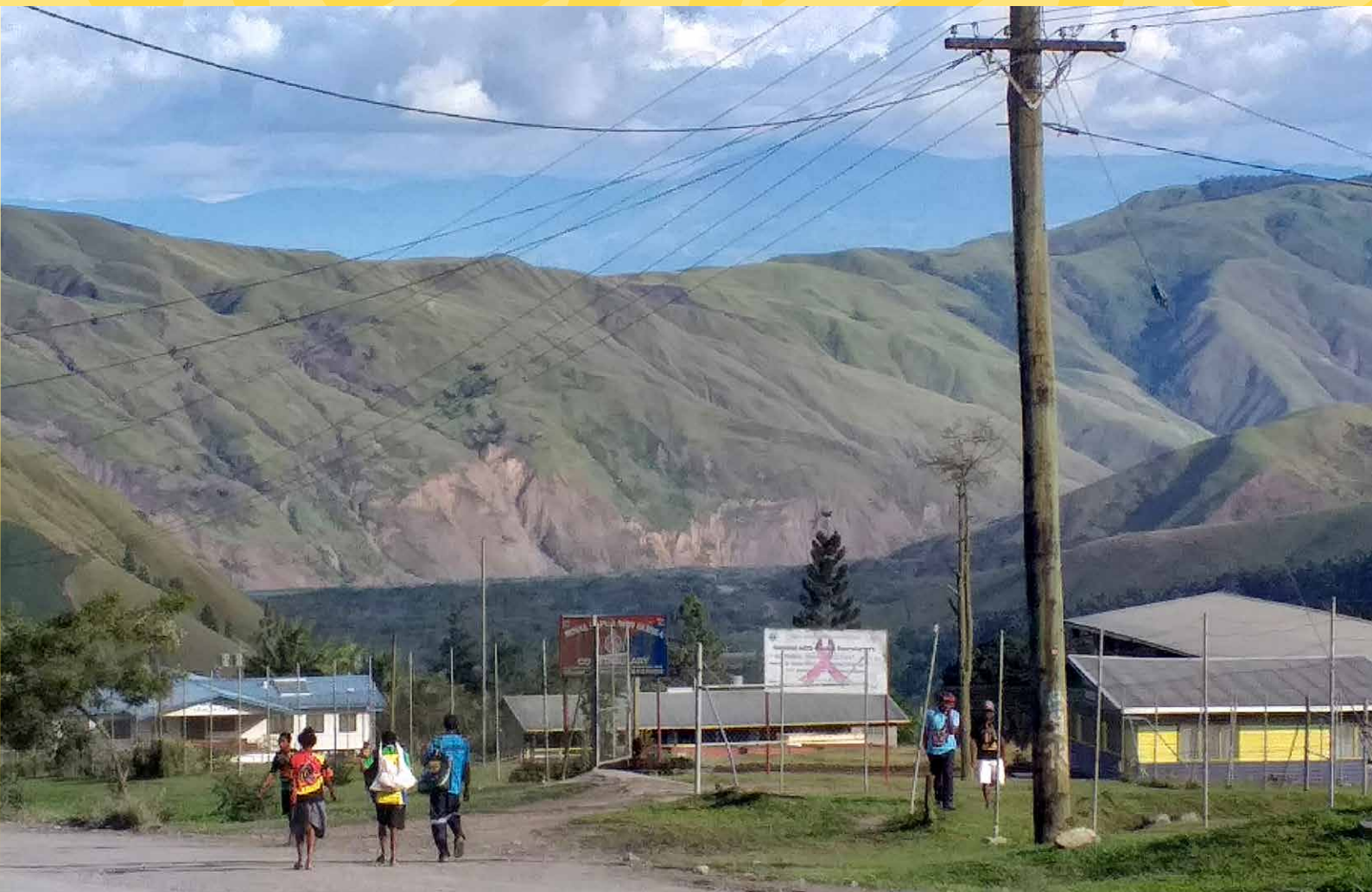




PAPUA NEW GUINEA NATIONAL ENVIRONMENTAL MANAGEMENT STRATEGY 2021–2025



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The National Environment Management Strategy (NEMS) 2021–2025 for Papua New Guinea reflects the valuable contributions of many people and organisations.

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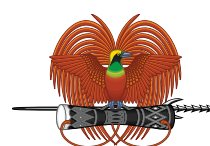
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Our vision: A resilient Pacific environment sustaining our livelihoods and natural heritage in harmony with our cultures.



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ACRONYMS

BPEO	Best Practice Environment Option	NAQIA	National Agriculture Quarantine Inspection Authority
CCDA	Climate Change and Development Authority	NARI	National Agriculture Research Institute
CEPA	Conservation and Environment Protection Authority	NDoH	National Department of Health
CIC	Coffee Industry Corporation	NBSAP	National Biodiversity Strategy Action Plan
DAL	Department of Agriculture and Livestock	NCC	National Cultural Commission
DE	Department of Education	NDC	National Disaster Center
DF	Department of Finance	NDS	National Development Strategy
DFAT	Department of Foreign Affairs and Trade	NEMS	National Environment Management Strategy
DHERST	Department of Higher Education Research Science and Technology	NLUP	National Land Use Policy
DJAG	Department of Justice and Attorney General	NMAG	National Museum and Arts Gallery
DLPP	Department of Lands and Physical Planning	NGO	Non-government organisation
DMPGM	Department of Mineral Policy and GeoHazard Management	ODS	Ozone Depleting Substance
DNPM	Department of National Planning and Monitoring	OPIC	Oil Palm Industry Corporation
DPE	Department of Petroleum and Energy	OSL	Oil Search Limited
DT	Department of Treasury	PA	Protected Area
DWTI	Department of Works, Transport and Implementation	PNG	Papua New Guinea
EBS	Equitable Benefit sharing	PNGCC	Papua New Guinea Customs Commission
EIS	Environment Impact Statement (EIS)	PNGFA	Papua New Guinea Forest Authority
ESIA	Environment and Social Impact Assessment (ESIA)	PNGPL	PNG Power Limited
GEF	Global Environment Facility	PNGSTC	Papua New Guinea Science and Technology Council
GHG	Greenhouse Gas	SDG	Sustainable Development Goal
HCFC	Hydrochlorofluorocarbon	SMLI	Social Mapping and Landowner Identification
ILG	Incorporated Land Group	SoE	State of the Environment
IPNGS	Institute of Papua New Guinea Studies	SPREP	Secretariat of the Pacific Regional Environment Programme
IPR	Intellectual Property Rights	STaRS	National Strategy for Responsible Sustainable Development
KIK	Kokonas Industri Koporesen	TEK	Traditional Ecological Knowledge
MDG	Millennium Development Goal	TPA	Tourism Promotion Authority
MEA	Multilateral Environmental Agreement	UNDP	United Nations Development Programme
MRA	Mineral Resource Authority	UNEP	United Nations Environment Programme
MTDP	Medium Term Development Plan	UNFCCC	United Nations Framework Convention on Climate Change
		WPNG	Water PNG



MESSAGE FROM THE SOLOMON ISLANDS MINISTER FOR ENVIRONMENT, CLIMATE CHANGE, DISASTER MANAGEMENT AND METEOROLOGY



The Government of Solomon Islands recognises the importance of the country's environment to the health, welfare and economic development of the country and its people. Thus the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) welcomes the *Solomon Islands National Environmental Management Strategy (NEMS) 2020–2023*.

Since the NEMS is derived from the key recommendations in the State of the Environment (SoE) report 2019, its status as the environment blueprint for government to alleviate the significant pressures on the country's environment and socio-economic wellbeing is assured. The strategy will guide the MECDM to address environment issues and promote better livelihoods for the country. The SoE contained disturbing revelations about the impact on our environment from multiple drivers and pressures. We can all do better.

As an environmental policy framework with strategic directions, the NEMS has the potential to strengthen partnerships within sectors and provide opportunities for funding support from donor partners. The NEMS is a sign of commitment by MECDM to ensure national development targets and sector planning activities are carried out coherently, and promote environmental sustainability.

It also provides direction to the government to fulfil

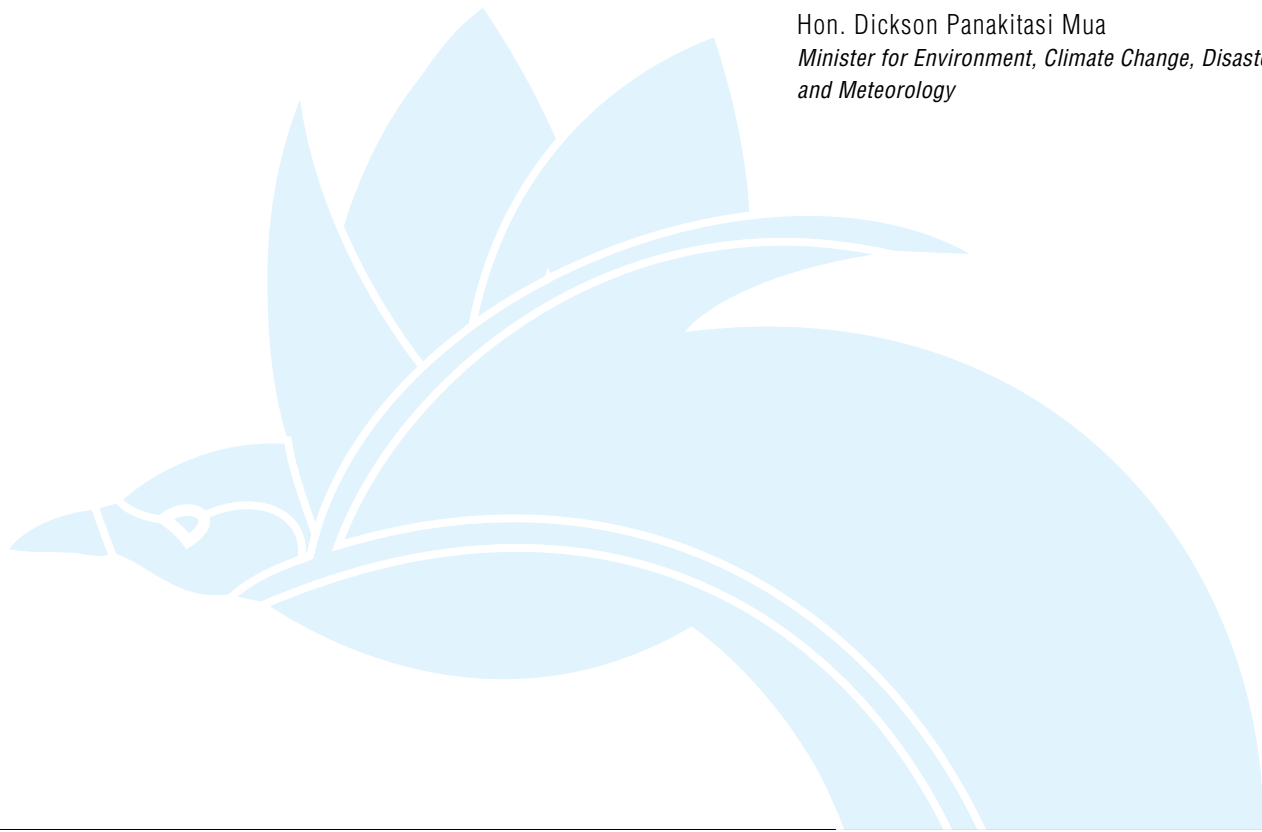
its regional and global commitments under international frameworks such as the SAMOA Pathway, Multilateral Environment Agreements (MEA), and the Sustainable Development Goals (SDG). The actions recommended in the NEMS will enable MECDM to address these issues in an organised manner, with the necessary support.



The Government of Solomon Islands is grateful for the financial and technical support provided by the Secretariat of the Pacific Regional Environment Programme (SPREP), through the GEF/UNEP INFORM project, and for its leadership in the development of the NEMS. The valuable contributions of stakeholders across public and private sectors alike, toward the NEMS, are also acknowledged.

The successful implementation of the NEMS is vital for the health of our environment and our wellbeing. I sincerely welcome and look forward to further cooperation from bilateral and multilateral donor organisations in supporting the strategy.

Hon. Dickson Panakitasi Mua
Minister for Environment, Climate Change, Disaster Management and Meteorology



FOREWORD FROM THE MANAGING DIRECTOR OF CEPA

The Conservation and Environment Protection Authority (CEPA) is the mandated government statutory body recognised for the management and conservation of Papua New Guinea's vast natural resources, including biodiversity and cultural heritage. This report complements the latest State of Environment (SoE) report for Papua New Guinea and how to manage the complex environment issues. Although information is scattered, this report provides a snapshot of where the country is, given the diverse pressures and threats the country is facing from both natural and anthropogenic causes.

With CEPA as the lead agency working with the Secretariat of the Pacific Regional Environment Programme (SPREP), information was collected from various national stakeholders and professionals during the SoE consultation in 2019. I am very grateful for your involvement, commitment and collaboration in producing this very important document.

Since the Government of PNG ratified the United Nations Millennium Development Goals (MDGs) in 2009, implementation has been below average with little achieved. However, I commend the previous governments for developing national policies such as the Vision 2050, National Development Strategic Plan 2010-2030, National Sustainable Responsible Strategy for Development (StaRS), and the Medium Term Development Plan I-III, which all capture PNG's vision for future development and environment sustainability priorities. In 2015, the United Nations Agenda 2030 or Sustainable Development Goals (SDG) were adopted by member States including PNG.

The Agenda 2030 provides international targets which PNG must report on. I believe things will improve further from lessons learnt in the past.

Recognising PNG's vulnerability to both human-induced anthropogenic drivers and pressures and natural threats such as climate change, invasive species, species extinction, pollution and environment degradation, the NEMS Report complements the 2020 SoE Report. I envisage the general public, development partners, business entities and state agencies will work together to address issues flagged in the SoE and NEMS reports.

All stakeholders must know that our journey does not stop here. We are committed to producing regular updates every five years by tracking and evaluating our progress. Only by knowing what is happening on the ground, can we make informed decisions in fulfilling our international obligations to conserve and manage our natural assets sustainably. I encourage all stakeholders to work together in collecting, storing, sharing and managing data and information and implement the NEMS to measure our progress.

Mr Gunther Joku

*Managing Director,
Conservation and Environment Protection Authority*



MESSAGE FROM THE DIRECTOR GENERAL, SPREP

The fragile environment of Pacific island countries is increasingly facing pressures that threaten the sustainability of Pacific island communities and its natural environment. Pacific leaders have reaffirmed climate change as the single greatest threat to the livelihoods, security and wellbeing of the peoples of our Pacific. There are the on-going challenges of deforestation, the over-exploitation of land and marine resources, unsustainable practices, inappropriate infrastructure development, increasing population growth and economic development pressures on our fragile environment. These bring about a range of environmental issues such as waste, invasive species, unsafe water, poor sanitation, air pollution, hazardous chemicals and environmental hazards that impede sustainable development.

Papua New Guinea is the largest Pacific island Member of SPREP in terms of population, geographical scale, natural resources, and biodiversity. Having said this, PNG has its own suite of environmental challenges some of which are common across most island communities in the Pacific.

SPREP's engagement in the development of the National Environmental Management Strategy (NEMS) for PNG came about in July 2018, in response to a request from the PNG Conservation and Environment Protection Authority (CEPA) for SPREP to support the development of the PNG State of the Environment Report 2020-2025. It is encouraging to see the practical approach taken in developing the NEMS, based on data and information in the 2020 PNG SoE report, as there is a clear link between

the two processes.

The NEMS provides strategic direction to inform and support policy, planning, programming, and project development to achieve sustainable development goals and aspirations at all levels. The PNG NEMS will contribute towards the implementation of the PNG National Development Plan, Medium Term Development Plan, Vision 2050, Sustainable Development Goals and Agenda 2030, Multilateral Environmental Agreements (MEA), as well as key regional priorities.

I acknowledge the financial contribution through the regional Inform Project funded by the Global Environment Facility, implemented by the United Nations Environment Programme and executed by SPREP, which made it possible to develop the PNG NEMS 2021-2025. I would also like to acknowledge the hard work and commitment of CEPA and all key stakeholders who worked tirelessly on the NEMS.

Finally, I commend and congratulate the Government of PNG and CEPA in reaching this milestone and wish you all the best and success with the implementation of the PNG NEMS 2021–2025.

Mr Kosi Latu
Director General, SPREP





A young lad paddling through the Suki wetlands at sunrise in Western Province. (Biatius Bito)

1 INTRODUCTION

The National Environmental Management Strategy (NEMS) 2021-2025 is a commitment by Papua New Guinea to conserve and improve its environment for current and future generations. It is a living document that provides a framework of environmental strategies and actions for the next five years. The strategy takes into consideration existing global, regional and local targets, threats and drivers and the environmental framework which PNG is committed to implement.

The strategy is the outcome of a consultative process by national and state stakeholders during the development of the PNG SoE in 2019. The SoE report identified seven thematic areas, which have been organised into eight themes for the NEMS, as follows:

THEME 1. Environmental Monitoring and Governance

THEME 2. Atmosphere and Climate

THEME 3. Freshwater Resources

THEME 4. Land

THEME 5. Marine and Coastal

THEME 6. Biodiversity

THEME 7: Built Environment: Consumption and Waste

THEME 8. Culture and Heritage

During the development of the SoE and NEMS, the CEPA in partnership with the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) also worked on the National Biodiversity Strategic Action Plans (NBSAP) 2018-2023. CEPA worked with UNDP on the 6th National Report for the Convention on Biodiversity 2019. Other reports were prepared for the United Nations Convention to Combat Desertification (UNCCD) Secretariat, and three National Reports were finalised for the UNCCD Secretariat on Land Degradation. The NEMS is aligned with the NBSAP, CBD, UNCCD, DSP 2010-2030, MTDP 3 2018-2020 and the Vision 2050.



1.1 PAPUA NEW GUINEA

Papua New Guinea is situated on the island of New Guinea in the Oceania region, in the south-western Pacific Ocean. PNG occupies the eastern half of the island of New Guinea, and is a geomorphological diverse country, 6 degrees South and 143 degrees east of the equator (Figure 1). PNG shares a common international border with Australia to the south and the Papua province of Indonesia to the West, Palau to the North and Solomon Islands to the east.

PNG has a total landmass of approximately 465,147.71 km², of which 453,672.24 km² comprises of islands land mass while 11,475.47km² is sea, where 72% of the landmass is believed to be inhabited (Prais 2018). Some reports state PNG has 462,840 km² or 46.3 million ha of land, with approximately 75% covered by tropical primary rainforest (GoPNG 2014; GoPNG 2018). The mainland is almost 85% of the total landmass, covered in 78% of forest cover. The landmass includes the outlying tropical islands, namely the four provincial islands in New Britain, New Ireland, Manus, and Bougainville, plus approximately over 600 other islands and atolls. These four provincial islands and the small atolls and islands are spread over approximately 800,000 square km² of the Pacific Ocean.

PNG has a total sea area of 11,475.47km², with the total Exclusive Economic Zone (EEZ) about 2,437.480km², and a total coastline length of 20,538 km (NFA 2014; Sheppard 2014). The ADB report on the coral triangle mentions the EEZ is 3.12 km² while GoPNG (2018) recorded the EEZ with 2.4 million km² in extent, which is the largest in the Western and Central Pacific Ocean and the second largest in the world (ADB 2014).

PNG is the last frontier for biodiversity conservation as it hosts between 6-8% of global species. The total number of species in PNG is not known but some estimates put it around 200,000 to 1 million. Approximately half of the plants and half of the animals are yet to be named scientifically, and every year new species are being discovered. PNG is also among the world's top 17 mega-diversity countries (Mittermeier et al., 1997).

