major risk, as identified in the risk table, particularly given the commitment toward agricultural expansion of the government. It is unclear whether simple awareness-raising is generally enough to generate political will for biodiversity conservation, given often strong political/economic incentives for commercial extraction/development. What will be done if it is not? Will there be strong attention to making the 'business case' for biodiversity? Likewise, guidelines do not appear adequate to address the considerable challenges of institutional cooperation ? what about communications, networking, building cross-institutional platforms, etc? This one seems to be rated very low at 2. The measures to address gender mainstreaming are non-specific and inadequate. With landholders, again, these are very generic and non-specific measures, that provide little reassurance.</p> <p>There is no reference to risks of tribal conflict and violence in the Highlands, yet media reports at least appear to indicate this is serious and severe in recent years. How will this risk be addressed?</p> <p>No climate risk screening has been carried out at this stage. The pif indicates this will be carried out at PPG stage, and it notes that the project's impacts should increase resilience to climate change. However, climate risk screening should be carried out early in project design, in order that interventions are designed to respond to projected climate change. Is this the most appropriate project design to achieve these objectives, given likely climate change impacts over the next three decades? Durability of project benefits depends critically on the answer to this question. STAP guidance on climate risk screening should be helpful in guiding this screening https://stapgef.org/sites/default/files/publications/Climate%20Risk%20Screening%20web%20posting.pdf</p>	<p>A climate risk screening was undertaken for the PIF and updated for the project design. Climate resilient approaches have been included as activities. Tribal conflict was not identified as a major issue during project design. Issues of tribal conflict are more prominent in adjacent Highlands provinces, hence the media reports.</p>
<p>There is little indication of specific learnings from other projects. TNC's work in New Britain is referred to, but no specific lessons from this are articulated. STAP guidance on biodiversity mainstreaming, and in particular the characteristics of successful mainstreaming projects, should be consulted in further development/revision of this project.</p>	<p>Learning from other projects have been elaborated</p>

<p>The knowledge management section here remains very general and non-specific, leaving detail to be developed in a communications and knowledge management strategy to be developed by a communications consultant. How learnings from the project will be generated and captured is not clear.</p>	<p>The project will recruit a knowledge management and communication specialist who will develop a comprehensive knowledge management and communication strategy within the first quarter of project inception. A detailed list of requirements for the strategy is included in the ESMF. The section on knowledge management in the project documents has been revised.</p>
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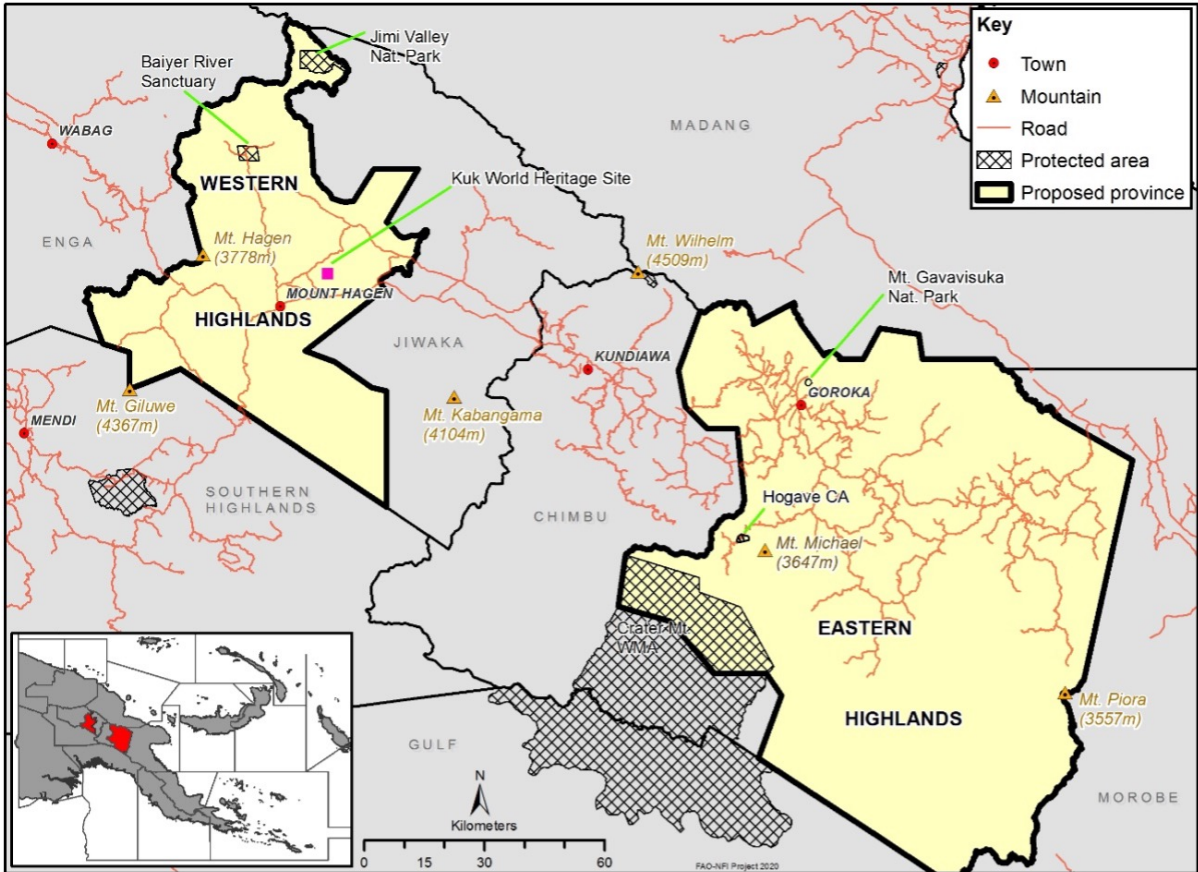
ANNEX C: Status of Utilization of Project Preparation Grant (PPG).
(Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: 200,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent to date</i>	<i>Amount Committed</i>
Salaries Professional	10,000	0	10,000
Consultants	108,800	98,672	10,128
Contracts	5,000	0	5,000
Travel	59,400	10,901	48,499
Training	14,500	22,279	(7,779)
Expendable Procurement	1,500	5,003	(3,503)
General Operating Expenses	800	4,004	(3,204)
Total	200,000	140,859	59,141

