ENVIRONMENT-CLIMATE ANALYSIS

BIODIVERSITY & PROTECTED AREAS

Papua New Guinea is one of the world's 17 mega-diverse countries. Conservation of biodiversity in PNG will help to save the planet's biodiversity.

Photo by Francesco Ungaro on Unsplash

ECOSYSTEMS OF PAPUA NEW GUINEA

Papua New Guinea (PNG) has nine terrestrial ecoregions, five marine bioregions and 132 Key Biodiversity Areas - sites which contribute significantly to the global persistence of biodiversity.

78% of the country is forested

76% of forests remain relatively undisturbed

4.6% wetlands

5% grasslands

64% of all plants are endemic

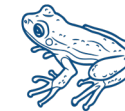**1,786** species of amphibians, reptiles, birds and mammals

Papua New Guinea's forests play a critical role in storing carbon and regulating the climate.

Other ecosystems include wetlands (4.6 percent), grasslands (5 percent) and marine systems with fringing and barrier coral reefs, coral atolls and very deep offshore oceans (>8,000m).

HIGH SPECIES ENDEMISM

- About 64 percent of all PNG's plants are endemic
- PNG contains at least 1,786 species of amphibians, reptiles, birds and mammals, and likely many others have yet to be catalouged
- Iconic species include 10 of the world's 12 species of tree kangaroos, and more than 30 species of birds of paradise
- There is extremely valuable biodiversity at genetic level (including many food crops). PNG is the origin of banana, sugar cane and sago.

Due to the irreplaceability of many species, if they are lost from Papua New Guinea, they are likely to be lost entirely from the planet

33% reptiles
77% frogs
} **endemic**

10/12 of the world's species of tree kangaroos

THE PEOPLE

PNG has over 840 different languages, and some of the world's oldest continuing cultures. **About 87 percent of the country's nine million people live in rural communities.**

Photo by UNDP Flickr

THREATS TO BIODIVERSITY

Overall, the status of species is in decline. **About 66 percent of known animal species and 20 percent of known plant species are decreasing**, with the trend of most of the remaining species unknown. Three species of fungus, 623 plants and 481 animals are currently listed as threatened (critically endangered, endangered or vulnerable) in PNG. One in five of PNG's mammals are threatened. Some of the key threats to biodiversity relate to:

Habitat loss and land use change

This includes clearing for commercial agriculture, logging, intensified subsistence gardening, fire, infrastructure, and settlement expansion. Most logging occurs on low altitude (<500m) coastal plains and hills.

Wildlife trade

A little-understood threat is the illegal and unreported trade in some animal species and products (parrots, hornbills, turtles, snakes, lizard and crocodile products, turtle shells, shark fins and fish bladders).

Unsustainable hunting, fishing and resource use

Growing populations put pressure on smaller-mammals, birds, reptiles, fish, turtles and shellfish species. Hunting for food is a major threat to endangered and critically endangered tree kangaroos, long-beaked echidnas, northern gliders and giant bandicoots.

Invasive species

About 500 invasive plant species thrive in PNG (exotic grasses, vines, aquatic plants – hyacinth and salvinia). Feral animals include the cane toad, cats, pigs, rats, deer, some birds, fish (e.g. tilapia, climbing perch, walking catfish, snake fish) and several insect pests and pathogens.

Loss of biocultural knowledge

Loss of traditional culture and language is closely linked to the loss of biodiversity.

Climate Change

Higher temperatures affect species at higher elevations and upper montane forests, turtle gender and induce coral bleaching. Sea level rise results in inward migration of coastal ecosystems and loss of some systems (beaches, sand cays, mangroves).

Ocean acidification

Affects coral, causing reef decline and impacts on fish and shellfish species and dependent communities.

Changed rainfall brings more severe droughts and vulnerability to flooding.

Pollution

Caused by poor sanitation, mine waste disposal, industrial effluent, garbage disposal and agricultural runoff that impacts people and aquatic species and ecosystems.

THE PEOPLE (Continued)

Land and seas:

* are the core of *economic life* and the basis for providing sustainable livelihoods. Customary landowners hunt, fish, maintain gardens, cut trees for timber and firewood, gather plants for traditional and medicinal purposes (>1000 species are used), and collect shellfish and other marine species

* underpin *cultural and spiritual beliefs*. People have an intimate knowledge of species, ecosystems and features in the landscape and use their Tok ples (local languages) to describe key elements of this landscape. Some areas have spiritual value - *ples masalai* - and are important in traditional ceremonies

* provide a sense of *social identity and belonging* for individuals and groups, and knowledge about land and related practices is passed on through the generations.

For centuries people have lived in harmony with their environment, sustainably using wildlife as a source of food, gathering plants, and collecting firewood and building materials.

Photo by UNDP Flickr

Figure 1. Protected areas in PNG, 2021.

PROTECTED AREAS

Little of the most biodiverse areas are formally protected under national legislation. There has been slow progress in establishing protected areas.

* In 2022 there were 61 formally gazetted PAs on about 2.2 million ha. This is equivalent to 4.8 percent of the land and 0.21 percent of coastal and marine areas, well below global targets (Figure 1)

* Most protected areas are owned by customary landowners, which presents complexities as these are often not monitored by formal ranger programs and receive little to no funding from government or external sources

* Many are 'paper parks' with little effective management of biodiversity due to poor resourcing

* Progress has been made in the last decade with the Protected Area Policy and the development of the Biodiversity and Climate Fund, which will enable better resourcing of protected areas.

ENVIRONMENTAL GOVERNANCE

PNG is ranked 146 out of 180 countries on the International Environmental Performance Index, as legislation, planning, management and enforcement structures are largely unable to prevent the loss of this amazing biodiversity.

PNG is awaiting the passage of the Protected Areas Bill that will establish new protected area types and improved management.

WAYS FORWARD

Biodiversity

- ☑ Allocate high-value land and waters for conservation

- ☑ Improve legislation and regulatory frameworks

- ☑ Strengthen customary systems that incorporate sustainable resource use

- ☑ Increase human capacity at all levels to better manage biodiversity

- ☑ Improve wildlife conservation awareness programs

- ☑ Expand livelihood projects, ecotourism and related benefit sharing agreements

- ☑ Develop and implement payment for ecosystem services

- ☑ Expand research and monitoring.

Protected Areas

- ☑ Finalise and implement the Protected Areas Bill

- ☑ Expand the protected area network

- ☑ Develop World Heritage site proposals

- ☑ Build partnerships to aid management protected areas

- ☑ Better-resource CEPA and provincial governments

- ☑ Improve the capacity for on-ground management e.g. through PA Management Committees

- ☑ Establish an effective national ranger network

- ☑ Link livelihood projects to conservation outcomes

- ☑ Ensure integrated national and cross-sectoral planning that supports protected area outcomes.