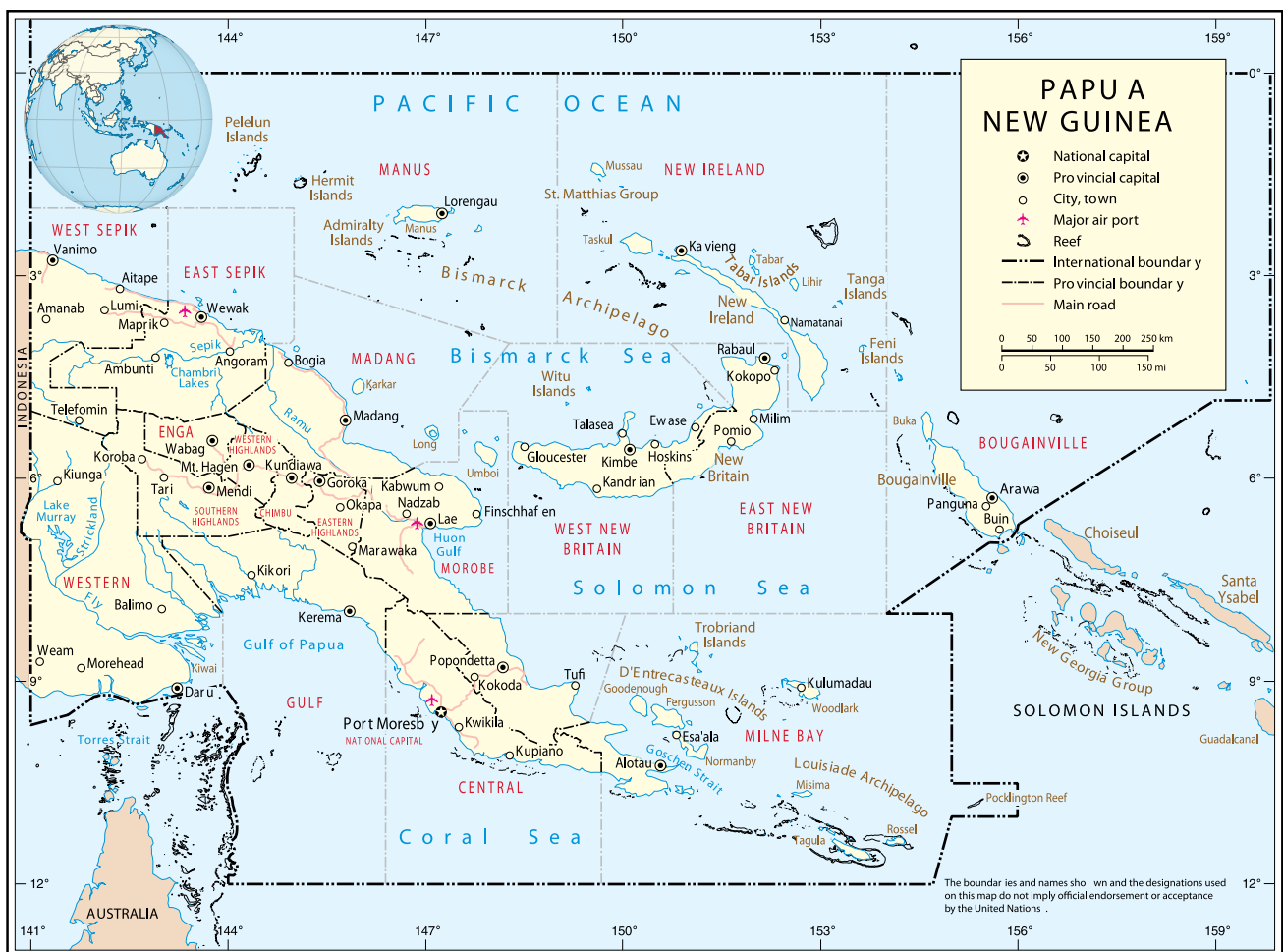


FIGURE 1: Map of PNG (Source: United Nations, Wikipedia)



PNG's national census is normally conducted every 10 years. The 1980 population of 3 million people rose to 7.3 million in 2011 (NSO 2011a). Some estimate that PNG has over 8 million people. It is projected that by 2021, at the current rate of 3.1%, the population would surpass 10 million (NSO 2011). This rising population trend is most likely to put a stress on environmental goods and services and the development aspirations of the country.

PNG has a dual economy of traditional subsistence and commerce. With the growing population, the need for government services and resource exploitation is also increasing proportionally. The number of people migrating into towns and cities has increased substantially in the last 40 years and so too their environment footprints. The conservation and preservation of PNG's natural heritage is nationally important and globally significant.

The marine and terrestrial resources are the foundation of the country's long-term economic self-sufficiency. Maintaining the ecosystems that nurture the vast and unique diversity is crucial to sustaining the country's rich ethno-biological traditions while improving quality of life. This is because 80% of the population live in rural areas and depend on subsistence livelihoods.

A thorough inventory and monitoring of PNG's natural resources is integral to the effective management of these resources to benefit its people, and for biodiversity conservation. A baseline study is in the form of the SoE 2020-2025. However, various sectors such as forestry, mining, oil and gas, services, agriculture and others have documented numerous baselines, some published or in the public domain.

PNG's natural resources face numerous threats. The impacts of climate change will exacerbate existing threats and place additional pressures on the country's people, natural resources and biodiversity. The impacts include coastal shoreline erosion, inundation of waterways, long dry seasons, and landslides, among others. These impacts will worsen with population growth and other development pressures.

PNG has a mega-diverse culture with over 1000 tribes and over 843 languages spoken by various ethnic groups. The country has 22 provinces made up of different ethnic groups of Melanesian, Micronesian and Polynesian heritage. These groups have different cultures, traditions, and political and social structures. Ownership of land, aquatic and marine areas varies. Provinces such as the Autonomous Region of Bougainville (AROB), Milne Bay, New Ireland and East New Britain Provinces own the land and seascape through matrilineal bloodlines, where the ownership of land is passed down through the mothers' bloodline. The rest of the country is patrilineal, where the ownership of land is passed down through the father's bloodline.

Over 80% of land in PNG is customarily owned by clans and clan groups while the rest is owned by private entities and the government. Some reports state that 97% of land is owned by the landowners and 3% by the state. However, this has changed over the years through land deals and acquisitions. Land, aquatic and marine ownership patterns greatly influence the strategies and actions required to sustainably manage the natural resources of the nation. This is because most land, aquatic and sea owners have a say in how their properties are used or managed. This is a dilemma often faced by development partners, investors and government alike.



Young dancers from a local singing group at Alexeshafen, Madang. (Biatius Bito)

1.2 WHAT IS THE NATIONAL ENVIRONMENT MANAGEMENT STRATEGY (NEMS)?

The NEMS 2021-2025 is the first for PNG and is linked to the SoE 2020 report. The SoE report indicates that PNG's natural resources are still in relatively good condition. However, there are significant environmental problems, threats and pressures faced by the country into the future. There are still major gaps in environmental data to confidently measure the status of the environment and cultural health of the country. More research is needed to address these issues before they become unmanageable.

There have been several national plans over the years to guide the country in terms of economic, social and environment development. Since there was no previous SoE or NEMS report, a good start is to report on the Millennium Development Goals (MDG). Between 1990 and 2010, there was little progress in achieving the MDGs. Most goals were incorporated into government policies such as the Vision 2050, Development Strategic Plan 2010-2030 (DSP), Medium Term Development Plan 1-3 (MTDP) and National Strategy for Responsible Sustainable Development (StaRS). PNG became independent in 1975 and was guided by the National Goals and Directive principles in the National Constitution.

There may not be any national Environment Plan for the country, however, some sectors have their own plans. For the Environment Sector, it has the National Capacity Self-Assessment Report and Plan of Actions 2014, for the implementation of the United Convention on Biological Diversity (UNCBD), United Nations Convention to Combat Desertification (UNCCD) and the United Nations Framework Convention on Climate Change (UNFCCC). This report was made under the former Department of Environment and Conservation (DEC), with support from UNDP and GEF (Wickham et al., 2014), to meet the objectives of the 1993 Rio Convention. Prior to this plan there was the PNG National Biodiversity Strategy Action Plan (NBSAP) 2007 to complement the MTDS and the MDGs (GoPNG 2007). CEPA developed the National Protected Area Implementation Plan (NPAIP).

These plans provide a pathway for achieving sustainable development, although implementation remains a challenge (GoPNG 2007, 2011). With limited capacity, resources and technical input from the implementing agency and other counterparts and stakeholders, CEPA is trying its best to improve its functions. For instance, a revised NBSAP is being prepared. Donor partners such as UNDP, SPREP, USAID and others are supporting CEPA with funding, training and staff capacity building, and providing resources to update reports or implement some of the core activities.

A report by Leverington et al., (2017) shows most of the Protected Areas in PNG were not effectively managed except for those managed by NGOS or assisted by external donors. This led to the Protected Area Policy Implementation Plan 2018-2028 developed by CEPA with support from UNDP GEF (CEPA 2018), to implement the Protected Area Policy (2014). UNDP is helping to develop a sustainable financing mechanism for the protected area network in the country, to support protected areas with small grants, capacity building and other activities.

The PNG Forest Authority (PNGFA) is working on a plan to provide valuable data and information on the management of the forestry sector and biodiversity. There are other individual sector plans administered under the Mineral Resource Authority (MRA) for Mining, PNG Fisheries Authority (NFA), Department of Petroleum (oil and gas) and Climate Change and Development Authority, to name a few. The most significant government plans or policies are the Vision 2050, the DSP 2010-2030, MTDS 1-3, and StaRS.

The NEMS will be updated every five years in conjunction with the SoE report. PNG's natural resources continue to degrade due to various threats. However, there has been a significant increase in the last 10 years in environmental policy at both the national and state level. In addition, there have been greater efforts by communities, provinces and the national government to improve the management of the environment and natural resources. The NEMS takes into account the advances made since the Rio Convention in 1993 and was developed alongside the 2020 SoE report, the 2019 National Biodiversity Strategic Action Plan and the PNG's sixth National Report to the Convention on Biological Diversity 2019.



1.3 RATIONALE FOR THE NEMS

The NEMS is intended to guide various stakeholders in collaboration with CEPA to implement key policies, programmes and actions, to promote sustainable development and conservation of the environment of the country. The NEMS is a framework that links related key government policies and programmes, including other international obligations, to provide a roadmap for environmental actions and stewardship. It promotes good governance and highlights shortcomings that need to be addressed for the protection of the environment. This will help PNG achieve its economic aspirations and enhance community well-being. In the individual themes, specific objectives were developed, with activities tied to each theme. An implementing schedule will be undertaken by CEPA and agencies aligned to those activities, namely:

- Environment Monitoring and Governance;
- Atmosphere and Climate;
- Freshwater Resources;
- Land;
- Marine and Coastal;
- Biodiversity;
- Built Environment; and
- Culture and Heritage.



Community awareness at one of the proposed Aramba-Suki Wildlife Management Areas, Seki village, Western Province. (Biatas Bito)



The Markham Bridge outside Lae on the Wau-Bulolo Highway, Morobe Province, a key economic zone with forestry, mining and agriculture developments. (Biatas Bito)



1.4 FORMULATION OF THE NEMS

The NEMS, developed by CEPA in partnership with SPREP, is based on the PNG 2020 SoE report. Two national consultation write shops were held on 24-26 July 2019 and 14-16 October 2019 at Lamana Hotel, Port Moresby. A pre-write shop was hosted at CEPA's conference room at Savannah Heights, two weeks prior to the first write shop in July 2019. Some people provided comments electronically without attending the write shops.

The seven thematic areas in the SoE report were incorporated into the 2021-2025 NEMS. Many of the actions and recommendations in the NEMS supplement those in the PNG's NBSAP 2019, the CBD 6th National Report and other nationally endorsed policies and programmes. However, most sections of the report followed the template provided by SPREP. Parts of the texts were derived from other sources, including the SoE report.



Participants sitting in different thematic groups and discussing changes to the SoE report during the consultation write shops at Lamana Hotel, Port Moresby. (Tavita Su'a)



Participants at the SoE and NEMS development process in 2019 at Lamana Hotel, Port Moresby. (Tavita Su'a)

1.5 THE NEMS AND MULTILATERAL ENVIRONMENT AGREEMENTS

Table 1 shows the 14 protocols and Conventions PNG has signed, for which CEPA is the focal point for reporting and implementation. The NEMS provides an implementation framework for Multilateral Environment Agreements (MEA).

TABLE 1: Key MEAs implemented or managed by CEPA as the focal point

MEA	Year Ratified
Convention on Biological Diversity (CBD)	1993
Convention to Combat Desertification (CCD)	2000
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	1976
Convention on Wetlands of Importance, especially as Waterfowl Habitats, (Ramsar)	1993
Convention for the Protection of the World Cultural Natural Heritage	1972
Basel Convention on the Trans-boundary Movement of Hazardous Wastes and their Disposal	1995
Protocol on Biosafety (Cartagena Protocol)	2005
Stockholm Convention on Persistent Organic Pollutants (POPS Convention)	2003
Rotterdam Convention on the Prior Informed Consent Procedure for certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention)	Work in progress
Vienna Convention for the Protection of the Ozone Layer	1992
Montreal Protocol on substances that deplete the Ozone Layer	1992
Convention to Ban the Importation in Forum Island Countries of Hazardous Waste and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (Waigani Convention)	2001
Convention on Conservation of Nature in the South Pacific Region (Apia Convention)	1996
Convention for the Protection of the Natural Resources and Environment of the South Pacific Region and related Protocols (SPREP Protocol)	1986

1.6 SUSTAINABLE DEVELOPMENT GOALS (SDG)

The Sustainable Development Goals (SDGs), known as the Global Goals, or Agenda 2030, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. The SDGs provide clear guidelines and targets for all UN member countries to adopt in accordance with their own priorities and the environmental challenges they face in the world at large. The goals are somewhat interconnected where most likely the key to success on one will involve tackling issues more commonly associated with another. Throughout this report, the SDGs will be linked to the different Thematic Areas and themes (Figure 2).



FIGURE 2: Sustainable Development Goals (SDG)



2 GUIDING PRINCIPLES

The NEMS 2021–2025 is guided by global principles that include leadership and good governance, collective responsibility for the environment, indigenous knowledge, practices and innovations, and integration of the environment and development.

Based on these principles, CEPA and SPREP invited stakeholders from key institutions, including non-government organisations, private entities, professionals, individuals, universities, research institutes, and government organisations, to attend the write shop and provide feedback on the SoE Report. A national consultant was engaged to produce the SoE and NEMS reports. The project was under the PNG Inform Project, which reports to the head office of the Inform Project based at SPREP, in Apia, Samoa.

2.1 LEADERSHIP AND GOOD GOVERNANCE

The PNG Government will lead efforts to protect, manage and promote the sustainable use of the country's environment and its natural resources. This involves upholding good governance practices of transparency, accountability, shared responsibility and fairness in the consideration of environmental requirements in development practices. It respects everyone's right to a clean and healthy environment. It also recognises key principles for respecting the needs and capacities of the natural environment such as the precautionary, polluter pays and carrying capacity principles.

The Precautionary Principle is defined in the context of the UN Agenda 21 Rio Declaration as *“Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”*.

The Polluter Pays Principle means that populations are responsible for the waste and pollution they generate either directly or through payments for the available mitigation and management services. The principle extends to society's responsibility to pay for the programmes that help to replenish, restore and rehabilitate natural resources and the environment that were exploited or degraded through extensive development activities.

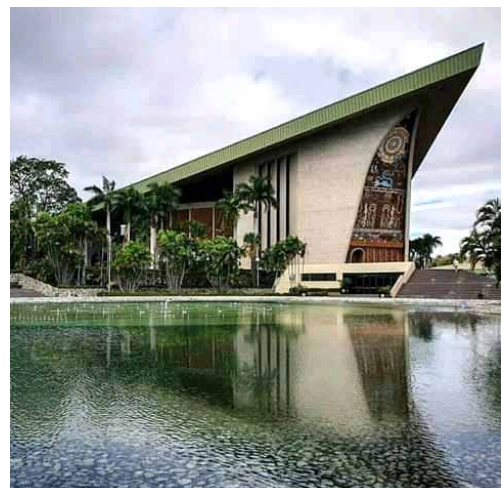
=The Carrying Capacity Principle may be defined as the ability of the environment to sustain the needs of human development and its own natural requirements. Development should respect the limits of the carrying capacities of its hosting environment if it is to achieve a more sustainable pathway.

PNG is still lagging behind in terms of policies and implementation of laws and programmes to achieve the goals stated in those principles. These may be affected by issues of good governance in almost every sector of the country.

Today, the timing is right and it is not too late. Many development opportunity costs may prevail but the onus is on the government and its key agencies to control the development challenges the country is facing. Lack of enforcement and good governance must be addressed by CEPA, its partner government entities and development partners, to improve the future of the environment.



Participants developing the conservation planning map for South Fly District of Western Province and Merauke regency of West Papua (Indonesia), at Alexeshafen, Madang. (Biatius Bito)



The PNG Parliament House where laws are enacted by Members of Parliament. (Donald Timons)



2.2 COLLECTIVE RESPONSIBILITY FOR THE ENVIRONMENT

Biodiversity and the environment provide important goods and services for communities. It is the responsibility of individuals, organisations and societies to protect and manage the sustainable use of biodiversity. The extraction or exploitation of natural resources have economic and environmental costs. It is our collective responsibility to ensure that these costs are not detrimental to the state of biodiversity and the goods and services it provides.



Participants at the SoE write shop, Lamana Hotel, Port Moresby. (Tavita Su'a)

Though the government provides key legal and strategic direction on the management of natural resources as stipulated in the National Constitution, many laws also empower government agencies at the national, provincial and municipal level to manage the economy, resources and environment. Since most of PNG's land and sea territories are controlled by local land and sea owners, the onus is on the locals to manage their environment as well. However, most landowners face challenges of development in terms of social, political, economic, environment and spiritual empowerment.

A Lowy Institute report by Lawrence (2020) discusses some challenges PNG is facing in terms of economic geopolitics, society, politics, infrastructures, security and future scenarios. Take, for example, infrastructure. The climate, topography, population, culture, economics and finance all raise significant barriers to providing economic and social infrastructure which are critical to future development. Lawrence argues that when comparing developed economies, the physical stock of infrastructure assets such as roads, bridges, airports and wharves in PNG are insufficient to deliver the economic and social services needed to drive faster economic growth and improve human development. Hence, PNG faces significant challenges that may also be influenced by the public infrastructure requirements of foreign direct investment in export oriented extractive resource sectors (Lawrence, 2020). A lack of effective national infrastructure planning and funding constrain PNG's economy and its ability to improve the lives of its citizens through these infrastructure services.

In addition, various cultural and ethnic groups and their behaviours may complicate the approach taken to development. The local context must be fully understood in order to ensure any plans and strategies are implemented successfully at the local, provincial and national level. The people across 22 provinces of PNG have unique traditional knowledge and practices, which have guided their survival and development for thousands of years. These practices are still relevant, and are integrated into the NEMS.



Misty morning sunrise at the old Mumeng Station, Bulolo District, Morobe Province. (Biatu Bito)

2.3 INTEGRATION OF THE ENVIRONMENT AND DEVELOPMENT

This principle recognises that the environment underpins economic development. It recognises the challenges in balancing the needs of the environment and development. Several attempts have been made to do both conservation of the environment versus economic development but most Protected Area work has failed (WWF 2009; Leverington et al., 2017; Adams et al., 2017). Firstly, the opportunity cost for doing conservation is less appealing than those of economic development. Secondly, most conservation areas lack capacity, resources and sustainable financing. Thirdly, most Protected Areas (PAs) are established to protect the intrinsic and extrinsic values the environment possesses, but at the same time generating income and livelihoods of local people such as attracting researchers and tourists who may bring some benefits to the communities. Since most PAs are located in remote areas, the high cost of transport, lack of basic government infrastructure and services, high social issues and remoteness are major obstacles.

Nevertheless, it is of utmost importance that economic development must ensure that environmental protection is promoted or encouraged, in order to facilitate long-term economic and environmental sustainability. This principle emphasises the importance of credible scientific information that must be made available to support the integration of the environment into development planning and implementation. It also recognises appropriate value systems of the people in PNG that promote the integrity of the environment.

The PNG NEMS and the SoE reports contribute to a larger global effort towards the conservation of biodiversity and improving the environment for the benefit of all. It is important that the NEMS, while local in its approach, is closely linked with regional and international environmental conventions and agreements managed by CEPA as the focal point (Table 1).



Papua New Guinea is rapidly transforming and Port Moresby is one of the fastest growing cities in the Pacific. PNG is not immune to environmental issues. (Biatius Bito)

3 THEMATIC AREAS

The SoE Report 2020 has eight thematic areas or 'themes' with important ecosystems and environmental issues addressed under each theme. The themes are divided into habitats or sub-topics, with indicators developed for each one. For example, the Environment Monitoring and Governance theme focuses on government budget allocations for natural resource development under Environment Permit Conditions and compliance by developers. It also covers the government's role in the implementation of MEA.

Any issues or major setbacks raised in the thematic areas in the SoE report were addressed as recommendations. Consequently, these recommendations from the SoE report were developed as strategies which CEPA and its partners can address over five years (2021-2025).

The themes are introduced in logical framework format.