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

A map of the project is included as Annex A. The Western Highlands is located at 5.6268° S, 144.2593° E and the Eastern Highlands is located at 6.5862° S, 145.6690° E.



ANNEX E: Project Budget Table

Please attach a project budget table.

The GEF budgetary allocation for the Project is US\$ 6,463,097 over a four-year period. The project budget covers four components, plus project management and M&E costs. The first three components deliver key project outcomes and outputs. The fourth component focuses on monitoring, evaluation, knowledge management and scaling up lessons learned.

WCS is the primary recipient for the funds from GEF and it will oversee procurement and recruitment in coordination with CEPA.

Component 1 represents 38 per cent of the total budget (US\$2,431,002). Approximately 70 per cent of the budget for this component will be allocated in the first two years of project implementation to enable activities within Component 1 that support integrated planning that will enable activities in Components 2 and 3.

Component 2 represents 37 per cent of the total budget (US\$2,399,100). Component 2 provides for scaling up landscape-level action for integrated conservation and sustainable supply chain development.

Over 70 per cent of the GEF budget for this component is allocated in years two and three to build on the information and planning provided in year one and two from Component 1. This will help ensure that capacity of farming families and forest and farm producer organisations to develop biodiversity friendly and climate resilient land use practices before the end of the project to provide an incentive for sustaining and expanding effective practices and linking to markets.

Component 3 represents five per cent of the GEF (US\$ 352,432). This component focuses on Strengthening the enabling environment and governance structures for integrated landscape/land use planning, coordination and management.

Component 4 represents ten per cent of the total budget (US\$661,797) and includes coordination with the CEPA and other projects as well as budget for ensuring the Project's knowledge and lessons learned are shared at the national level and with other relevant sites in PNG, and regionally.

The PMC and M&E costs each represent five per cent of the total budget, or \$307,766 and \$ 311,000 respectively. The M&E budget includes an M&E officer, and the costs of the mid-term review and the final evaluation.

Project co-financing totals US\$35,700,000. This represents almost six times the budget allocated by the GEF.

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit a finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).