- Environment Monitoring and Governance
- Atmosphere and Climate
- Freshwater Resources
- Land
- Marine and Coastal
- Biodiversity
- Built Environment - Consumption and Waste
- Culture and Heritage



3.1 THEME 1 ENVIRONMENT MONITORING AND GOVERNANCE

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving environmental monitoring and governance work in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 8.1.1, 8.2.1, 8.3.1, 8.4.18.5.1, 8.6.1, 9.1.1, 9.2.1, 9.2.2, 9.4.1, 9.5.1, 9.a.1, 9.c.1, 11.6.1, 12.2.1, 12.4.2, 15.5.1, 13.3.1, 14.7.1, 15.a.1, 15.b.1, 15.2.1, 15.3.1, 15.5.1, 16.5.1, 16.6.1, , 16.6.2, 16.10.1, 16.10.2, 16.b.1, and 17.5.1.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- Increase budget allocation, capacity and reform for effective implementation of responsibilities and activities;
- PNG Laws and Environment Permit Conditions complied with by all developers;
- The reporting outcomes of MEA are improved; and
- Developers and individuals comply with Environment Permit conditions and relevant laws.

The Environment Act 2000 and the Conservation and Environment Protection Authority Act 2014 give CEPA the mandate to monitor and regulate all environment and conservation activities in the country. There are also other government agencies such as the National Fisheries Authority (NFA), PNG Forest Authority (PNGFA), Mineral Resource Authority (MRA), PNG Customs Services, Department of Commerce and Industry (DCI), Department of Petroleum and Energy (DPE), Department of Works and Implementation (DoWI), Department of Agriculture and Livestock (DAL), and Department of National Planning and Monitoring (DNPM), just to name a few, under their own Acts and regulations, who work closely with CEPA to manage the environment.

Agencies have their own divisions and officers who monitor projects within their capacity (resources, budget, or with CEPA). The urgency is for transparency and accountability in all sectors, which is of utmost importance. Promoting open and accountable management of natural resources, strengthening government and company systems and policies, are important to inform public debate, support anti-corruption, promote investment and enhance trust.

Collaborative work has been limited by a lack of capacity and resources, but a new paradigm shift will help in managing risks and in sustainably managing the environment and resources.



A local Wildlife Management Area Chairman signing a conservation deed with a DEC representative (now CEPA) at Seki Village, Western Province. (Biatus Bito)



OBJECTIVE 1.1 INCREASE BUDGET ALLOCATION, CAPACITY AND REFORM FOR EFFECTIVE IMPLEMENTATION OF RESPONSIBILITIES AND ACTIVITIES

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Develop a five-year corporate plan with goals, targets and activities.	Improve performance of staff and organisation.	CEPA	2023
Develop a system to improve Environment Permit fee collection.	Payment of Environment fees done on time.	CEPA	2024
Conduct effective monitoring and regulation of activities and revenue raising.	Capacity of officers are upskilled to enforce laws and Environment Permit Conditions. Permit holders supply environment audit reports to CEPA on regular and timely basis.	CEPA MRA, PNGFA, DAL, DPE, DWI DJAG Training Consultant	2025
Establishing a transparent and effective accounting, funding and auditing mechanism and management system.	Improved spending and reporting. Engage independent and reputable accounting firms to manage the permit fees collected. Develop realistic recurrent and development budget. At least 40% of revenues collected are kept by CEPA for its operations and budgetary requirements.	CEPA Dept of Treasury	2025
Establishing an effective donor funding unit.	Do proposal writing, fund raising and managing of funds. Project implementation monitoring and evaluation.	CEPA	2025
Establish regional presence.	Recruit personnel and increase funding and training for provincial environment officers. Inform provincial administration to establish environment positions in their structure.	CEPA Provincial administrations	2023
Establish CEPA Board.	CEPA Board is established and provides management advice to CEPA's operation.	CEPA CEPA Board members	2021
Recruit new graduates.	Build capacity and promote transition of graduate trainees to permanent positions.	CEPA	2022
Promote in-house capacity building.	The number of consultants are reduced and activities done by competent staff.	CEPA Training provider	2024



OBJECTIVE 1.2 PNG LAWS AND ENVIRONMENT PERMIT CONDITIONS COMPLIED WITH BY ALL DEVELOPERS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Environment Council is established and effective.	All Environment and Social Impact Assessment (ESIA) and Environment Impact Statement (EIS) are thoroughly assessed by the Council before Environment Permits (EP) are issued. Effective inspection, monitoring and coordination of the processes.	CEPA Environment Council Minister	2022
Improve compliance and governance of activities.	All activities complement PNG laws, regulations and permit conditions. Monitoring of activities are effective.	CEPA	2025
Resources and capacity are improved.	Improvement in personal skills, capacity and manpower. Improvement in revenue generation. Improvement in project monitoring and ESIA/EIS scrutiny before EP are issued for higher quality performance by the developer.	CEPA	2024
Improve database and information on permit applications.	Improve Environment Permit registration database and information (electronic and not manually filled).	CEPA	2024
Review the Environmental Act 2000, particularly impact assessment and regulations.	Environment Act is amended. Grievance Redress Mechanism introduced by CEPA to deal with problems in project areas or resource development.	CEPA	2024
Regional presence of CEPA is established.	Review the organisational structure. More positions created and budget increased. Sign MOA with provincial governments and administration for partnership work. Capacity building and training of provincial environment officers to monitor projects on the ground.	CEPA Provincial government and Administration	2025
Improve EIA coordination and reporting.	All agencies and developers report to CEPA.	CEPA, including other department and agencies (e.g. as PNGFA, MRA, DPE, DMPGM, DoWI, Provincial government)	2025
A scientific base or laboratory for technical and scientific evidence to assess and monitor environmental impacts.	Set up base to support inspection, coordination, compliance and reporting of EIA.	CEPA, including other relevant agencies, development partners and research institutes.	2025



OBJECTIVE 1.3 THE REPORTING OUTCOMES OF MULTILATERAL ENVIRONMENT AGREEMENTS (MEAS) ARE IMPROVED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve reporting processes.	Meet deadlines and improve collaboration with partners.	CEPA MEA Secretariat	2025
Improve staff morale and performance.	Provide Incentives for staff responsible for MEAs.	CEPA	2023
Establish a Coordination Desk for MEA and reporting.	Recruit fulltime staff with specific TOR. Report to MEA secretariat or government. Secure funding for activities.	CEPA DNPM Donors	2025

OBJECTIVE 1.4 DEVELOPERS AND INDIVIDUALS COMPLY WITH ENVIRONMENT PERMIT CONDITIONS AND LAWS OF THE COUNTRY

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Projects are monitored, reviewed and Permit Conditions are enforced.	Improved environment and social governance.	CEPA and other government agencies (e.g. PNGFA, NFA, MRA, DMPGM, DPE, DWI)	2023
Improving staff capacity and skills.	Training of staff.	CEPA	2024
Increase publicity, communication and awareness.	Improve communication, reporting and transparency with developers and partners.	CEPA	2022
Improve partnerships and networks.	Work with partners.	CEPA Government Agencies NGOs Landowners	2025
A legal division is established within CEPA.	Establishment of a legal division to screen projects and deal with legal matters, laws, policies and regulations.	CEPA	2022



3.2 THEME 2 ATMOSPHERE AND CLIMATE

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving environmental footprints, climate resilience and adaptation in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 7.1.1, 7.1.2, 7.2.1, 7.3.1, 7.a.1, 7.b.1, 9.2.1, 9.4.1, 9.5.1, 9.a.1, 9.b.1, 11.1.1, 11.2.1, 11.3.1, 11.3.2, 11.6.1, 11.7.1, 11.a.1, 12.1.1, 12.2.1, 12.4.1, 12.4.2, 12.5.1, 12.6.1, 12.8.1, 12.a.1, 12.c.1, 13.1.1, 13.1.2, 13.1.3, 13.2.1, 13.3.1, 13.3.2, 13.a.1, 13.b.1, 14.2.1, 14.3.1, 14.5.1, 14.a.1, 15.1.1, 15.2.1, 15.5.3, 15.3.1, 15.4.1, 15.5.1, 15.8.1, 15.9.1, 15.a.1, and 15.b.1.

The following objectives are highlighted as a guide to achieving specific targets and recommendations:

- Reduce reliance on fossil fuel to decrease greenhouse gas (GHG) emissions;
- 90% of work done to complete the phase-out of ozone depleting substances (ODS) and to enforce the Kigali Amendment (2016) on phasing out hydrofluorocarbons (HFCs);
- PNG becomes more resilient by mitigating climate change effects and providing enabling conditions;
- Develop an effective adaptation response and capacity to protect livelihoods, natural resources and vulnerable areas from impacts of climate change;
- 80% increase in partnership and funding for climate adaptation and mitigation work; and
- Investment up by 70% in affordable renewable energy to improve lifestyles.

The Atmosphere and Climate theme addresses GHG emissions and resilience through climate adaptation and mitigation funding (food security, water security, health and flood risks). More partnerships and funding for collaboration and mitigation work are needed, including investing in affordable renewable energy.

Through the greenhouse effect, the increase in the concentration of GHGs in the atmosphere has been shown to influence global climate change, which results in more intense storms and droughts, and rising sea levels and temperatures. The PNG Climate Change Policy seeks to achieve 100% renewable energy by 2050 to address GHG emission commitments and align with the Vision 2050 target.

In 2018 just under half of the country's energy came from renewable sources (hydroelectricity 40% and geothermal 9% (GoPNG, 2018b), therefore it is necessary to prioritise the renewable energy sector. Other energy sources come from natural gas and diesel with 14% and 37%, respectively.

If the objectives discussed here are implemented, CEPA and its partners will increase their performance and mandates as statutory bodies responsible for the sustainable management of the environment, and management of development activities. This could increase compliance and improve governance, leading to more transparency and better outcomes.



A hazy afternoon with smoke from bushfires along the Morehead airstrip in South Fly District, Western Province. (Biatius Bito)

OBJECTIVE 2.1 REDUCE RELIANCE ON FOSSIL FUEL TO DECREASE GREENHOUSE GAS (GHG) EMISSIONS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Increase data collection GHG inventory and assessment, and reporting.	Improved data collection, storage and sharing. Updated PNG Total GHG Emissions and baseline data with current data/information. All GHG emissions measured should include gases from industrial and household wastes Every sector that contributes to GHG emissions have an agent to produce an inventory.	CCDA and other government agencies (CEPA, NDC, DWTI, DAL, NFA, PNGFA, DPE, DAL; PNG Customs, provincial governments and industries)	2025
Improve reporting and documentation of climate change impacts.	Improve reporting on climate change impacts and adaption. Develop mitigation measures. Update data and reports. Different indicators must be assigned to relevant agencies/ stakeholders to review and provide input.	CEPA and other government agencies (CCDA, NDC, DWTI, DAL, NFA, PNGFA, DPE)	2024
Investing in climate compatible technology.	Increase investments in renewable energy sources/green technology.	CEPA, CCDA, DNPM, OST, DWTI, DAL, DF, DT, DNPM	2025
Improved capacity building, education, training and awareness raising.	More people empowered.	CEPA and government agencies (CCDA, NDS, DWTI, DAL, NFA, PNGFA, DPE)	2025
Finances and enabling environment established.	Increase or secure budget for climate change impact activities.	CEPA and all government agencies (CCDA, NDS, DWTI, DF, DT, DAL, NFA, PNGFA, DPE)	2025
Promotion of low carbon growth economy, and invest in REDD+.	Become carbon neutral by 2050. Invest in green technology. 70% of the country has access to green energy. Government plans on reducing GHG emissions to include the UNFCCC targets along with the SDGs and Aichi targets. Provide incentives to reduce emissions by introducing taxes, levies, penalty fees, etc.	CEPA and all government agencies (CCDA, NDS, DWTI, DAL, NFA, PNGFA, DPE)	2025
Establishing a national environmental monitoring standard and process to monitor pollution.	Assessment of sources of pollution in major growth centres, large village communities and within the natural environment from all sources is done.	CEPA PNG Power and other government agencies (CCDA, NDS, DWTI, DAL, NFA, PNGFA, DPE)	2024
Increased training of local experts to reduce gaps of monitoring and measuring GHG emissions.	Education curriculum improved and technical training within PNG universities and higher learning institutions broadened to support future pollution research, standards, monitoring and compliance protocols.	CEPA and other government agencies (CCDA, NDS, DWTI, NFA, PNGFA, DPE, DAL)	2025



OBJECTIVE 2.2 90% OF WORK DONE TO COMPLETE THE PHASE-OUT OF OZONE DEPLETING SUBSTANCES (ODS) AND ENFORCE THE KIGALI AMENDMENT (2016) ON PHASING OUT HYDROFLUOROCARBONS (HCFS)

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Shift from business as usual practices of importing either HCFC or HFC equipment.	Enact legislation to stop the import of ODS based RAC so PNG does not become a dumping ground for HCFCs. Implementing specific measures to enforce a change in the market structure.	CEPA PNGCC CCDA PNG Ports	2025
Increased awareness of the importance of ozone layer protection and linkages with climate change impacts to industries and importers.	Customer awareness of the effects of ODS and high-GWP refrigerants to raise interest in alternative solutions.	CEPA PNGCC CCDA	2021
Enforcement of licensing systems for the import and control of ODS.	Customers take heed and abide by regulations.	CEPA PNGCC CCDA Importers	2022
Provide capacity development of National Ozone Offices, refrigeration servicing technicians, local stakeholders and customs and enforcement officers to support the phase-out of HCFCs.	Skills and technical capacity improved.	CEPA PNGCC CCDA Importers	2025
Importers are investing in alternative non HCF equipment.	Conduct analysis on fiscal incentives for importers to import non-HFC equipment and increase the competitiveness of the price of HFC equipment on the market.	CEPA PNGCC CCDA Importers	2025
Improving and maintaining PNG's regulatory and monitoring systems for better data collection.	Waste management policies and the Environmental Act reviewed.	CEPA PNGCC CCDA Importers	2025



OBJECTIVE 2.3 PNG BECOMING RESILIENT BY ADDRESSING AND MITIGATING GLOBAL CLIMATE CHANGE EFFECTS BY PROVIDING ENABLING CONDITIONS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Conduct proper assessment, GHG inventory and reporting.	Inventory and documentation of climate change impacts and data improved. Increased investment in automated weather stations (AWS) for spatial analysis of weather and climate data. Public-Private Partnerships in data sharing and collection are required. Other weather datasets and information must be provided from other sectors and stakeholders. Measured heat trend in cities and oceans due to rise in global heat waves	CEPA and all government agencies (CCDA, NDC, DWTI and NWS, DAL, NFA, PNGFA, DPE, DAL, Water PNG)	2025
Invest in green technology development, transfer, and financing.	Increased use of green technology and increased innovation. Climate resilient infrastructure development must be built.	CEPA and all government agencies (CCDA, NDC, DWTI, DAL, NFA, PNGFA, DPE, DAL)	2025
Conduct capacity building, education training and awareness raising in targeted vulnerable sectors, ecosystems and infrastructures.	Training to improve knowledge, information and infrastructure for professionals and students. Awareness and education on weather and climate prioritised and conducted country wide.	CEPA and all government agencies (CCDA, NDC, DWTI, DAL, NFA, PNGFA, DPE, DAL)	2025
Development and prioritisation of adaptation measures relating to climate change impacts.	Appropriate adaptation mechanisms established in preparation for any extreme weather events and natural disasters.	CEPA and all government agencies (CCDA, NDC, DWTI, DAL, NFA, PNGFA, DPE, DAL)	2023
Increase and improve knowledge through publicity and awareness on the impact of climate change on terrestrial and marine environment.	Knowledge and information on physical weather and associated impacts are disseminated to the public. Increased collaborative effort in the region.	CEPA and all government agencies (CCDA, NDC, DWTI, DAL, NFA, PNGFA, DPE, DAL)	2023
Enactment of a Meteorological Act and policy framework developed.	A Meteorological Act enacted by parliament and policy developed.	CEPA and all government agencies (CCDA, NDC, DWTI, DAL, NFA, PNGFA, DPE, DAL)	2025

OBJECTIVE 2.4 DEVELOP AN EFFECTIVE ADAPTATION RESPONSE AND CAPACITY TO PROTECT LIVELIHOODS, NATURAL RESOURCES AND VULNERABLE AREAS FROM IMPACT OF CLIMATE CHANGE

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Develop early warning systems and awareness.	Increased awareness and improved early warning systems so people are prepared for climate-related disasters and impacts.	CEPA and government agencies such as CCDA, NDC, DNPM, DT, DF	2024
Ensure mitigation measures and steps must be taken by authorities and communities to minimise the impact on the availability of food and water, disease and other necessities of life.	Mitigation plans and measures are developed to address climate change impacts.	CEPA and government agencies such as CCDA, NDC, DNPM, DT, DF	2023
Ensure institutional strengthening is done.	Training and capacity building, setting-up disaster response committees and adding more resources (e.g. increase funding for NDC) for swift responses to disasters.	CEPA and government agencies such as CCDA, NDC, DNPM, DT, DF	2024
Ensure information is disseminated on time to disaster prone areas.	Improved dissemination mechanisms on weather and climate information (early warning systems).	CEPA and government agencies such as CCDA, NDC, DNPM, DT, DF	2024



OBJECTIVE 2.5 80% INCREASE IN PARTNERSHIP AND FUNDING FOR CLIMATE ADAPTATION AND MITIGATION WORK

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Increase funding for NDC and CCDA for disasters and adaption work.	Government and donor funding increased.	DT, DF, DNPM, CCDA, CEPA, NFA, PNGFA	2025
Improve collaboration with government and private entities.	NDC and CCDA collaborates with other government agencies and private entities in implementing disaster management work, improve early warning systems, build awareness and education on climate adaptation, species conservation, food security, sanitation and other areas of interest.	CEPA and other government agencies such as NDC, NDS, CCDA, DNPM, NMSA, Volcano Observatory NGOs	2024
Ensure training and capacity building needs are improved.	Training and capacity building improved.	CEPA, CCDA, NDC, NDS	2025
Develop a land use plan for pilot sites for ground water resources.	A community-based land use plan for the chosen pilot sites is developed and replicated across PNG. An NGO group or a professional Land Use Planner and a hydro-geologist is engaged to develop the land use plan for pilot projects.	CEPA, DNPM, PNGFA, MRA, CCDA and provincial government and other stakeholders and village communities	2023
Ensure that adaptive capacity of urban and rural areas are improved.	The adaptive capacity (wealth, technology, information, institutions, infrastructure, and social capital) of urban and rural areas at individual and institutional levels are analysed to determine vulnerability, exposure and sensitivity to climate change impacts.	CEPA, DNPM, PNGFA, MRA, CCDA and provincial government and other stakeholders and village communities	2023
Key adaptation options are identified.	Key adaptation options identified to ensure adaptation is effective when needs arise. Seawalls are constructed and drainage improved. Alternative livelihood options are identified. Mangroves and seagrass are identified and areas of concern rehabilitated. Green building and climate proof materials promoted. Erosion control is done by planting on slopes, drainage to control erosion and flood-related damages.	CEPA, NFA, PNGFA, NDC, NDS, DWTI, DNPM, NGOs, Provincial governments	2023
Ensure local communities and the public are resilient to climate change impacts.	Appropriate awareness raising is done.	CEPA and other government agencies such as NDC, NDS, CCDA, DNPM, NMSA, Volcano Observatory NGOs	2024
Conduct cutting edge research.	Reports on climate change science, adaptation and mitigation documented and published.	CEPA and other government agencies such as NDC, NDS, CCDA, DNPM, NMSA, Volcano Observatory NGOs	2025
Regulate land tenure and construction to reduce vulnerability of rural and urban poor.	Increasing capacity of local municipalities and Local Level Government to be climate resilient.	CEPA and other government agencies such as NDC, NDS, CCDA, DNPM, NMSA, Volcano Observatory NGOs	2024



OBJECTIVE 2.6 INVESTMENT INCREASED BY 70% IN AFFORDABLE AND CHEAPER RENEWABLE ENERGY TO IMPROVE LIFESTYLE

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Complete documentation and reporting on climate change impact adaption and mitigation.	Proper assessment and reporting process on climate change impact and adaption, mitigation measures, technology development and transfer completed.	CEPA, CCDA and other government agencies	2025
Ensure climate change impact mitigation and adaptation enabling environments are identified and addressed.	Enabling environments such as technology transfer and financing, improving capacity for institutions, education, training and awareness raising for vulnerable sectors, ecosystems and infrastructure.	CEPA, CCDA and other government agencies	2025
Ensure development plans addresses climate change impacts.	Proper development planning done. Priorities for climate change adaptation and compatible development are established. Financing instruments are developed to ensure PNG become resilient to climate change impacts.	CEPA, CCDA and other government agencies	2025
Invest in clean energy sources.	Funding is earmarked to rehabilitate or develop hydropower and renewable energy.	CEPA, CCDA, PNGPL and other government agencies	2024
PNG Power is restructured.	PNG Power separated into two entities, with one a commercial entity (service provider) and the other a regulatory entity.	CEPA, CCDA, PNGPL and other government agencies	2024
Energy issues are addressed.	Regular maintenance of transmission lines to reduce energy loss is addressed. Daylight savings to be considered and enacted in parliament as a law to save energy. Mixed electricity sources are used to supply customers (e.g. small rural town or village). For instance, energy from grid supplied for a specified time and switched off (load shedding) while the alternate source is used.	CEPA, CCDA, PNGPL and other government agencies	2025



3.3 THEME 3 FRESHWATER RESOURCES

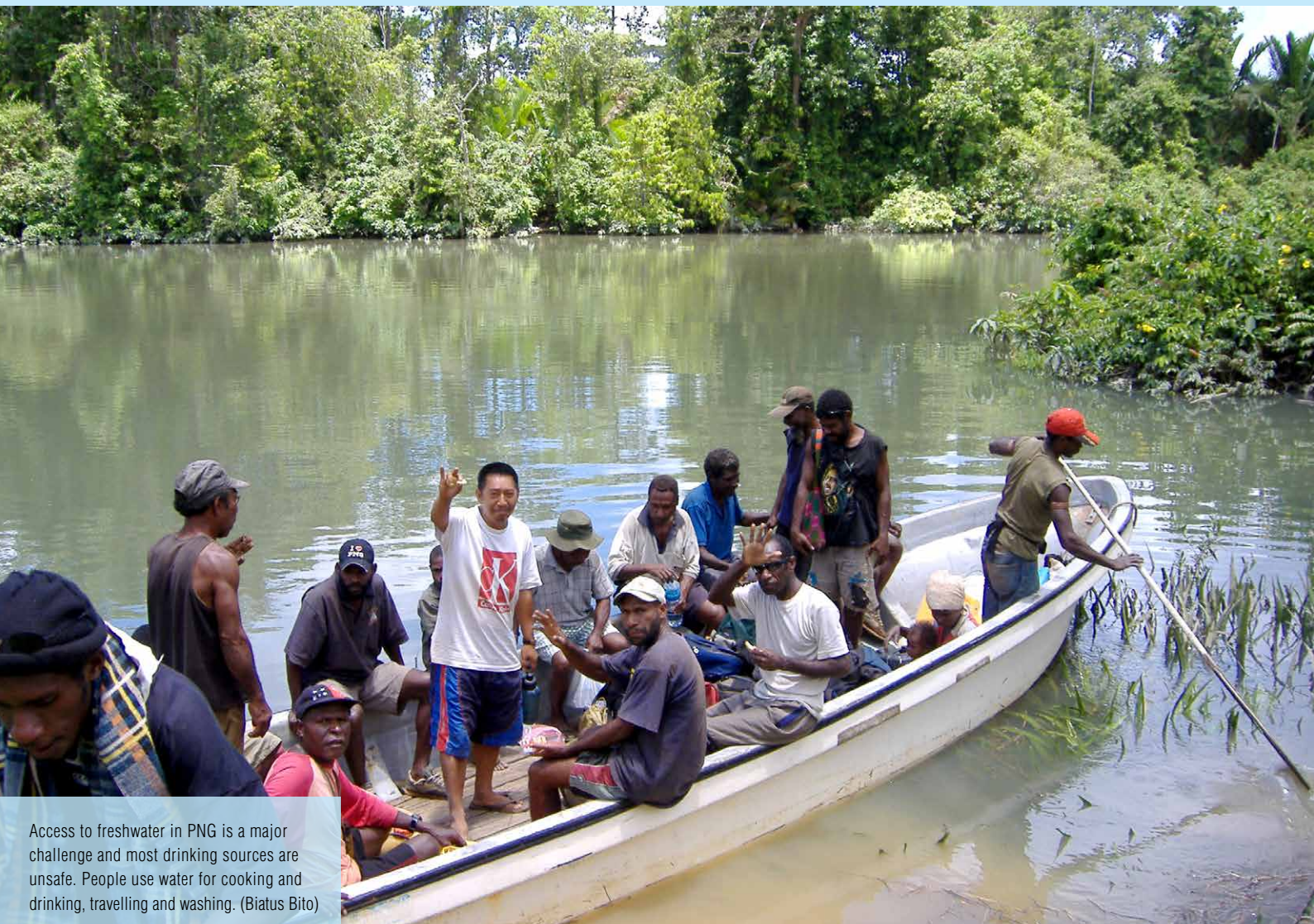
This theme focuses on how CEPA and its line government agencies and stakeholders will work towards improving environmental monitoring and governance work in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 1.4.1, 1.5.3, 1.5.4, 3.2.1, 3.3.5, 3.9.2, 5.1.1, 5.3.1, 6.1.1, 6.3.1, 6.3.2, 6.4.1, 6.4.2, 6.5.1, 6.6.1, 6.a.1, 6.b.1, 12.1.1, 13.1.2, and 17.3.1.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- Ensure fresh, clean and safe water is accessed by 90% of citizens, industries, municipalities, and villages in both rural and urban areas; and
- Quality water supply and services are made available to 70% of the population to enjoy.

The hydrological cycle in PNG is determined by the topography, sea and climatic conditions, which influences the moisture condition throughout the year. With increasing human population and impacts on the environment, most rivers, lakes and other water bodies are under threat from contamination. This is coupled with natural climate change phenomena that affects access to safer clean water as well. Access to fresh and quality water supply is a challenge throughout PNG where only 40% of the population has clean and treated water supply.

If the objectives discussed here are implemented, CEPA and its partners will improve their performance and mandatory requirements as statutory bodies responsible for the sustainable management of the environment, management and governance of development activities and providing better government services. Increased compliance and governance in operational procedures will lead to more effective service delivery, transparency and better outcomes.



Access to freshwater in PNG is a major challenge and most drinking sources are unsafe. People use water for cooking and drinking, travelling and washing. (Biatus Bito)

OBJECTIVE 3.1 ENSURE FRESH, CLEAN AND SAFE WATER IS ACCESSED BY 90% OF CITIZENS, INDUSTRIES, MUNICIPALITIES, AND VILLAGES IN BOTH RURAL AND URBAN AREAS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve access to safe and quality water supply.	The Water, Sanitation and Health (WaSH) Policy Targets are achieved whereby access to clean and safer water quality is met.	Water PNG, NDoH, PNGFA, MRA, DNPM, CCDA, DAL, Eda Ranu and other government agencies	2023
Ensure institutions are reformed and effective planning and implementation of programmes to access safe and clean water is achieved.	Development pace of infrastructure and investment are scaled up through rebuilding and reforming planning and decision making institutions and entities to achieve WaSH programmes and activities.	Water PNG, NDoH, PNGFA, DNPM, MRA, DAL, CCDA, Eda Ranu and other government agencies NGOs, and Provincial governments	2025
Ensure data collection is improved.	Capacity to collect, process and analyse hydrological, hydrogeological and meteorological information is achieved and sound management of water resources is met. Coordination to improve the design and implement of capacity building programmes with national and provincial agencies are accomplished for effective disaster warning, preparedness, relief and rehabilitation systems	CEPA, PNGFA, DAL, MRA, NDoH, Water PNG, Eda Ranu and other government agencies (DNPM, CCDA) Provincial governments NGOs	2023
Introduce sound catchment management practices in all watershed areas.	Water Districts and catchment management plans developed. Close collaboration is achieved whereby any development activities occurring throughout all water catchments and watersheds areas provide reliable and timely data to CEPA for management, reporting, monitoring and compliance purposes.	CEPA MRA, PNGFA, CCDA, DAL, DoWI, DNPM All stakeholders including regulators, developers and communities	2025
Improve collaboration and information and data sharing on hydrology, climate variability.	An effective system is established for information and data sharing between developers and regulators.	CEPA, MRA, PNGFA, CCDA, DAL, National Weather Services, PPL and Water PNG	2024
Invest in technology.	Appropriate modern technologies are used for small islands and remote inland areas to withstand disasters such as droughts or floods. Staff are trained in water monitoring, data collection and planning. Investment in appropriate technology is made.	CEPA, PNGFA, MRA, DNPM, DAL, CCDA, National Weather Services, PPL and Water PNG	2025
Develop a management and programme strategy to improve access to clean and safe water supply.	A clear national and local level strategy is developed for sustainable water and wastewater management . All industries ensure water quality is improved by investing in sound water management and minimising waste or pollution.	CEPA, PNGFA, NDoH, CCDA, DLPP, DNPM, National Weather Services, PPL and Water PNG	2023
Improve education, awareness and information dissemination.	Information on sustainable water use and management are accessible by all through appropriate mediums to improve quality of life.	CEPA PNGFA, Water PNG, Eda Ranu, MRA, DAL, NDoH Provincial and Local governments All stakeholders including regulators, developers and communities	2025



OBJECTIVE 3.2 QUALITY WATER SUPPLY AND SERVICES ARE MADE AVAILABLE TO 70% OF THE POPULATION

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve collaboration with partners and stakeholders whereby clean water is supplied to residents in rural and urban areas.	<p>Close collaboration in achieving the government's goals of supplying better freshwater quality and services, including protection and management of water catchments.</p> <p>Recommendations in the Vision 2050, DSP 2010-2030, WaSH Policy 2015-2030 and MTDP3 2017-2022 are achieved.</p>	<p>CEPA, NDoH, CCDA, MRA, DAL, DNPM, PNGFA, National Weather Services, PPL and Water PNG</p> <p>NGOs</p> <p>Provincial governments</p> <p>Private sectors</p>	2024
Increase institutional capacity building for better data collection and management.	<p>Research, data collection and documentation is achieved.</p> <p>Consistent and quality data collection of water quality is achieved.</p> <p>Private entities continue to assist government regulators in the collection of water data (flow, volume, quality etc) and in monitoring.</p> <p>Improved partnerships with private entities and provincial governments to collect data.</p> <p>Explicit statement on freshwater uses and management becomes a prerequisite in the Environmental Permit condition issued to developers and companies using rivers, streams or bore water.</p>	<p>CEPA,</p> <p>CCDA, MRA, PNGFA, DAL, NDoH, National Weather Services, PPL and Water PNG</p> <p>NGOs</p> <p>Provincial governments</p> <p>Private sectors</p>	2022
State of the art equipment used for water quality, data collection and other measurements.	<p>Purchased state of the art equipment for water quantity and quality measurements to improve data measurement and reporting.</p> <p>The quality of data collection and collaboration is improved through community surveys, household demographic and health surveys, and other monitoring programmes whereby the status of water quality services is understood.</p> <p>Freshwater quality surveys use state of the art equipment and protocols in different provinces to obtain data for management and monitoring purposes.</p>	<p>CEPA, NDoH, MRA, PNGFA, DAL, CCDA, National Weather Services, PPL and Water PNG</p> <p>NGOs</p> <p>Provincial governments</p> <p>Private sector</p>	2023
Secure funding and resources to collect water data.	<p>The government and donors provide adequate funding to conduct research.</p> <p>Activities and programmes are prioritised.</p>	<p>CEPA, NDoH, MRA, DAL, PNGFA, DNPMCCDA, NSO, National Weather Services, PPL and Water PNG</p> <p>NGOs</p> <p>Provincial governments</p> <p>Private sector</p>	2023

OBJECTIVE 3.3 SAFER WATER AVAILABLE FOR PUBLIC USE

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve collaboration between government agencies, developers and donors.	<p>Closer collaboration towards achieving the government goals to achieve better freshwater quality and services, including protection and management of water catchment.</p> <p>Clean and safe water is supplied to residents in both rural and urban areas.</p>	<p>WPNG, Eda Ranu and other water supply producers.</p> <p>NDoH, DNPM, NSO, CCDA, DAL, MRA, PNGFA, NFA, CEPA</p> <p>Industries</p> <p>NGOs</p>	2023
Safer water is accessed by all people as a universal right.	<p>Recommendations in the Vision 2050, DSP 2010-2030, WaSH Policy 2015-2030 and MTDP3 2017-2022 are actioned.</p>	<p>WPNG, Eda Ranu and other water supply producers.</p> <p>NDoH, DNPM, NSO, CCDA, PNGFA, MRA, DAL, CEPA</p> <p>Industries</p> <p>NGOs</p>	2025
Improve capacity, skills and data collection.	<p>Institutional capacity building is achieved.</p> <p>Partnerships are forged with NGOs and donors at international and national level.</p> <p>Technology is promoted to treat water at the community/village level.</p> <p>Increase resources for better data collection and management.</p> <p>Improve data collection through community surveys (household, demographic and health surveys and interviews).</p> <p>Freshwater quality surveys are conducted in provinces to obtain accurate data for monitoring and planning.</p> <p>An inventory for all water treatment is done and information is made available.</p> <p>All treatment technology and processes are explained to the public to promote consistent water treatment in rural and urban areas.</p>	<p>WPNG, Eda Ranu and other water supply producers.</p> <p>NDoH, DNPM, NSO, CCDA, PNGFA, MRA CEPA</p> <p>Industries</p> <p>NGOs</p>	2023



3.4 THEME 4 LAND

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving terrestrial, ecological and environmental footprints and address governance issues in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 1.1, 1.1.1, 1.2.1, 1.4.1, 1.4.2, 1.5.3, 1.a.1, 1.b.1, 2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.3.1, 2.3.2, 2.4.1, 8.1.18.2.1, 8.3.1, 8.4.1, 8.4.2, 9.1.1, 9.2.1, 9.4.1, 9.5.1, 9.b.1, 12.1.1, 12.2.1, 12.4.1, 12.5.1, 12.6.1, 12.8.1, 12.a.1, 13.1.2, 13.2.1, 13.3.1, 13.3.2, 13.a.1, 13.b.1, 15.1.1, 15.1.2, 15.2.1, 15.3.1, 15.4.1, 15.4.2, 15.5.1, 15.6.1, 15.7.1, 15.8.1, 15.9.1, 15.a.1, and 15.b.1.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- 80% of forests are sustainably used and managed;
- 70% of land under cultivation are used and managed sustainably;
- 90% of wetlands are used and managed sustainably to improve environmental services; and
- Terrestrial Protected Areas are managed sustainably to preserve biodiversity, culture and livelihood.

PNG is situated on the island of New Guinea, the second largest island in the world and lies in the Oceania region, in the western Pacific Ocean. PNG shares a common border with Australia to the south, Papua province of Indonesia to the West, Palau to the North and Solomon Islands to the east. Its total landmass is approximately 465,147.71 km², of which 453,672.24 km² comprises of islands land mass while 11, 475.47km² is sea, where 72% of the landmass is believed to be inhabited (Prais 2018). Approximately 75% is covered by tropical primary rainforest (GoPNG 2014). The mainland is almost 85% of the total landmass. PNG has 78% of forest cover based on its national definition. The landmass includes outlying tropical islands, namely New Britain, New Ireland, Manus, Bougainville and about 600 other islands and atolls.

If the objectives discussed here are implemented effectively, CEPA and its partner agencies or organisations will improve their performance and mandatory requirements as statutory bodies responsible for the sustainable management of the environment, and management and governance of development activities. This will increase compliance and governance, leading to more transparency and better outcomes.



Most land in PNG is vulnerable or under threat from deforestation and degradation. PNG Forest Product Ltd's cattle ranch in the Bulolo valley in foreground, with anthropogenic grassland and cloud forest of Mt Misim in the background (Biatas Bito).



OBJECTIVE 4.1 80% OF FORESTS ARE SUSTAINABLY USED AND MANAGED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Sustainable management of forests is implemented to reduce forest depletion.	<p>Forest depletion rate is reduced by 5%.</p> <p>Forest governance and compliance is improved and activities are coordinated to improve forest management across the country.</p> <p>Human resources that support monitoring and reporting of forest activities is increased and capacities improved.</p> <p>Adoption and implementation of the National Land Use Policy is achieved.</p> <p>Operations of small-scale loggers are improved through effective data collection and monitoring programmes, minimising forest degradation and deforestation.</p> <p>Increased collaboration with all developers and government agencies at both national and provincial level is achieved.</p>	PNGFA in collaboration with CEPA, CCDA, DAL, MRA, DLPP, and OPIC, Agriculture and forestry Developers, and provincial government, and landowners	2024
Afforestation and reforestation of grassland and other areas is done to improve the forest cover in the country.	Reforestation and forest replenishment activities or programmes are implemented and promoted across the country.	PNGFA in collaboration with CEPA, CCDA, DAL, DLPP, and OPIC Agriculture and forestry Developers Provincial government Landowners	2023
Review Environment Act.	<p>Sustainable forest management is achieved through improved environmental monitoring and reporting.</p> <p>Compliance and governance issues are addressed and enforcement done effectively by regulators.</p>	CEPA PNGFA, DAL	2025
Increase training and awareness on sustainable forest management.	<p>Awareness and training of village scale logging and sawmilling owners is done.</p> <p>Sustainable logging practices and training for loggers is achieved.</p> <p>The public perception on the impact of logging, shifting cultivation, and large scale deforestation is improved across the country.</p>	PNGFA PNGFA in collaboration with CEPA, DAL, CCDA Provincial governments Developers	2023

OBJECTIVE 4.2 70% OF LAND UNDER CULTIVATION ARE USED AND MANAGED SUSTAINABLY

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
A national land use plan is developed.	A national land use plan and mapping of all potential arable land is documented whereby sustainable land management and better farming practices are implemented.	DAL in collaboration with DLPP, PNGFA, CEPA, Provincial government, agriculture industry and developers	2025
Education and Awareness is prioritised, improved and conducted.	<p>People are educated and are aware of sustainable management of their land.</p> <p>Areas on steep slopes and mountainous areas are avoided and local communities educated on the advantages and disadvantages of farming in such areas.</p>	DAL in collaboration with DLPP, CEPA, Provincial government, and agriculture and forest and developers	2024
Promotion of agriculture and agroforestry through land use intensification programmes.	<p>Agriculture extension programmes are implemented to support agroforestry initiatives and land use intensification programmes.</p> <p>New innovative or integrated farming technology and science are adopted by both commercial and subsistence farmers, which addresses soil preservation and enrichment, climate change adaptation, rising population challenges and economy sustainability.</p>	DAL in collaboration with DLPP, PNGFA, CEPA, Provincial government, and agriculture industry and developers	2024



OBJECTIVE 4.3 90% OF WETLANDS ARE USED AND MANAGED SUSTAINABLY TO IMPROVE ENVIRONMENTAL SERVICES

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Integrated land use and management plans for Ramsar Sites are done.	Documentation and development of integrated land use and management plans for Ramsar sites are completed. Assessment or inventory of biodiversity, ecological functions, invasive species, and potential disaster risks from extractive industries documented. Recommendations from the UNDP report on Protected Areas identified several issues and challenges in PAs such as no management plans, no sustainable funding, poor capacity and resources affecting management of wetlands are addressed.	CEPA PNGFA, DLPP, DAL, DFAT Donors and International Organisations Industry and developers	2024
Improve coordination, linkages and identification of MEA gaps.	Coordination of quarterly reviews and national updates are done in a timely manner to improve linkages and address gaps.	CEPA DFAT, DNPM, NFA, PNGFA Provincial governments Developers and Industry	2023
Raise awareness to improve decision making in development activities.	Appropriate decisions on activities posing greater risks for wetlands, such as increase in clearance and harvesting of forest products, are made by local communities and the government. Proper awareness on invasive species, climate change, and bushfires are shared widely. Strict mangrove management is promoted by government regulators in line with forestry laws banning logging in mangroves.	CEPA Other government agencies such as DAL, PNGFA, NFA	2024

OBJECTIVE 4.4 80% OF TERRESTRIAL PROTECTED AREAS ARE MANAGED SUSTAINABLY TO PRESERVE BIODIVERSITY, CULTURE AND LIVELIHOODS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Review draft PA Bill.	Ensure the review helps to boost PA management, species and habitat management and conservation.	CEPA in collaboration with NFA, PNGFA, MRA, MRA, DAL, DPE, DMPGM	2021
Increase conservation of terrestrial, wetland and marine areas by 20%.	Raise the target above 5% for 2019 to 2025 within six years.	CEPA in collaboration with NFA, PNGFA, MRA, DPE, DMPGM	2025
Improve PA management and effectiveness.	Strengthened environment laws and regulations, sustainable financing, capacity building, enforcement, monitoring and training are addressed to improve PA management.	CEPA, NGOs, Donor agencies Provincial governments	2024
A multi-resource approach is required.	Activities such as ecotourism, use of rattan or other forest products, medicinal use of plants, and traditional knowledge are promoted, supported or funded. Water catchment areas, hydropower, water supply and other important areas that protect the environment are identified as PAs thus promoting <i>ex situ</i> conservation of threatened and endangered species.	CEPA DAL, PPL, MRA, DPE NGOs Donor agencies	2024
Improve collaboration and partnerships.	Collaboration of line agencies in data collection and forest inventory within PA is encouraged.	CEPA Government agencies (e.g. NFA, DAL, PNGFA, CCDA, DJAG, DNPI, Dept Treasury)	2022



3.5 THEME 5 MARINE AND COASTAL

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving marine and fisheries work and ecological footprints in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 1.4.1, 1.5.3, 10.1.1, 10.2.1, 13.1.2, 13.1.3, 13.3.2, 13.b.1, 14.1.1, 14.2.1, 14.3.1, 14.4.1, 14.5.1, 14.6.1, 14.7.1, 14.a.1, 14.b.1, and 14.c.1.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- 90% of off-shore environments and fisheries are managed sustainably without depleting the fisheries stocks;
- Inshore marine environment and fisheries are sustainably managed;
- Marine Protected Areas are established and managed sustainably to preserve biodiversity and to improve marine health and ecosystem functions;
- 30% of coral cover, seagrass and mangrove ecosystems are studied, conserved and managed sustainably, and
- 80% of water quality of lagoons is free from degradation and pollution in order to improve quality of marine life.

PNG has a total sea area of 11,475.47km² with an Exclusive Economic Zone (EEZ) of about 2,437.480km², and a total coastline length of 20,538 km. The ADB report on the coral triangle puts the EEZ at 3.12 million km² while GoPNG (2018a) recorded the EEZ at 2.4 million km², which is the largest in the Western and Central Pacific Ocean, and the second largest in the world (ADB 2014). The marine environment is intact but gradually degrading because of anthropogenic pressures and climate change impacts.

If the following objectives are implemented, CEPA and its partners will increase their performance and mandatory requirements as statutory bodies responsible for the sustainable management of the environment, and management and governance of development activities. The increasing compliance and governance will lead to more transparency and better outcomes.



Ships docking off the main wharf in Huon Gulf, Lae, Morobe province (Biatius Bito)

OBJECTIVE 5.1 90% OF OFF-SHORE ENVIRONMENT AND FISHERIES ARE MANAGED SUSTAINABLY WITHOUT DEPLETING THE FISHERIES STOCKS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Enforcement and implementation of the Nauru Agreement, Niue Treaty, Forum Fisheries Agreement and international maritime conventions or treaties.	PNG tuna fishery is managed under PNA's Vessel Day Scheme (VDS), where member countries limit the number of fishing days. Member countries follow regulations, treaties and conventions. Improved surveillance and enforcement of fisheries laws by working together with stakeholders in addressing illegal fishing and other unlawful activities.	NFA CEPA, DJAG International treaties and Convention member countries Fishing companies	2020
Effective implementation of Tuna Management Plan and promoting better fisheries management.	Implementation of the Tuna Management Plan and banning of any activities associated with harvesting of sharks for commercial purposes, including unsustainable fishing practices.	NFA DJAG International treaties and Convention member countries NGOs Fishing companies	2022
Amending and enacting existing policies and legislations. Promote Ecosystem Approach to Fisheries Management (EAFM).	Implementing the EAFM to ensure sustainable exploitation is achieved. A legal framework is completed to address the implementation of EAFM principles. Knowledge in applying EAFM principles is understood and shared. Fisheries management plans in tandem with existing national and local legislation (e.g. Fisheries Act 1998) are done by stakeholders.	NFA and other government agencies such as CEPA, CCDA and DJAG NGOs Fishing Industries	2025
Empowering fishing institutions and regulators to function effectively.	Planning, training, awareness, research, collaboration and enforcement are encouraged with adequate resources provided.	NFA CEPA, DJAG Donors Provincial governments	2023
Improve Tuna Fisheries management.	The tuna tagging, VM, port sampling, by-catch management, observer programme are implemented by all stakeholders. The commonwealth marine economy plan is adopted and implemented, with the SOER team consulting the fisheries offshore management division of NFA for collaboration and fisheries management.	NFA DJAG, CEPA Donors Provincial governments	2024



OBJECTIVE 5.2 INSHORE MARINE ENVIRONMENT AND FISHERIES ARE SUSTAINABLY MANAGED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Addressing pressures and threats in coastal communities from uncontrolled commercial fishing pressures, habitat degradation, population growth, climate change, and other investment in community development.	<p>Locals are trained and inshore fish, prawns, seaweed, etc. farms established to meet growing population demand.</p> <p>Effective national and provincial resource management systems that support sustainable use by communities are developed and used.</p> <p>Sustainable harvesting practices and conservation strategies for all marine species are promoted widely.</p> <p>Mangrove forests as a fisheries nursery are promoted to boost fish populations.</p> <p>Other sources and sound management practices for sustainable use of fisheries resources are encouraged.</p>	<p>NFA and other government agencies such as CEPA, CCDA and DJAG</p> <p>Provincial government NGOs</p> <p>Fishing Industries</p>	2023
Promote partnerships and collaboration.	Partnerships and collaboration are achieved for small cottage industries such as inshore fisheries farms (e.g. prawns, sea cucumber, seaweed, oyster shells, etc.) to meet growing population demands.	<p>NFA and other government agencies such as CEPA, CCDA, DJAG and DNPM.</p> <p>Provincial government NGOs</p> <p>Fishing Industries</p>	2022
Improve capacity, data collection, analysis and collaboration of institutions.	<p>Sustainable fisheries management and conservation of critical habitats is addressed.</p> <p>Collaboration, research and capacity building inform decision-making, conservation, planning and resource management.</p>	<p>NFA and other government agencies such as CEPA, CCDA, DJAG and DNPM.</p> <p>Provincial government NGOs</p> <p>Fishing Industries</p>	2025
Promoting education and awareness nationwide.	<p>More awareness raising is needed country-wide, using appropriate media.</p> <p>Education curriculum developed and used.</p>	<p>NFA and other government agencies such as CEPA, CCDA, DJAG and DNPM.</p> <p>Provincial government NGOs</p> <p>Fishing Industries</p>	2021
Encourage innovation, research and development through appropriate fisheries institutions.	<p>Funding secured and aquaculture facilities developed as a feasible option for restoring depleted stocks under threat such as sandfish, prawns and other species.</p> <p>Construction and establishment of appropriate research facilities.</p>	<p>NFA and other government agencies such as CEPA, CCDA, DJAG and DNPM.</p> <p>Provincial government NGOs</p> <p>Research organisations and universities</p> <p>Fishing Industries</p>	2025



OBJECTIVE 5.3 40% MARINE PROTECTED AREAS ARE ESTABLISHED AND MANAGED SUSTAINABLY TO PRESERVE BIODIVERSITY AND TO IMPROVE MARINE HEALTH AND ECOSYSTEM FUNCTIONS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Continue to advocate for the PA Bill.	The number of Locally Marine Managed Areas (LMMA) established or increased. Establishment of Environment Conservation and Climate Change office or division to promote LMMA by provincial governments. The provincial government plans link with the national plan through collaboration with CEPA, NFA, DJAG and other government agencies.	CEPA DJAG	2021
Improve management of LMMA.	LMMA are managed in tandem with existing Acts and policies such as the National Ocean Policy (NOP) 2020-2030, thus promoting the management of the ocean and other jurisdiction within provincial waters.	CEPA NFA, DJAG NGOs Donors	2023
Funding constraints are addressed and funds secured for short-term or long-term work.	Effective data collection and collation is achieved. Separate funding for data management (and monitoring and evaluation) is secured. Implementation of plans to achieve specific SDGs, Aichi targets or government plans (Vision 2050, STaRS, MTDP 3, etc.). Improved management of the fisheries sector.	CEPA NFA, DT , DJAG and DF Donors NGOs	2024
Improve awareness and management of marine environment.	More awareness and funding to encourage sustainable projects in LMMAs to meet the conservation target of 20% for the country.	CEPA NFA, DCI, CCDA, DJAG, DFAT Donors NGOs	2023
Complete priority seascape investment plans.	Priority seascape investment plans are completed. Arrangements for investments consistent with Vision 2050 are implemented. Development of fisheries and marine management plans (species, ecosystems, landscape, etc.) are done. A separate marine policy on seascapes is implemented.	CEPA NFA, DJAG, DPE, MRA, DMHP NGOs Donors	2025



OBJECTIVE 5.4 ENDANGERED AND THREATENED MARINE MAMMALS, RAYS, SHARKS AND TURTLES ARE CONSERVED FROM THREATS AND PRESSURES

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Assessing the status of marine biodiversity and their environment (habitat, ecosystem, etc.).	<p>Collaboration and partnerships for research and data collection and analysis increased.</p> <p>Coastal provincial data collection studies are done.</p> <p>Data used to complement population and trend studies.</p>	<p>CEPA</p> <p>NFA</p> <p>Universities</p> <p>Research organisations</p> <p>Donors</p> <p>NGOs</p>	2025
Development of management and recovery plans for threatened species.	<p>Appropriate management and recovery plans for turtles, sharks and rays, fish, marine mammals, and endangered species are developed and database centralised at CEPA under the Environment Portal (www.png-data.sprep.org).</p>	<p>CEPA</p> <p>NFA</p> <p>Universities</p> <p>Research organisations</p> <p>Donors</p> <p>NGOs</p>	2022
Education and awareness raising are promoted.	<p>More education and awareness on endangered species, population pressure, species status, and laws are promoted/</p>	<p>CEPA</p> <p>NFA</p> <p>Universities</p> <p>Research organisations</p> <p>Donors</p> <p>NGOs</p>	2025
Improve the capacity of staff and local communities.	<p>Training of rangers or monitors with appropriate skills.</p> <p>Local communities collaborate with conservation and management initiatives.</p> <p>Awareness raising programmes to conserve and manage the threatened species are encouraged.</p> <p>Participation in research, education, and outreach programmes are encouraged.</p>	<p>CEPA</p> <p>NFA</p> <p>Universities</p> <p>Research organisations</p> <p>Donors</p> <p>NGOs</p>	2023
Improving and implementing regulations and policies.	<p>The regulations and policy at the community level are strengthened to ensure effective monitoring and enforcement.</p> <p>A review of the Whaling Act and other Acts which promotes the marketing of threatened species, such as eco-tourism products, is done.</p> <p>Appropriate resources, training and technologies are provided to improve enforcement and regulation activities.</p> <p>Laws and regulations are followed.</p>	<p>CEPA, NFA, TPA and Provincial Governments.</p>	2024
Improve data sharing and collection.	<p>Data sharing through signing of Memorandum of Understanding (MOU) with government agencies, NGOs and other stakeholders are encouraged.</p> <p>Support or small grants provided to CBOs and NGOs to collect and compile data for sharing.</p> <p>Awareness raised across all sectors to support collaborative data collection, data sharing and community outreach.</p> <p>The provincial governments in maritime provinces take ownership of data collection.</p>	<p>CEPA, NFA, Universities</p> <p>Research organisations</p> <p>Donors</p> <p>Provincial Governments</p> <p>NGOs</p>	2024
Review and update of threatened species.	<p>Review of PNG threatened species list and update of IUCN Redlist is completed and IUCN informed of any changes.</p> <p>Updating of Fauna Act, including threatened inshore dolphin species/trial phase is done.</p> <p>Human resources gaps covered by interns or volunteers under the leadership of experts on data entry, filing, etc. for reporting purposes.</p>	<p>CEPA</p> <p>NFA,</p> <p>Donor</p> <p>Provincial government</p> <p>NGOs</p>	2022



OBJECTIVE 5.5 30% OF CORAL COVER, SEAGRASS AND MANGROVE ECOSYSTEMS ARE STUDIED, CONSERVED AND MANAGED SUSTAINABLY

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Collaboration and partnerships encouraged to improve monitoring of marine environment and species.	<p>Working relationship between the implementers of the Law of the Sea and the PNG Oceans policy is improved.</p> <p>Partnerships made with research organisations, NGOs, universities and bilateral partners to monitor reef states, cover and species.</p> <p>Capacity building and training for coral research, breeding, restoration and conservation are encouraged.</p> <p>Budget and resources are improved.</p> <p>State of the art equipment such as satellite programmes or technologies are purchased for monitoring and research purposes</p> <p>Reliable and up to date information on all marine activities including habitats and species are documented.</p>	<p>NFA, CEPA, DJAG and CCDA</p> <p>Universities and research organisations</p> <p>Donors</p> <p>NGOs</p>	2025
Invest, develop and improve marine research.	<p>A vessel is purchased for marine research.</p> <p>More funding and resources are provided and capacity development addressed.</p> <p>Establishment of monitoring stations for live coral and seagrass to complement satellite monitoring of mangrove or coral cover, etc.</p> <p>Collaboration with partners to measure and monitor blue carbon initiative or products is achieved.</p>	<p>CEPA</p> <p>NFA, CCDA</p> <p>Universities (UPNG, UNRE) and research organisations</p> <p>Donors</p> <p>NGOs</p>	2025
Address existing gaps in regulations and policies, treaties and conventions.	<p>Any gaps in regulations and policies, treaties and conventions are addressed.</p> <p>Insert the blue carbon concept into the draft PA bill so the green and blue carbon initiatives are used across the country in pilot projects.</p> <p>Reduce carbon dioxide emissions to protect the rich marine life in the coral triangle.</p>	<p>CEPA</p> <p>NFA, CCDA</p> <p>Donor</p> <p>NGOs</p> <p>International organisations</p>	2022



OBJECTIVE 5.6 80% OF WATER QUALITY OF LAGOONS IS PROTECTED FROM DEGRADATION AND POLLUTION TO IMPROVE QUALITY OF MARINE LIFE

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve the management of marine environments through sustainable development plans and conservation initiatives.	<p>Activities such as palm oil, logging, mining, urban development and shifting cultivation, must develop conservation plans that protect reefs and lagoon water quality to ensure sustainable development is achieved.</p> <p>Land use planning by government and developers protects the environment and livelihoods.</p> <p>Any development that generates revenue from natural resources complies with laws and regulations to manage the environment wisely.</p>	<p>CEPA, NFA, DLPP NGOs Donors Universities and research organisations Developers and industries</p>	2024
Reduce the impacts and footprint on the land and marine ecosystems.	<p>Any resources are managed effectively and the risk of adverse impacts on local community livelihoods and the ecosystem are reduced by ensuring marine-dependent livelihoods and ecosystems are not affected.</p> <p>Coastal communities enjoy their environment from degradation, loss of water quality from urban expansion and resource development.</p> <p>Sustainable resource development is achieved and does not compromise coastal reef fisheries and livelihoods.</p> <p>Where development has taken place, alternative management practices are used to reduce erosion and discharge of other waste (i.e. build waste management systems, terraces, restore degraded lands, especially peatlands, and rehabilitate mangroves, to improve degraded o ecosystems).</p>	<p>CEPA NFA NMSA DWTI Provincial government</p>	2024
Adopt and monitor appropriate development plans.	<p>Reducing the impact of oil palm development, logging, shifting cultivation or mining on marine ecosystems requires stringent measures and compliance with regulations e.g. limiting new plantings of palm oil to hill slopes below 15°, reducing logging, control of mining or municipality wastes discharged into the marine ecosystem and reducing urban waste.</p> <p>Stricter adherence to sustainable guidelines are encouraged.</p>	<p>CEPA NFA, NMSA, PNGFA, DAL, DWTI Provincial government Developers</p>	2024
Conduct water quality tests and research.	<p>More water quality tests and research conducted.</p> <p>Collaborative work and partnerships with research organisations, universities, NFA and others are promoted.</p> <p>Resources, capacities and facilities are improved.</p> <p>Appropriate land uses, coastal zone management planning and more sustainable development upstream are promoted.</p> <p>Protection of degraded habitats implemented to preserve threatened species is promoted.</p>	<p>CEPA NFA, NMSA, DWTI, DAL, PNGFA Provincial government Universities and research organisations NGOs</p>	2025
Improve sewerage treatment and discharge.	<p>Improve partnerships between provincial governments, city authorities and Water PNG to establish sewerage treatment plants.</p> <p>Annual water quality monitoring of the lagoons conducted.</p> <p>Ensure WaSH Policies and other policies such as Vision 2050 and MTDS 3 are achieved.</p>	<p>CEPA NFA NMSA DWTI Provincial government Developers</p>	2023



3.6 THEME 6 BIODIVERSITY

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving biodiversity and conservation work and ecological footprints in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 1.1.1, 1.2.1, 1.2.2, 2.1.2, 2.5.1, 2.5.2, 3.3.3, 3.3.5, 3.b.2, 4.1.1, 4.2.2, 4.3.1, 4.5.1, 4.7.1, 5.1.1, 6.3.1, 6.5.1, 6.5.2, 6.6.1, 4.7.1, 8.3.1, 9.1.1, 9.2.1, 9.3.1, 9.5.1, 10.1.1, 10.2.1, 12.2.1, 12.2.2, 12.4.1, 12.4.2, 12.5.1, 12.8.1, 13.1.2, 13.1.3, 13.2.1, 13.3.1, 13.3.2, 13.b.1, 14.1.1, 14.2.1, 14.3.1, 14.4.1, 14.5.1, 14.6.1, 14.7.1, 14.c.1, 15.1.1, 15.1.2, 15.2.1, 15.3.1, 15.4.1, 15.5.1, 15.7.1, 15.8.1, 15.9.1, and 17.9.1.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- 80% of studies conducted on high species diversity and endemism and documented;
- Endemic and native species are protected from over-exploitation and managed sustainably with 20% of areas protected;
- Threatened species of concern are studied, documented and protected from extinction and threats with over 60% of areas covered; and
- Invasive or exotic species are managed, controlled, prevented or eradicated by 70%.

PNG is situated just south of the equator and has a rich biodiversity with 6-8% of global species. The total number of species in PNG is not known but some estimates are from 200,000 to 1 million. Roughly half the plants and animals are yet to be named scientifically and every year new species are found. PNG is also among the world's top 17 mega-diverse countries (Mittermeier et al., 1997).

PNG is biodiversity rich because of its intrinsic and extrinsic features of the environment such as local climatic conditions, the diverse geological landforms, terrain, mountains and undulating hills, rainforests, swamps, rivers, savannah, grassland, and pristine coral reefs. Natural events such as volcanic activities, fires, floods, landslips, natural treefall gaps in the forests, and other ecological factors such as isolation, competition, and predation also contribute to this species richness and endemism. Altitudinal gradients and geology also play a significant role in the outstanding biodiversity of the country. Every year new species have been discovered, especially in areas where no scientific research has been conducted. PNG's mountain terrestrial and marine ecosystems are known for high endemism.

However, with increasing natural and anthropogenic disturbances and phenomena, the rich biodiversity is at stake. If the following objectives are implemented, CEPA and its partners will improve their performance and mandatory requirements as statutory bodies responsible for the sustainable management of the environment, and the management and governance of development activities. The increasing compliance and governance will lead to more transparency and better outcomes.



Goodfellow's Tree Kangaroo (*Dendrolagus goodfellowi*) is a marsupial that lives in tree canopies in the forests of PNG. Adventure Park in Port Moresby. (Biatas Bito)

OBJECTIVE 6.1 80% OF STUDIES CONDUCTED ON HIGH SPECIES DIVERSITY AND ENDEMISM AND DOCUMENTED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Amend the PA bill or pass new Species Management Act.	Protection and management of species are achieved. Enable the preservation or management of high species diversity and endemism. PAs are managed sustainably, with more funding to achieve targets. Establish sustainable funding for PA.	CEPA PNGFA NFA NGOs	2023
Improve capacity and resources.	Funding, resources and capacity of CEPA, PA managers, and provincial conservation officers are improved. Customary landowners are supported to establish PAs on their land that contribute to the Protected Area Network (PAN). Increased training of conservation practitioners, including landowners is promoted.	Developers and Industries Universities	2023
Improve publicity, education and awareness.	More awareness is conducted to educate people about the rich biodiversity and culture. Collaborate with learning institutions to ensure curricula are developed. Share high conservation value areas with the public through media, publications, newsletters, televisions, internet, radios and other communication means.		2025
Implementing the PA policy and plan through funding and grants.	The PA Policy and Plan are effectively implemented through government funding. International grants are given to NGOs and development partners for activities. Establishment of a financial mechanism for programme implementation is achieved.		2021
Governance issues are addressed.	Proper EIA and monitoring done with governance issues addressed. Preservation of species <i>ex situ</i> are encouraged if under threat, with small incentives for <i>ex situ</i> conservation. Enforce penalties on those who breach environmental laws and regulations. Adherence to existing laws and regulations is achieved. Governance and management of PAs is enhanced. The legal framework becomes fully operational with clear lines of responsibility and high standards of governance, accountability and reporting achieved. Effective legal and institutional arrangements are established for provincial, district and local level governments, and communities including customary landowners, PA managers and other partners.	CEPA, PNGFA, MRA, DPE, DAL, NFA, DMGH Deelopers NGOs Universities and research organisations	2023
Increase research, monitoring and data collection and capacity.	More research done and data collected for more informed decisions. Capacity building for communities to manage PNG's biodiversity is improved. Ranger training, recording, conducting community entry and awareness raising are done to educate locals. The management of PNG's rich flora and fauna resources, where people are closely linked through their cultures and traditions, is encouraged. Monitoring of species and investing in cutting edge research is achieved. Funding and collaborative research is encouraged for evidence-based research. Small incentives provided to researchers and organisations to study, protect and preserve the rich and unique biodiversity of PNG. Further studies done to confirm species endemism for PNG and endemism for New Guinea as an island group. This includes referencing data from Indonesia.	CEPA, PNGFA, MRA, DPE, DAL, NFA, DMGH Deelopers NGOs Universities and research organisations	2025
Ensure implementation of conservation efforts at local level is effective.	Implementation of conservation activities at local level such as sustainable livelihood programmes and training are encouraged. Local people given options to venture into sustainable livelihood activities while protecting their environment and resources. Incentives or grants offered for management of biodiversity and ecosystems to protect the rich and unique biodiversity of PNG.		2024
Identify key sources of data and data collected by research institutions and organisations and used for species management and conservation.	Key data sources and data collected by research institutions (e.g. Binatang Research Centre, WWF, CI, and WCS and CSIRO); developers (e.g. oil and gas, mining companies doing EIS studies); and education institutions (e.g. UPNG and PAU) are identified and stored in a database for use. Ensure biodiversity reports from institutions and companies such as Exxon Mobil PNG, Oil Search, Museums such as Bishop Museum and PNG National Museum, and reports from expeditions are accessed. Identify and connect working groups on species diversity and endemism to enable data sharing for reporting.	CEPA, NRI and government agencies such as NAQIA, NARI, PNGFA and NFA. NGOs Universities and research organisations Donors	2022



OBJECTIVE 6.2 ENDEMIC AND NATIVE SPECIES ARE PROTECTED FROM OVER-EXPLOITATION AND MANAGED SUSTAINABLY WITH 20% OF AREAS PROTECTED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Governance issues are addressed.	<p>Proper EIA and monitoring done with governance issues addressed.</p> <p>Preservation of species <i>ex situ</i> are encouraged if under threat, provided small incentives are given to <i>ex situ</i> conservation.</p> <p>Enforce penalties on those who breach environmental laws and regulations.</p> <p>Adherence to laws and regulations achieved.</p> <p>Governance and management of PAs enhanced.</p> <p>Ensure the legal framework has clear lines of responsibility and high standards of governance, accountability and reporting.</p> <p>Effective legal and institutional arrangements are established for provincial, district and local level governments, and communities including customary landowners, PA managers and other partners.</p>	<p>CEPA, PNGFA, MRA, DPE, DAL, NFA, DMGH</p> <p>Developers</p> <p>NGOs</p> <p>Universities and research organisations</p>	2023
Develop management plan for species monitoring, management and regulation.	<p>Detailed management plans for a number of species and resources are developed.</p> <p>Funding available for species management plans, monitoring and regulation.</p> <p>A balanced practice using science-based and traditional knowledge to conserve important species and habitats is promoted.</p> <p>Appropriate benefit sharing agreement is done and policies or regulations developed to protect species from exploitation as stipulated in the Nagoya Protocol.</p>	<p>CEPA, NFA, DAL, PNGFA, DPE, MRA</p> <p>Universities</p> <p>Donors</p> <p>Research Organisations</p>	2025
Conservation and management plans are prioritised for endemic and threatened species.	<p>With the National Biodiversity Strategic Action Plan, the Protected Area Policy Implementation Plan and the Protected Area Policy in place, priority is given to manage endemic and threatened species.</p> <p>The importance of conserving replicas, relics or small areas with important habitats and biodiversity are promoted.</p>	<p>CEPA, NFA, DAL, PNGFA, DPE, MRA</p> <p>Universities</p> <p>Donors</p> <p>Research Organisations</p> <p>Developers</p>	2025
National land use and seascape plans are developed.	<p>Proper national land use and seascape plan are done or promoted and capacity building provided to agencies</p> <p>The National land use plan is developed, launched and implemented.</p>	<p>CEPA, NFA, DPE, MRA, DLPP, DAL</p> <p>Provincial government</p> <p>Developers</p>	2022
Amend the new PA bill.	<p>Ensure the new PA Bill captures species protection and management, and financing of PAs, before it becomes law.</p>	<p>CEPA, NFA, PNGFA, MRA, DPE, DAL</p>	2021
Increase publicity, education and awareness.	<p>Education and awareness conducted to empower people.</p> <p>Traditional knowledge on biodiversity is taught in schools or community level to empower people to conserve their biological assets, revive the traditional knowledge and practices of conserving the natural surroundings, and to help preserve biodiversity, traditions and culture.</p>	<p>CEPA, NFA, DPE, MRA, DLPP and DAL</p> <p>NGOs</p> <p>Donors</p> <p>Universities</p>	2025
Encourage and promote data sharing, collaboration and research.	<p>Encourage data sharing and networking.</p> <p>Funding is allocated by the National Government for monitoring programmes and research projects around the country.</p> <p>Identify working groups to update species databases and lists.</p> <p>Do more awareness and research into endemic species to improve understanding and knowledge.</p>	<p>CEPA, NFA, DPE, MRA, DLPP and DAL</p> <p>NGOs</p> <p>Donors</p> <p>Universities</p>	2021
More funding and resources.	<p>Funding, resources and capacity of CEPA, PA managers, and provincial conservation officers to do conservation work are improved.</p> <p>Customary landowners are supported in their initiatives to establish effective PAs on their land to strengthen the PA network.</p> <p>Increased training in conservation, including landowners, is promoted.</p>	<p>CEPA</p> <p>PNGFA</p> <p>NFA</p> <p>NGOs</p> <p>Developers and Industries</p> <p>Universities</p>	2024



OBJECTIVE 6.3 THREATENED SPECIES OF CONCERN ARE STUDIED, DOCUMENTED AND PROTECTED FROM EXTINCTION AND THREATS WITH OVER 60% OF AREAS COVERED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Governance issues are addressed.	<p>Proper EIA and monitoring done with governance issues addressed.</p> <p>Preservation of species <i>ex situ</i> are encouraged if under threat, provided small incentives are given to <i>ex situ</i> conservation.</p> <p>Enforce penalties on those who breach environmental laws and regulations.</p> <p>Adherence to laws and regulations achieved.</p> <p>Governance and management of Protected Areas is enhanced</p> <p>Ensure the legal framework has clear lines of responsibility and high standards of governance, accountability and reporting.</p> <p>Effective legal and institutional arrangements are established for provincial, district and local level governments, and communities including customary landowners, PA managers and other partners.</p>	<p>CEPA, PNGFA, MRA, DPE, DAL, NFA, DMGH</p> <p>Developers</p> <p>NGOs</p> <p>Universities and research organisations</p>	2023
Monitor and document threats on biodiversity such as climate change, development activities, habitat loss, pests and diseases, exploitation and invasive species.	<p>More baseline data collected and monitoring of the current status and trends of threatened species conducted.</p> <p>Research and use of camera trapping aids monitoring of endangered and threatened species is promoted.</p> <p>A Red List for threatened species is updated annually and submitted to the IUCN Redlist.</p> <p>Appropriate benefit sharing agreement is done and policies or regulations developed to protect species from exploitation as stipulated in the Nagoya Protocol.</p>	<p>CEPA and other government agencies such as PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2025
Training and funding are provided or secured.	<p>Increase funding and collaboration on biodiversity studies and monitoring.</p> <p>Strengthen resource and species management through financing and resource mobilisation from all stakeholders.</p> <p>Government allocates funding for monitoring programmes and research projects.</p> <p>Customary landowners are supported to establish PA on their land to strengthen the PA network.</p> <p>Increase training in conservation, including landowners.</p>	<p>CEPA and other government agencies such as DF, DT, PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2024
All development activity plans are approved to protect threatened species and their ecosystems.	<p>Most development activities have proper plans to ensure critical ecosystems and species of concern are protected from negative impacts.</p> <p>Habitat protection and monitoring of species is conducted.</p> <p>New technologies (e.g. GIS, satellite software, etc.) are used in planning.</p>	<p>CEPA and other government agencies such as PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2022
Improve education, publicity and awareness.	<p>Communities, school children and the public are educated to make informed decisions in planning and conservation of biodiversity and natural resources.</p> <p>Appropriate mediums and materials are used to increase education and awareness.</p>	<p>CEPA and other government agencies such as PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2022

cont.



OBJECTIVE 6.3 THREATENED SPECIES OF CONCERN ARE STUDIED, DOCUMENTED AND PROTECTED FROM EXTINCTION AND THREATS WITH OVER 60% OF AREAS COVERED *cont.*

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Upskill institutions, industries, professionals and local communities with skills and training.	<p>Ensure capacity building and training in the supply or value added chains so resources are managed wisely without affecting threatened species and habitats.</p> <p>Downstream processing and using plantation timber species are promoted, which reduce round log exports of threatened species (e.g. <i>Pericopsis moonni</i> harvested from natural forest), thus easing pressures on threatened species, habitats and ecological functions.</p> <p>Quota or ban is imposed on harvesting or trade of threatened species.</p> <p>Use DNA/RNA tracking of species through collaboration with international partners.</p> <p>Customary landowners are supported in their initiatives to establish PAs on their land that strengthen the PA network.</p> <p>Increased training in conservation, including landowners, is promoted.</p>	<p>CEPA and other government agencies such as PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2025
Ensure data is shared.	<p>Encourage data sharing, networking and monitoring.</p> <p>Data collection and sharing among working groups achieved through MoU.</p> <p>Ensure research permit conditions make it mandatory for researchers or developers to supply research data to a central database.</p>	<p>CEPA and other government agencies such as PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2021
Promote collaboration and partnerships.	<p>Identify working groups and collaborate.</p> <p>Engage in partnerships through MoU.</p>	<p>CEPA and other government agencies such as PNGFA, MRA, DPE, NFA, CCDA and DWTI</p> <p>NGOs</p> <p>Universities and research organisations</p> <p>Industries</p>	2022



OBJECTIVE 6.4 INVASIVE OR EXOTIC SPECIES ARE MANAGED, CONTROLLED, PREVENTED OR ERADICATED FROM SPREADING BY 70%

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Governance is addressed.	<p>Proper EIA and monitoring done with governance addressed.</p> <p>Enforce penalties on those who breach environmental laws and regulations.</p> <p>Adherence to laws and regulations.</p> <p>Governance and management of PAs enhanced.</p>	<p>CEPA, PNGFA, MRA, DPE, DAL, NFA, DMGH</p> <p>Deelopers</p> <p>NGOs</p> <p>Universities and research organisations</p>	2023
Invasive species or exotic species are documented, prevented, eradicated, contained and managed.	<p>Invasive species prevention, eradication, containment and asset-based protection and management is encouraged.</p> <p>An invasive species management strategy is developed from regional and international frameworks.</p> <p>Protection of the genebank and <i>ex-situ</i> conservation is encouraged.</p> <p>Increased quarantine inspections of foreign products (such as chemicals, food products (limit foreign processed food), machinery, vehicles and equipment, and manufactured or frozen products) so importers, suppliers and distributors follow rules.</p> <p>Destructive threats from Blue Green Algae (cyanobacteria) which is deadly in marine and freshwater ecosystems are effectively addressed, managed or reduced.</p> <p>Reduction of waste discharge into the ocean.</p> <p>Proper treatment plants and management of waste discharge.</p>	<p>CEPA and other government agencies such as NAQIA, Manufacturing Council, DAL, NFA, PNGFA, TPA, and PNGCS</p> <p>Industries</p> <p>NGOs</p>	2025
Collaboration and partnerships are improved to manage invasive species.	<p>Collaboration, capacity building, baseline monitoring, research and awareness are encouraged.</p> <p>Legislation and policy on invasive species management are improved and used.</p> <p>Implementation of biosecurity measures (customs, border security, etc.) and species EIA prior to introducing new species.</p> <p>The sectoral approach to contain invasive species should be strengthened.</p> <p>All stakeholders in invasive species management, eradication, containment and prevention use and share resources, skills, information and knowledge.</p> <p>Customary landowners are supported to establish PAs on their land that strengthen the PA network.</p> <p>Increased training in conservation, including landowners, is promoted.</p>	<p>CEPA and other government agencies such as NAQIA, Manufacturing Council, DAL, NFA, PNGFA, TPA, and PNGCC</p> <p>Industries</p> <p>NGOs</p>	2023
Increase communication and awareness.	<p>Effective communication within government agencies when introducing species (e.g. Tilapia) is promoted.</p> <p>Public awareness and education on invasive species and their impacts are communicated widely.</p>	<p>CEPA and other government agencies such as NAQIA, Manufacturing Council, DAL, NFA, PNGFA, TPA, and PNGCS</p> <p>Industries</p> <p>NGOs</p>	2023



3.7 THEME 7 BUILT ENVIRONMENT – CONSUMPTION AND WASTE

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving built environmental issues and ecological footprints in the country. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 3.9.2, 6.1.1, 6.2.1, 6.3.1, 7.1.1, 7.1.2, 7.2.1, 7.a.1, 7.b.1, 9.2.2, 9.3.1, 9.3.3, 9.4.1, 9.5.1, 9.b.1, 11.1.1, 11.3.2, 11.6.1, 11.a.1, 12.1.1, 12.2.2.1, 12.2.2, 12.3.1, 12.4.1, 12.4.2, 12.4.2, 12.5.1, 12.6.1, 12.8.1, 12.1.1, and 12.c.1.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- Household wastes are collected and managed appropriately and reduced with over 80% of areas covered;
- Municipal Waste Per Capita is managed or reduced and is addressed by local municipalities with over 80% of areas covered;
- Household wastes are collected efficiently, segregated and recycled with over 80% of areas covered;
- Quality sewerage treatment plants are built and managed effectively across 80% of the country to cater for increasing population;
- Efficient and clean transport energy is promoted with over 60% achievement;
- Solid and liquid waste are managed effectively with over 70% of areas covered, and
- Energy consumption is used efficiently with almost 70% coverage.

The consumption and waste production in PNG is increasing rapidly with population growth. This is exerting pressure on government and municipal development and infrastructure. The 1980 population of 3 million people doubled to 7.3 million in 2011 (NSO 2011a). According to the World Bank, 86% of the population lives in rural areas which most government services do not cover (Trading Economics 2016). Between the 1980 and 1990 census, the population growth rate was 2.3% but reached 3.1% between the 2000 and 2011 census, growing by 40%. By 2021, at the current growth rate of 3.1%, the population would reach 10,185,454 (NSO 2011b). The rural population is about 87.5% compared to 12.5% for urban areas in 2011. With increasing urbanisation and pull factors, people have more access to imported goods, including white goods such as fridges, washing machines, and vehicles. The main impact of urbanisation is the strain on accessing services (e.g. electricity, power, and improved sanitation) given the increasing population.

If the following objectives are implemented effectively, CEPA and its partners will improve their performance as statutory bodies responsible for the sustainable management of the environment. This will improve the management and governance of development activities, leading to more transparency and better outcomes.

PNG is developing a national waste management policy and this report complements that policy. The objective is to achieve the Cleaner Pacific 2025 goals, i.e. prevention of wastes and pollution, recovery of resources, improvement of residuals, and monitoring of the receiving environment.



Locals travelling in pristine wetlands in Suki, Western Province (Biatus Bito).

OBJECTIVE 7.1 HOUSEHOLD WASTES ARE COLLECTED, CAPTURED AND MANAGED OR RECYCLED APPROPRIATELY AND REDUCED WITH OVER 80% OF AREAS COVERED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Enactment of Waste Management Act.	<p>A national waste management Act is passed by Parliament.</p> <p>A waste management division is set up in CEPA.</p> <p>Legislation to regulate industries and for residents to sort recyclable wastes is enacted.</p> <p>Legislation on plastic products including plastic shopping bags is enacted.</p> <p>Regulations to address the sources, entry points, recycling, biodegradable and reusable materials, etc. is enacted and implemented.</p> <p>Manufacturers, producers and users of large quantities of non-biodegradable products are responsible for awareness, and management or recycling of wastes (e.g. plastic bags, bottles, wrappers).</p>	<p>CEPA, CCDA, MRA, DPE</p> <p>Local city and town authorities</p> <p>NGOs</p> <p>Provincial governments</p> <p>Donors</p>	2024
Polluters pay for dumping of waste.	<p>Polluters pay for their actions. Polluters should pay for waste management to prevent damage to human health or the environment.</p> <p>User pays system enforced whereby waste generators pay for the collection, transportation and disposal of their waste.</p> <p>Manufacturers responsibility is extended with the producer or importer required to support product return, collection and recovery systems.</p> <p>Penalties enforced against those who break the law and cause harm to human health and the environment through practices such as illegal dumping and littering.</p>	<p>CEPA, CCDA, MRA, DPE</p> <p>Local city and town authorities</p> <p>Provincial governments</p>	2022
Strategies	<p>Long-term strategies developed to manage and control household wastes.</p> <p>Waste in urban areas, particularly settlements and suburbs, are effectively managed.</p> <p>Properly designed and durable storage bins are installed in all residential areas (mainly hotspots).</p> <p>Ensure wastes are collected regularly.</p> <p>Strategies are developed to monitor the storage bins, making sure they are emptied by contractors in a timely manner.</p> <p>Chemicals and substances harmful to human health and the environment are managed appropriately.</p>		2021
A national household and waste recycle management plan is developed.	A National Household and Waste Recycle Management Framework is prepared on type of waste to be recycled; who/what is responsible for managing the waste; and how the waste should be disposed.	CEPA, CCDA, MRA, DPE	2023
Waste collection service becomes sustainable.	<p>Over 80% of areas covered by waste collection.</p> <p>10% charge for waste management services by local government.</p> <p>Sustainable waste management with full cost recovery is enforced through user charges set by local authorities (excluding financial costs and negative environmental effects).</p> <p>Local governments develop sustainable waste management and operating systems.</p> <p>A nationwide waste collection permit system to be operated by all local authorities.</p>	<p>Local city and town authorities</p> <p>NGOs</p> <p>Provincial governments</p> <p>Donors</p>	2022
Invest in technology to improve waste recycling.	A sustainable technology that recycles waste is developed, which converts waste into energy and earns revenue.		2025
Best Practice Environment Option (BPEO) assessment is done to cover waste disposal options.	<p>BPEO assessment identifies the best option.</p> <p>BPEO analysis identifies viable scenarios for waste management.</p> <p>Waste management impacts and other environmental issues such as climate change, land contamination, loss of habitats, invasive species, etc. are documented.</p>		2023

cont.



OBJECTIVE 7.1 HOUSEHOLD WASTES ARE COLLECTED, CAPTURED AND MANAGED OR RECYCLED APPROPRIATELY AND REDUCED WITH OVER 80% OF AREAS COVERED *cont.*

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Increase publicity, education and awareness.	<p>More awareness empowers and educates people to reduce waste in public places, and sort waste before disposal.</p> <p>People are educated to reduce waste, starting with school children and mothers.</p> <p>Awareness and training on waste recycling, reuse and waste reduction are promoted widely to educate everyone to be responsible for their waste.</p> <p>Awareness on recycling of wastes is done with urban authorities and other stakeholders such as NGOs, CBOs and waste collection contractors.</p>		2023
Waste collection data are documented.	<p>Ensure that contractors collecting waste in residential areas have “conditions” to do data collection or waste audits.</p> <p>A national waste data inventory is done for provincial centres to provide comparative data for urban household waste.</p> <p>Over 80% of areas covered by waste collection.</p> <p>A national data collection for household waste is required for a baseline so planners and municipal governments can address household waste problems.</p> <p>More consultation with provincial and local level government authorities regarding household waste is done.</p> <p>Consultation with CBD authorities and NGOs is done to address household waste.</p>	<p>CEPA, CCDA, MRA, DPE</p> <p>Local city and town authorities</p> <p>NGOs</p> <p>Provincial governments</p> <p>Donors</p>	2024
Waste segregation is promoted.	<p>City authorities are encouraged to promote waste sorting at household level.</p> <p>Incentives to manage waste from the source are promoted.</p> <p>Different waste bins are distributed to sort waste (e.g. yellow for general household waste and red for recycle waste).</p>		2024



OBJECTIVE 7.2 MUNICIPAL WASTE PER CAPITA IS MANAGED OR REDUCED AND IS ADDRESSED BY LOCAL MUNICIPALITIES WITH OVER 80% OF AREAS COVERED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Government spending is addressed by minimising waste.	<p>Unnecessary government spending on waste and other environmental and social threats are minimised or addressed.</p> <p>Encouraging people to be responsible with their wastes is done by government and other partners including NGOs and donor agencies.</p> <p>Chemicals and substances harmful to human health and the environment are managed appropriately.</p> <p>A resource recovery programme will be available for scrap materials.</p>	<p>CEPA, CCDA, MRA, DPE Local city and town authorities NGOs Provincial governments Donors</p>	2025
Capacity building and training is provided.	Capacity building empowers people to minimise wastes through better habits.		2023
Waste collection becomes sustainable.	<p>Over 80% of areas covered by waste collection.</p> <p>10% charge for waste management services by local government.</p> <p>Sustainable waste management with full cost recovery through user charges set by local authorities (excluding direct financial costs and negative environmental effects).</p> <p>Local governments develop sustainable waste management operating systems.</p> <p>A nationwide waste collection permit system to be operated by all local authorities.</p>		2022
Develop municipal waste management strategies.	<p>Urban area municipalities develop sustainable waste management strategies, plans or policies.</p> <p>Municipal governments build technical capacity to minimise waste.</p> <p>A national, regional and provincial solid waste management framework is developed.</p> <p>Provincial governments developed their own waste management plans and implement it.</p>		2025
Best Practice Environment Option (BPEO) assessment of waste disposal options.	<p>BPEO assessment identifies the best option.</p> <p>BPEO analysis identifies viable scenarios for waste management.</p> <p>Waste management impacts and other environmental issues such as climate change, land contamination, loss of habitats, invasive species, etc. are documented.</p>		2023
Data is collected effectively.	<p>Reports on municipal waste have reliable data from all centres documented.</p> <p>Future SoE reports document datasets from the private sector, industry, government, CBDs, NGOs, provincial, LLG, etc.</p> <p>Collaboration with industries and households in collecting data.</p>		2025
Legislation to minimise municipal waste is passed.	<p>Legislation is passed for urban administrations and institutions to develop waste management strategies, data collection and reporting to a competent authority (e.g. CEPA).</p> <p>A national waste management policy is developed to improve living standards.</p> <p>A national waste management Act is passed by Parliament.</p> <p>A waste management division is set up in CEPA.</p>		2022
Increase publicity, education and awareness.	<p>Increased awareness on municipal solid wastes to encourage healthy hygiene practices in homes and public places.</p> <p>Waste management in primary curriculum.</p>		2022
Polluters pay for dumping of waste.	<p>Polluters pay for their actions. Waste generators pay the full costs of services to manage their wastes.</p> <p>User pays system enforced for collection and disposal of their waste.</p> <p>Manufacturers responsibility extended to support product return, collection and recovery systems.</p> <p>Penalties enforced for law breakers who harm human health and the environment through illegal dumping and littering.</p>		2022



OBJECTIVE 7.3 QUALITY SEWERAGE TREATMENT PLANTS ARE BUILT AND MANAGED EFFECTIVELY ACROSS 80% OF THE COUNTRY TO CATER FOR INCREASING POPULATION

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve sustainable services.	<p>10% charge for waste management services by local government.</p> <p>Sustainable waste management services with full cost recovery through user charges by local authorities (excluding direct financial costs and negative environmental effects).</p> <p>Local governments develop a sustainable waste management system.</p>	<p>CEPA, CCDA, MRA, DPE</p> <p>Local city and town authorities</p> <p>NGOs</p> <p>Provincial governments</p> <p>Donors</p>	2022
Faulty sewerage systems are repaired.	<p>Faulty sewerage systems in major towns and cities are repaired.</p> <p>Sewerage treatment plants are built in all centres of PNG for processing and disposal.</p> <p>Waste recycling for agriculture or industrial uses innovations.</p> <p>Government funding made available to repair sewerage systems to achieve WaSH targets.</p> <p>Provincial governments provide annual funding to support health sanitation (e.g. WaSH policy 2015) and maintain treatment facilities.</p> <p>Investment in sewerage recycling is done if economically feasible for energy production (e.g. biogas).</p>	<p>WPNG, DF, DT, DNPM, CCDA</p> <p>Local municipality</p> <p>Provincial government</p> <p>Donors</p>	2025
Improve monitoring and reporting on sewerage systems.	<p>An effective monitoring system is in place to minimise environmental and social problems from sewerage systems.</p> <p>Proper data collection, reporting and planning by local authorities for sewerage.</p> <p>Provincial and local governments fund collection of health and sanitation data.</p> <p>Collection of data on sewerage access for settlements outside city boundaries is collected for planning purposes .</p>	<p>WPNG, CCDA</p> <p>Local municipality</p> <p>Provincial government</p> <p>NGOS</p> <p>Donors</p>	2025
Increase education and awareness.	<p>Human waste disposal discouraged in rural communities into the streams, rivers or sea.</p> <p>Settlements have proper toilets built.</p> <p>Animals are kept in enclosures.</p> <p>More awareness of the WaSH policy in urban and rural areas to educate the population.</p>		2024
Effective implementation of WaSH Policy is done.	<p>WaSH Policy 2015 implemented to improve quality of water and sanitation services.</p> <p>Promoting long-term hygiene behaviour change is significantly increased.</p> <p>Access to clean water and sewerage facilities in settlements and villages is improved.</p> <p>WaSH projects in rural areas is facilitated by the Government, development partners, CBOs, NGOs and donors.</p>	<p>WPNG, CCDA</p> <p>Local municipality</p> <p>Provincial government</p> <p>NGOs and CBOs</p> <p>Donors</p>	2023
Best Practice Environment Option (BPEO) assessment on waste disposal options.	<p>BPEO assessment identifies the best option.</p> <p>BPEO analysis identifies viable scenarios for waste management.</p> <p>Waste management impacts and other environmental issues such as climate change, land contamination, loss of habitats, invasive species, etc. are documented.</p> <p>Chemicals and substances harmful to human health and the environment are managed appropriately.</p>	<p>CEPA, CCDA, MRA, DPE</p> <p>Local city and town authorities</p> <p>NGOs</p> <p>Provincial governments</p> <p>Donors</p>	2023
Polluters pay for dumping of waste.	<p>A national waste management Act is passed by Parliament.</p> <p>A waste management division is set up in CEPA</p> <p>Polluters pay for the costs of their actions.</p> <p>User pays system enforced for collection and disposal of waste.</p> <p>Manufacturers responsibility extended to support product return, collection and recovery systems.</p> <p>Penalties against law breakers who harm human health and the environment through illegal dumping and littering.</p>	<p>CEPA, CCDA, MRA, DPE</p> <p>Local city and town authorities</p> <p>Provincial governments</p>	2022



OBJECTIVE 7.4 EFFICIENT AND CLEAN TRANSPORT ENERGY IS PROMOTED WITH OVER 60% ACHIEVEMENT

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Promote energy efficient transport systems and technologies.	Invest in efficient and clean energy transport systems and technologies. A major review of transport use, fuel efficiency and demand to collect quality data.	DWTI CCDA Investors Donors	2025
Minimise or ban low energy efficient electrical products.	Minimise or ban imports of low energy efficiency electrical devices.	CCDA, and PNG Power Investors Donors	2024
Invest in green technology.	Increase renewable energy sources like solar, hydro, wind and geothermal energy to avoid carbon emissions from fossil fuels. Incentives for using off-grid renewable energy introduced.	CCDA, DPE and PNG Power, DNPM, DF, DT Investors Donors	2025
Improve data availability and accessibility.	Data improved on the storage of energy in batteries (dry-cells). Quality data collected by authorities to improve understanding of energy efficiency.	CCDA and PNG Power Investors Donors	2024
Best Practice Environment Option (BPEO) assessment to waste disposal options.	BPEO assessment identifies the best option. BPEO analysis identifies viable scenarios for waste management. Waste management impacts and other environmental issues such as climate change, land contamination, loss of habitats, invasive species, etc. are documented.	CEPA, CCDA, MRA, DPE Local city and town authorities NGOs Provincial governments Donors	2023
Polluters pay for dumping of waste.	Polluters pay for their actions. Polluters pay the full costs of services for their wastes. User pays system enforced for the collection and disposal of waste. Manufacturers responsibility extended to support product return, collection and recovery systems. Penalties against law breakers who harm human health and the environment through illegal dumping and littering.	CEPA, CCDA, MRA, DPE Local city and town authorities Provincial governments	2022



OBJECTIVE 7.5 SOLID AND LIQUID WASTE ARE MANAGED EFFECTIVELY AND EFFICIENTLY ACHIEVED WITH OVER 70% OF AREAS COVERED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve solid and liquid waste management, data collection, monitoring, reporting and planning.	<p>Collect reliable data on the composition and quantity of solid and liquid waste.</p> <p>Over 80% improvement in the management, data collection, monitoring, planning and reporting.</p> <p>Quality data collected and used to set targets for waste reduction, reuse and recycling.</p> <p>Data collection and reporting on wastes generated by municipalities is improved.</p> <p>Future planning of activities with routine data collection by municipalities.</p> <p>A national, regional and provincial solid and liquid waste management framework is developed for PNG.</p>	<p>CEPA, WPNG, NDoH, Provincial government Local municipalities Donor NGO Business community</p>	2024
Waste management service becomes sustainable.	<p>10% charge for waste management services by local government.</p> <p>Sustainable waste management with full cost recoveries through user charges set by local authorities (excluding direct financial costs and negative environmental effects).</p> <p>Local governments develop sustainable waste management and operating systems.</p>	<p>CEPA, CCDA, MRA, DPE Local city and town authorities NGOs Provincial governments Donors</p>	2022
Increase capacity, resources and training of government agencies.	<p>Improve capacity of responsible agencies for solid and liquid waste management.</p> <p>Provincial governments set aside funding and construct proper waste treatment facilities.</p> <p>Standards developed to encourage proper disposal and treatment of solid and liquid waste.</p>		2024
Amend or enact regulations and policies.	<p>A national waste management Act is passed by Parliament.</p> <p>A waste management division is set up in CEPA</p> <p>Regulations are developed for household and commercial generators to provide suitable storage containers for their Municipal Solid waste (MSW).</p> <p>Enforcement and regulation of activities as per the Environment Act, Mining Act and other laws prevent pollution in water catchments, using appropriate protocols and compliance and monitoring tools.</p> <p>Increase penalties for those disposing wastes inappropriately in informal markets, towns, cities and squatter settlements.</p> <p>Legislation formulated for urban administrations and institutions to develop waste management strategies, collect data on waste and report to competent authority (e.g. CEPA).</p>	<p>CEPA, WPNG, NDoH, Provincial government Local municipalities Donor NGO Business community</p>	2025
Best Practice Environment Option (BPEO) assessment of waste disposal options.	<p>BPEO assessment identifies the best option.</p> <p>BPEO analysis identifies viable scenarios for waste management.</p> <p>Waste management impacts and other environmental issues such as climate change, land contamination, loss of habitats, invasive species, etc. are documented.</p> <p>Chemicals and substances harmful to human health and the environment are managed appropriately.</p> <p>A national hazardous waste treatment facility is established.</p> <p>PNG's hazardous waste arrangements are reviewed and aligned with all relevant MEAs.</p>	<p>CEPA, CCDA, MRA, DPE Local city and town authorities NGOs Provincial governments Donors</p>	2023
Conduct or improve publicity, education and awareness.	<p>Increase awareness by stakeholders and organisations on new rules and regulations.</p> <p>Offer incentives for waste sorting at source.</p> <p>Raise awareness on municipal solid and liquid waste to encourage healthy hygiene practices e.g. in schools, health institutes, churches, etc.</p> <p>Waste management integrated into primary curriculum.</p>	<p>CEPA, WPNG, NDoH, Provincial government Local municipalities Donor NGO Business community</p>	2023
Polluters pay for dumping of waste.	<p>Polluters pay their actions. Polluters pay the full costs of services to manage their wastes.</p> <p>User pays system enforced for the collection and disposal of waste.</p> <p>Manufacturers responsibility extended to support product return, collection and recovery systems.</p> <p>Penalties against law breakers who harm human health and the environment through illegal dumping and littering.</p> <p>Chemicals and substances harmful to human health and the environment are managed appropriately.</p>	<p>CEPA, CCDA, MRA, DPE Local city and town authorities Provincial governments</p>	2022



OBJECTIVE 7.6 ENERGY CONSUMPTION AND USES ARE USED EFFICIENTLY WITH ALMOST 70% COVERAGE

Activity	Milestones	Key Implementing Agencies and Partners	Timeline	
Good data for transport use is documented.	<p>Improve quality of data for future SoE reports.</p> <p>Collect good data on air, sea and land transport to understand trends for energy consumption.</p> <p>The National Executive Council (NEC) instructs stakeholders to provide information and data for future SoE reports.</p>	CCDA, DCA, CEPA, DWTI, MVIL and PNGCC, Industries, Service providers (e.g. PNGPL, Exxon Mobil, OSL), Donors	2023	
Diversification of energy sources.	Promote diversifying and investing in energy sources and selling it back into the grid.		2025	
Improve partnerships and collaboration.	<p>Work with development partners to develop renewable energy sources.</p> <p>The government works with partners in energy to achieve the MTDP 3 and Vision 2050 goals.</p>		2023	
Review and amend policies and laws to improve energy accessibility.	<p>Review of the energy policy and pricing.</p> <p>Improve government subsidy to increase access to suitable energy sources.</p>		2025	
Energy efficiency is promoted through reliable data and information sharing.	<p>Collect fuel data from service stations, aviation hubs and wharves for assessment.</p> <p>Fuel suppliers provide fuel data (e.g. Puma, Total, Mobil, Pacific Energy Aviation Ltd, TSSP data).</p> <p>Collect data on vehicle imports and registration.</p> <p>Improve monitoring of vehicle years of services.</p> <p>Collect and share good data from relevant departments, through MoU.</p>		2024	
Best Practice Environment Option (BPEO) assessment on waste disposal options.	<p>BPEO assessment identifies the best option.</p> <p>BPEO analysis identifies viable scenarios for waste management.</p> <p>Waste management impacts and other environmental issues such as climate change, land contamination, loss of habitats, invasive species, etc. are documented.</p> <p>Chemicals and substances harmful to human health and the environment are managed appropriately.</p>		CEPA, CCDA, MRA, DPE, Local city and town authorities, NGOs, Provincial governments, Donors	2023
Address GHG emission offset and minimisation.	<p>State taking over public transport in major centres to reduce personal vehicle use to curb GHG emissions.</p> <p>Emission monitoring equipment required on vehicles by MVIL prior to registration.</p> <p>Cycling and walking (e.g. improve access for cyclers and pedestrians) are encouraged.</p> <p>Use of energy efficient fuel.</p>		CCDA, DCA, CEPA, DWTI, MVIL and PNGCC, Industries, Service providers (e.g. PNGPL, Exxon Mobil, OSL), Donors	2025
Polluters pay for dumping of waste.	<p>Polluters pay for their actions. Polluters pay the full costs of services to manage their wastes.</p> <p>User pays system enforced for the collection and disposal of their waste.</p> <p>Manufacturers responsibility extended to support product return, collection and recovery systems.</p> <p>Penalties against law breakers who harm human health and the environment through illegal dumping and littering.</p>	CEPA, CCDA, MRA, DPE, Local city and town authorities, Provincial governments	2022	



3.8 THEME 8 CULTURE AND HERITAGE

This theme focuses on how CEPA, government agencies and stakeholders will work towards improving culture and heritage issues or maintaining the diverse cultures and traditions of PNG. Under the United Nations Sustainable Development Goals (SDG), the following targets can be achieved: 1.4, 2.1.1, 2.1.2, 2.2.1, 2.2.2, 2.3.1, 2.3.2, 2.4.1, 2.5, 2.5.1, 2.5.2, 3.1.1, 3.1.23.2.1, 3.2.2, 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.4.1, 3.7.1, 3.7.2, 3.8.1, 3.8.2, 3.9.1, 3.9.2, 3.b, 3.b.2, 3.b.3, 3.c.1, 4.1.1, 4.3.1, 4.1.2.1, 4.4.1, 4.5.1, 4.6.1, 4.7.1, 4.a.1, 5.1.1, 5.2.1, 5.2.2, 5.5., 5.a.1, 5.c.1, 8.2.1, 8.3, 8.4.1, 8.4.2, 8.5.1, 8.9.1, 8.9.2, 9.1.1, 9.3.1, 9.5, 9.5.1, 9.5.2, 9.b, 9.b.1, 10.1.1, 11.3.1, 11.4.1, 11.a.1, 11.2.1, 12.b.1, 13.1, 13.3.1, 13.3.2, 14.2.1, 14.5.1, 14.7, 14.a, 15.1.1, 15.1.2, 15.2.1, 15.3.1, 15.4.1, 15.4.2, 15.5.1, 15.6, 15.6.1, 15.7.1, 15.9.1, 15.a, 15.a.1, 15.b.1, 15.c.1, 16.3, 16.6.1, 16.6, 16.7.1, 16.10.2, 17.3.1, 17.6.2, 117.9.1, 7.11.1, 17.14.1, 17.16.1, 17.17.1, 17.18.1, 17.8.3, and 17.9.1.

PNG's cultural and heritage elements are closely knitted to the environment which people live in, and modernisation is driving rapid changes. There is a significant link between people, traditions and the environment. Of all the indicators, traditional culture forms the basis for both new and old environmental practices since approximately 80% of all land in PNG is customarily owned. The changing diet and 'easy to prepare' foods is having a significant negative impact on the ability of people to cope with the changing social and economic aspects, particularly food security. In addition, there are historic and traditional sites that require better management and care. These sites are essential as they maintain and sustain ties between the people, culture and the environment. Modernisation is rapidly changing the traditional social structure. However, much of PNG's success can be found in embracing both the past and the future.

The following objectives were highlighted as a guide to achieving specific targets and recommendations:

- 20% of the history and culture of PNG is documented and preserved;
- 30% of the diverse language of PNG is preserved and documented;
- Thirty per cent of traditional diets and medicines are documented and used to improve health standards;
- 90% of land is managed in a transparent manner to promote development and livelihood thereby avoiding conflicts;
- Over 70% of agriculture crops collected and preserved in genetic banks; and
- PNG ways and customs are documented, preserved and promoted in managing the environment covering 30% of the country.

If the following objectives are implemented, CEPA and its partners can improve their performances as statutory bodies responsible for the sustainable management of the environment, and management and governance of development activities. This would increase compliance and governance leading to better outcomes in protecting the culture and heritage for the present and future generations.



Cultural showcasing of different traditional tribal costumes during the 2017 Rugby League World Cup in Port Moresby. (Biatius Bito)



OBJECTIVE 8.1 20% OF THE HISTORY AND CULTURE OF PNG IS DOCUMENTED AND PRESERVED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve collaboration and partnerships to document PNG's cultural heritage.	<p>Map, document, record and archive historical sites, languages, spiritual sites, historical sites and so forth such as: 1) Funerals, 2) marriage ceremonies, 3) Taboo places or scared sites, 4) Tattoo making, 5) Basket making, 6) Canoe making, 7) Languages, 8) Cultural singing ceremonies, attires, songs, 9) Myths, 10) artefacts, 11) Traditional houses, 12) Paternal and matrilineal society, 13) Feasts, etc.</p> <p>Recording of Traditional-Customary Environmental and Ecological Knowledge in both local languages and a <i>lingua franca</i>.</p> <p>Cultural and historical data are collected and recorded by village or ward councillors through partnerships and collaboration with key stakeholders, experts and researchers.</p> <p>Extract cultural heritage information in the EIS and EIA reports, and annual CEPA reports.</p> <p>Preservation and promotion of traditional knowledge (skills, arts, music, language, etc.) by video recording and uploading onto YouTube, Facebook, etc.</p>	<p>NMAG, NCC, IPNGS, CEPA, DE, and TPA</p> <p>Provincial government</p> <p>Development partners and donors</p> <p>NGOS</p> <p>Universities, students and researchers</p>	2025
Provide incentives and awards to document unique cultural heritage information.	<p>Video competition to document culture and traditional information with prizes and awards.</p> <p>Implementing the 2005 Convention on Culture Heritage (The Intangible Cultural Heritage was already ratified) by Ward councillors to record intangible and tangible cultures.</p> <p>Engage professionals, experts and freelance writers funded by government agencies and partners.</p> <p>Retired teachers and public servants tom help document information.</p>		2025
Conduct publicity, education and awareness.	<p>Increased promotion, awareness and education are done in schools and provinces by way of cultural shows</p> <p>Promotional cultural heritage videos recorded and aired on available platforms such as Television, Facebook, Website etc.</p> <p>Promotion of cultural heritage information featured in radio and newspapers targeting citizens and others</p>	<p>NMAG, PNG CC, IPNGS, CEPA, DE, and TPA</p> <p>Provincial government</p> <p>Development partners and donors</p> <p>NGOS</p> <p>Universities, students and researchers</p>	2023
Support cultures at risk.	<p>Increased funding and resources.</p> <p>Educational institutions to help revive dying cultures and traditions (unique or good).</p> <p>Support organisations that document, map, record and archive cultural diversity with increased funding.</p> <p>UN World Day for Cultural Diversity for Dialogue and Sustainable Development on 21st May is observed annually.</p>		2024
Cultural knowledge and systems contribute to development.	<p>Traditional-Customary Environmental or Ecological Knowledge (TEK) values are recognised to promote investment in <i>in situ</i> community-led programmes.</p> <p>Activities that use TEK records to educate and advocate for changing social contexts of village societies within PNG are promoted.</p> <p>Recognise the strong customary structure under which information collection can inform local development.</p>		2024
Monitoring of cultures.	<p>Monitor the impact of tourism on cultural heritage.</p> <p>Each province establishes cultural centres or museums to preserve their identities.</p> <p>Support monitoring with funding.</p>		2024
Develop a national policy.	<p>A national policy is formulated under the National Cultural Property and Preservation Act to cater for culture and heritage.</p>		2025
Capacity Building and empowerment.	<p>Train key personnel.</p> <p>Appropriate resources and technology for organisations responsible for cultural heritage.</p>		



OBJECTIVE 8.2 30% OF THE DIVERSE LANGUAGE OF PNG IS PRESERVED AND DOCUMENTED

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Promoting languages.	<p>Invest in the registration and teaching of local languages.</p> <p>Teaching of local languages is supported.</p> <p>Language as the identity of a tribe or clan is recognised.</p> <p>Lost languages are recorded and revived.</p> <p>Languages under threat from extinction are documented and revived.</p> <p>Education and awareness is improved.</p>	<p>NMAG, NCC, IPNGS, CEPA, DE, and TPA</p> <p>Provincial government</p> <p>Development partners and donors</p> <p>NGOS</p> <p>Universities, students and researchers</p>	2024
Encourage parents to speak local <i>lingua franca</i> .	<p>Despite intermarriages, children are encouraged by their parents to speak their mother tongue or learn from fluent speakers.</p> <p>Teaching children with local <i>lingua franca</i> at early age by parents is encouraged.</p>	<p>NMAG, NCC, IPNGS, CEPA, DE, and TPA</p> <p>Provincial government</p> <p>Development partners and donors</p> <p>NGOS</p> <p>Universities, students and researchers</p>	2025
Connect with local cultures through language.	<p>Children in villages and elementary schools are taught and encouraged to speak English and local vernacular.</p> <p>Children and adults who don't speak their mother tongues are encouraged to make close contact with their village roots and local speakers to enhance learning.</p>	<p>NMAG, NCC, IPNGS, CEPA, DE, and TPA</p> <p>Provincial government</p> <p>Development partners and donors</p> <p>NGOS</p> <p>Universities, students and researchers</p>	2024



OBJECTIVE 8.3 30% OF TRADITIONAL DIETS AND MEDICINES ARE DOCUMENTED AND USED TO IMPROVE HEALTH STANDARDS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Increase awareness and education.	<p>People are educated about sanitation, eating proper diets, cutting down on processed food and living healthy lifestyles.</p> <p>More awareness of healthy lifestyles because of loss of traditional food crops and diversity, and increasing lifestyle diseases.</p> <p>New ways of food preparation and cooking are taught.</p> <p>The mind-set of people must change and proper medical checks done when ill. Most people cannot afford high medical costs and revert to traditional medicines or practices.</p> <p>Implementation of programmes where traditional cooking methods are taught to students and the public.</p>	<p>WPNG, DAL, NDoH, DE</p> <p>Education institutions</p> <p>NGOs</p> <p>Industries</p> <p>Donors</p>	2023
Improve medical drug procurement processes and distribution.	<p>Medicines become affordable and available to the public.</p> <p>Medical services are improved to reduce the health issues faced in the country.</p> <p>Improving organisational structure and performance in delivering pharmaceutical services.</p> <p>Funding made available for medicine procurement and delivery.</p>	<p>NDoH</p> <p>Industries</p> <p>Distributor</p> <p>Donors</p>	2024
Improve organisational performance and service delivery.	<p>Review of National Medicines Policy 2014.</p> <p>Periodic review of performance versus funding to improve service delivery.</p>	<p>DE, NDoH, DHERST, CEPA, NCC</p> <p>Universities and research organisations</p> <p>NGOs</p> <p>Industries</p> <p>Donors</p>	2025
Ratify the Nagoya Protocol that addresses Access Benefit Sharing (ABS) and Intellectual Property Rights (IP).	<p>The Nagoya Protocol is promoted whereby medicines are produced locally so benefits go to locals.</p> <p>Free, prior, informed consent and equitable benefit sharing arrangements are made with locals and pharmaceutical companies or others such as researchers.</p>	<p>CEPA, NDoH, DAL, PNGSTC, NARI, NCC</p> <p>Universities</p> <p>NGOS</p> <p>Donors</p>	2023
Recognise and improve use of traditional medicine.	<p>Holistic approaches of traditional medicine are recognised in psychology and mental health for patients.</p> <p>Certification to approved traditional medicines. Non-certified traditional medicines are banned.</p> <p>Funding and research support is provided to local medicinal producer.</p>	<p>DE, NDoH, DHERST, CEPA, NCC</p> <p>Universities and research organisations</p> <p>NGOs</p> <p>Industries</p> <p>Donors</p>	2024
Document traditional medicines.	<p>PNG cultural studies are incorporated into high school curricula.</p> <p>Map and document traditional medicines, diets, artefacts, and their uses.</p> <p>Traditional medicine producers are recognised (certified) and their local knowledge documented where intellectual property rights (IPR) are achieved.</p>	<p>DE, NDoH, DHERST, CEPA, NCC</p> <p>Universities and research organisations</p> <p>NGOs</p> <p>Industries</p> <p>Donors</p>	2024
Increase collaboration and partnerships.	<p>The National Department of Health (NDoH) works with National Agriculture Research Institute (NARI) to encourage traditional diets over imported and processed food.</p> <p>Traditional medicine practitioners form an association. All research comes through the association.</p> <p>The government and partners to document and test medicinal properties of reefs, seagrasses, plants and animals, etc.</p>	<p>NDoH, NARI, DAL, CEPA</p> <p>Industries</p> <p>Donors</p> <p>Universities and research organisations</p>	2023



OBJECTIVE 8.4 90% OF LAND ARE MANAGED IN TRANSPARENT MANNER TO PROMOTE DEVELOPMENT AND LIVELIHOOD THEREBY AVOIDING CONFLICTS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Document land boundaries.	Inventories are conducted in all provinces to demarcate traditional land boundaries. Students hired to document land groups and boundaries and archive them. Continuation of digital work and transparency in any land matters is upheld within Department of Lands and Physical Planning (DPLL) and provincial land departments. DLPP conducts nationwide land boundary mapping for private land, state land, customary land and leased land. DLPP fast tracks land registration for customary, private and state land.	DLPP Provincial government Developers Donors Private landowners	2023
Implementing the land use planning policy and Lands Act effectively.	Raise awareness at Local Level Government and Provincial (LLG) levels on customary land registration or acquisition process – especially in urban areas. Finalise and launch the National Land Use Policy (NLUP). Implement the NLUP to ensure landowners get their land and participate fairly in development activities. Over-population often leads to land disputes and this is addressed through the NLUP. Current Acts, policies and legislation are reviewed to identify gaps, and recommendations made to improve the link between cultural heritage and land. The Customary Land Registration Act is reviewed.	DLPP Provincial government Developers Donors Private landowners	2025
Document oral and modern land histories.	Loss of knowledge and skills are documented. Oral histories are documented during Incorporated Land Group (ILG) registration or other social and genealogical studies. Appropriate record keeping using modern technologies is used.	DLPP, CEPA, DAL, NCC, MRA, DPE Developers and industries Donors Provincial government Private landowners	2024
Ensure appropriate land dispute mechanisms are used in dealing with disputes.	Land disputes are resolved through proper legal avenues. Delineation of customary land boundaries by land or sea are verified by landowners. Empower cooperative society groups in PNG to develop their land.	DLPP, CEPA, DAL, NCC, MRA, DPE Developers and industries Donors Provincial government	2023
Improving institution functions.	Collect data on land groups register, ILGs, etc. Urban customary landowners are assisted in planning, utilities zoning, etc., to avoid removal of rights. CEPA may establish a social mapping and landowner identification (SMLI) section for customary landowner issues.	DLPP, CEPA Developers and Industries NGOs	2024
Sustainable land use management.	Projects with more than 5ha of land should develop mitigation measures to manage cumulative impacts. Awareness raising to improve understanding of land use planning and management. Development activities have land use plans approved by relevant government agencies (e.g. logging, agriculture, mining, oil and gas, roads, urban development, etc.).	CEPA, DLPP, DAL, MRA, DPE Developers and industries Donors Provincial government	2024
Increase collaboration and partnerships.	CEPA is working with DLPP to provide land registration support for customary landowners in project areas. DLPP works in partnership with provincial municipalities, governments and developers to promote better land use plans.		2023



OBJECTIVE 8.5 OVER 70% OF AGRICULTURE CROPS COLLECTED AND PRESERVED IN GENETIC BANKS

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Investment in a national programme is promoted to document the ethno-botany of plant resources.	Investment is made in a national programme to document the ethno-botany of plant resources for both wild and propagated crops, covering all language groups and clans or tribes across PNG. Documenting traditional agronomic and social status of food varieties, DNA sequencing and chemical and nutritional composition. A multi-disciplinary approach is undertaken in defining appropriate means of maintaining the above as living knowledge through <i>in situ</i> by providing support is achieved Recording of all aspects of localised Papua New Guineans' knowledge of plant varieties within a framework that ensures intellectual property rights remain with the customary custodians of this information is recognised or facilitated Information are recorded in local languages and in other PNG <i>lingua franca</i> using appropriate recording methods. This also will enable preserving local languages as is achieved.	NARI, DAL, CEPA, NCC Industries, Commodity Boards, Provincial government, universities and research entities, and NGOs	2024
<i>Ex situ</i> and <i>In situ</i> repositories established or maintained.	Whilst <i>ex situ</i> repositories of genetic material need consistent long-term support, an innovative programme is urgently provided to facilitate <i>in situ</i> maintenance of the diversity of heritage crops across the country. Continued funding is provided to conserve and preserve gene banks. Gene banks are improved.	DAL, NARI, CIC, KIK, CEPA, NCC, NMAG, DE, Commodity Boards, Universities and Research Institutions, Provincial government Donors	2024
Capacity building and training.	Capacity building, training and awareness is done in close collaboration with partners institutions Increase of funding appropriation is made by the government Climate change impact, adaptation and resilience is taught to locals to preserve local genetic banks	DAL, NARI, CIC, KIK, CEPA, NCC, NMAG, DE, Commodity Boards, Universities and Research Institutions, Provincial government Donors	2023
Increase awareness and education.	Collaborative awareness programmes on agricultural practices and climate tolerant crops are conducted. Use of appropriate communication mediums and programmes. Local people and farmers are educated and empowered with best agricultural practices.	DAL, CEPA, CIC, CCDA, NARI Commodity Boards Universities and Research Institutions, Provincial government Donors	2024
Promote data collection.	Consultation is done for updated crop data. A systematic and holistic approach is used to document information from all sectors. All data collected is published or shared. Recognition of Intellectual Property Rights (IPR) and equitable benefit sharing (EBS) arrangements is recognised by regulations and laws.	DAL, CCDA, CEPA, NARI, NCC Donors Developers Industries	2024



OBJECTIVE 8.6 PNG WAYS AND CUSTOMS ARE DOCUMENTED, PRESERVED AND PROMOTED IN MANAGING THE ENVIRONMENT COVERING 30% OF THE COUNTRY

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Nagoya protocol ratified and appropriate legislations and policies are formulated.	Ratifying the Nagoya protocol is promoted for the preservation of genetic resources. Appropriate policies and legislation are developed to enable local communities to preserve or benefit from their natural resources, culture and traditions. Recognition of Intellectual Property Rights (IPR) and equitable benefit sharing (EBS) arrangements.	TPA, NCC, CEPA, DJAC, NMAG, DAL, Provincial government Developers and DFAT industries NGOs Donors	2023
Capacity building and training.	Local champions encouraged to visit other areas so when they return to their villages, they are ready to advocate for change. Engage professionals and experts to document PNG ways that benefit the country. Capacity building so local communities know the biodiversity of their marine and terrestrial environments.	TPA, NCC, CEPA, NMAG Provincial government Developers and industries NGOs Donors Academia and research organisations	2023
PNG ways and customs are documented.	Continuous work to encourage stakeholders to map, document, record and archive PNG ways and customs. Important information on the PNG ways are documented. Loss of culture and heritage researched and documented. Management of the environment in light of increased exploitation, uses and trade of wildlife, plants, corals and other local resources for food or cash are improved through local PNG ways and customs. Conservation management using PNG ways, customs, leadership, etc., encouraged.	NCC, CEPA, IPNGS, NMAG Universities Provincial government Developers and industries NGOs Academia and research organisations Donors	2025
PNG ways and customs promoted for tourism and cultural revival.	Promotion by conservation practitioners through awareness and education in schools and communities by way of cultural shows, radio talk back, and so forth. Educational institutions to revive dying cultures and traditions and adapt good PNG ways in the curriculum. Document traditional practices and share them widely. Record Traditional-Customary Environmental and Ecological Knowledge (Ethnobiology). Marketing of tourism activities is undertaken.	TPA, NCC, CEPA, NMAG Provincial government Developers and industries NGOs Academia and research organisations Donors	2025
Revive custom PNG ways.	Invest in <i>in situ</i> community-led programmes that use records to educate. Signing of conservation deeds between village clans and conservation practitioners so that zoning of conservation and other land uses is achieved. The conservation deed is binding through by-laws agreed upon by the communities. Conserve traditional knowledge and biodiversity by adding value with genetic resources, plants and animals. Important biodiversity and medicinal resources are documented and conserved through the Nagoya Protocol and related laws or regulations. Sustainable livelihood practices and programmes (e.g. planting of food crops, venture into eco-tourism, establish research station, identify medicinal plants, training, etc.) are promoted in rural communities. Locals venture into effective conservation and management of their resources and cultures.	TPA, NCC, CEPA, NMAG Provincial government Developers and industries NGOs Academia and research organisation Donors	2024

cont.



OBJECTIVE 8.6 PNG WAYS AND CUSTOMS ARE DOCUMENTED, PRESERVED AND PROMOTED IN MANAGING THE ENVIRONMENT COVERING 30% OF THE COUNTRY *cont.*

Activity	Milestones	Key Implementing Agencies and Partners	Timeline
Improve partnerships and collaboration.	<p>Improve networking to strengthen partnerships.</p> <p>Use Free Prior Inform Consent (FPIC) so local people (customary land and sea owners) are actively involved in conservation planning.</p> <p>Awareness raising and educating locals is promoted.</p> <p>Barriers that restrict community entry into new areas to do conservation outreach is addressed to create a sense of ownership by the local people and making conservation programmes successful.</p>	<p>CEPA, NCC, TPA</p> <p>Donor</p> <p>NGOs</p> <p>Provincial government</p> <p>Local communities</p>	2023
Improve local political and social systems in doing conservation.	<p>Traditional chief and leader systems are recognised and not done away with in favour of government ward members (councillors) when doing conservation.</p> <p>Respecting and recognising the roles of the chiefs and village leaders are adhered to by villagers, thus favouring local conservation practices in terms of enforcement and compliance of rules set by the community.</p> <p>Respecting community leaders and chiefs allow the community to work together to achieve conservation and sustainable environment management.</p> <p>Traditional governance to sustaining conservation efforts is maintained.</p>	<p>CEPA, NCC, TPA</p> <p>Donor</p> <p>NGOs</p> <p>Provincial government</p> <p>Local communities</p>	2025
Amend or enact existing laws that recognise the role and leadership of chiefs and elders, youth and gender.	<p>An Act of Parliament is passed that recognises values of leaders in the village.</p> <p>Gender and youths policies and regulations revisited and amended where appropriate</p> <p>A bottom-up approach to develop sound policy framework, connecting community actions to national environmental and climate change policies.</p>	<p>CEPA, NCC, TPA</p> <p>Donor</p> <p>NGOs</p> <p>Provincial government</p> <p>Local communities</p>	2025
Promote alternative livelihood options to complement conservation.	<p>Alternative livelihood activities must be a major conservation output by conservation practitioners, NGOs, government and private .</p> <p>Locals are supported into alternative livelihoods using PNG ways as stipulated in the constitution.</p>	<p>CEPA, NCC, TPA</p> <p>Donor</p> <p>NGOs</p> <p>Provincial government</p> <p>Local communities</p>	2024



4 IMPLEMENTATION AND MONITORING FRAMEWORK

The Implementation and Monitoring Framework is a key component of any management strategy or action plan. The NEMS is a living document that will be reviewed and amended as new information, knowledge, strategic focus and directions come to the fore. The implementation relies on a collective commitment and partnership from all government agencies, the private sector, civil society, traditional leaders and the public. The role of CEPA is critical in coordinating and providing the necessary support to the implementing partners to ensure the NEMS actions are pursued, documented and disseminated.

The monitoring of the NEMS is crucial to guide actions and to ensure that each thematic area is being pursued with urgency. The review of NEMS should be conducted in alignment with the review of the SoE. This should be done regularly, including a mid-term review, and a more comprehensive review within five years from the date of endorsement. The strategic themes of the NEMS are purposely developed and prioritised to align with the many international MEAs and other regional environmental strategies, including the SDG, the NBSAP, CBD 6th National Report, CBD Aichi Targets, and Regional Framework for the Conservation and Protected Areas. The themes also align with existing priorities of government departments and agencies, as well as the interests of civil society and private sector. A number of existing government plans will assist with the implementation and monitoring of the NEMS. This includes the Strategic Development Plan 2010-2030, Vision 2050, MTDS 1-3 and StaRS.



Villages in Suki wetland, Western Province where traditional transport are dugout canoes made from logs. (Biatius Bito)

5 CONCLUDING REMARKS

Coordination and collaboration of all national, state and municipal government agencies, NGOs and external partners will be critical to the successful implementation of the PNG NEMS. The CEPA is the key coordinating unit that will oversee the development, implementation and the monitoring of the NEMS. It is important to be realistic on what is achievable given the limited resources, especially human resources and funds for implementation. The role of external and development partners cannot be understated but, equally important, any assistance must be guided by the principles and values outlined in the NEMS.

PNG faces many urgent issues, including unsustainable development, over-harvesting of marine and terrestrial resources and threats from climate change. These issues are addressed in the NEMS through strategic actions. The challenges are ongoing, and some will even get worse over time, especially if no action is taken. Monitoring and evaluating the progress is a crucial part of adaptive management and will ensure that these activities remain the best option.

The onus is now on CEPA to advocate for change, mutual cooperation and collaboration with all partners and stakeholders.



Lake Murray is the second largest freshwater lake on the Island of New Guinea and is situated in Western Province. (Biatius Bito)

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A Suki woman weaving her baskets, made from swamp reeds and tree bark. (Biatu Bito)

