

CLIMATE CHANGE

Most of Papua New Guinea's population lives in rural areas and relies on subsistence livelihoods. Existing exposure and vulnerability to natural disasters - including drought, flood, landslides, coastal inundation and fire - is predicted to increase as a result of climate change.

"The elders talk about a more stable climate. Now the pattern has changed and there is more rain...and more frequent and longer dry periods in the coastal areas. The drought can result in more fires and this spreads through the grasslands and into the forest."

- YUS Conservation Area

Papua New Guinea (PNG) has been an active participant in international agreements, including the United Nations Framework Convention on Climate Change (UNFCCC), in setting its own climate-related targets, and in developing policies and plans for both climate mitigation and adaptation. However, challenges remain to implement these commitments, to respond to current impacts, and to prepare for the future.

GREENHOUSE GAS BALANCE

The vast forests are vital for carbon storage and PNG has been a **'carbon sink'** for global greenhouse gas (GHG) emissions. However, emissions grew significantly in PNG from 2000-15, mostly due to rapidly increasing land use change (vegetation clearing and logging), an ever-expanding energy sector and emissions from gas production. As a result, the country became a **net source** of GHG in 2015. Since then, the rate of forest clearing and logging has declined, though emissions from other sources have continued to increase. The country was again a net 'sink' by 2017. This decline has been attributed to changes in government policies, including the cancellation of some Special Agricultural Business Leases. **Future policies on natural resource management must rationally consider negative or positive impacts on national greenhouse gas emissions.**

CLIMATE PREDICTIONS



Annual mean temperatures and extremely high daily temperatures continue to rise and warmer nights occur.



Average rainfall to increase, with more extreme rain events and droughts to decline in frequency.



- * Sea level will continue to rise
- * Ocean acidification affected area and severity to increase
- * Sea surface temperature increase
- * Coral bleaching to increase
- * Along the northern coast, wave height and periods to decrease during December - March.



Tropical cyclones less frequent, but more intense.



IMPACTS OF CLIMATE CHANGE

Climate change amplifies existing social and environmental vulnerabilities and impacts the livelihoods and health of Papua New Guineans across all regions.

87% of people live in rural areas 

80% depend on rain-fed freshwater, local agriculture and fisheries to survive 

"Salt water has entered the village and now the water in the wells is brackish."

- Horseshoe Reef WMA

- More than 500,000 people live near the coast and are vulnerable to sea level rise, coastal degradation and storm surges. Sea levels have risen 7mm per year since 1993 – more than double the global average – and levels are projected to rise by 40-80cm by 2100, and perhaps to >1m).

CLIMATE CHANGE PROGRAMMING

Programs to address climate change include **mitigation activities to avoid and reduce emissions, and adaptation to build positive behaviours and resilience to inevitable changes.**

Many partner organisations are assisting PNG's Government through the Climate Change Development Authority to meet its commitments and to protect its people from the worst effects of climate change.

> 500,000 live near the coast

Sea levels have risen **7mm** per year since 1993

"Saltwater is intruding into the wetlands. It is going into new areas and the saltwater fish are following them. Saltwater now comes 6-7 kms upstream. In the past it was only 2-3km upstream."

- Tonda WMA

80% susceptible to El Nino southern oscillation extremes

- Heavy rain causing landslides and flooding (inland and coastal) are the most frequent natural disasters and will be amplified with changing seasonal patterns
- Poor communication in many remote locations, especially on islands, means there is **little ability for people to be warned about and receive assistance in disaster events such as floods and landslides.**

THOSE LEFT BEHIND

Women and children undertake most gardening and collecting of water and firewood and are perhaps the most at risk from a changing climate. When gardens are not producing as much, women have to work harder to grow staple foods and if this fails, they and their families are at risk.

The predicted changes to PNG's climate will impact the most vulnerable in the following ways:

- Natural resource depletion and crop failure leading to food insecurity and associated social insecurity, including malnutrition, poor health, and community displacement
- Loss of income from crop failure or fish deaths
- Saltwater intrusion into wells, gardens, and communities will cause salinisation and reduced soil fertility
- Droughts reduce the availability and quality of drinking water
- Inundation of houses and other infrastructure
- Malnutrition and poor health
- Increase in malaria and other vector-borne diseases and penetration into higher altitudes due to warming temperatures.

Mitigation activities usually focus on reducing forest clearing, land degradation and emissions from the energy sector. Existing mitigation programmes include:

- **Reducing emissions from deforestation and forest degradation (REDD+)** is a global program which aims to reduce emissions from deforestation and forest degradation and foster conservation, sustainable management of forests and the enhancement of forest carbon stocks. To prepare the country to participate in the international REDD+ program, PNG has developed a rigorous and consistent forest monitoring system and has submitted reports on its emissions to the UNFCCC. **PNG has committed to cease clearing and degradation of native forests by 2030**
- **Pawarim Komuniti and Facilitating Renewable Energy and Energy Efficiency (FREAGER, UNDP):** PNG has a very low rate of electrification (less than 15 percent of households), and there is a commitment to raise this to 70 percent by 2030. Off-grid electrification will support access to clean energy in rural and remote communities. Gender inclusivity outcomes are required, and projects are likely to bring significant benefits for women's livelihoods, health and productivity
- There is a high potential to develop blue carbon programmes in the future. **Blue carbon** is the carbon stored in living tissue and organic matter in mangroves, tidal marshes and seagrass ecosystems. Mangroves are 10 percent of PNG's land area. They sequester carbon, provide coastal protection, habitat for marine species, and a source of food and income for local people. Blue economy activities encourage and support communities to undertake sustainable enterprises that will conserve coastal ecosystems.

Adaptation activities include a national adaptation plan, which is being finalised to set the framework for climate change adaptation activities. Workshops across the country are discussing how to increase community resilience. Sectors in the government and industries, and many provinces, are also developing adaptation plans and programs.

- **Building Resilience to Climate Change (BRCC, UNDP):** this project has been working to enhance the adaptive capacity of 21 communities living in low-lying coastal and atoll communities. The project includes vulnerability assessments and adaptation plans across target communities, sustainable fisheries and food security; and has led to development of small-grant project proposals. Gender sensitive disaster response strategies and emergency response plans are being developed for the included communities.



This factsheet is a summary from the Environment and Climate Analysis for the 2022 Common Country Assessment and has been prepared by the United Nations Development Programme in Papua New Guinea. For more, see <https://environment-climate.png-nrmhub.org/>

RECOMMENDATIONS ON THE WAY FORWARD

Partner organizations and the United Nations system can play a key role in **financing and guiding climate adaptation and mitigation projects**, including ensuring climate-resilience is a cross-cutting theme across all sectors.

- ✓ **Finalise the National Adaptation Plan and ensure widespread implementation and integration with local programs such as climate smart cropping, building disaster resilience, and energy efficiency**
- ✓ **Ensure women are included in all discussions relating to disaster management and adaptation to climate change and continue to train women and children in disaster responses**
- ✓ **Support communities to apply for grants such as mangrove restoration programs and livelihood programs that aid in adaptation to climate change**
- ✓ **Support alternative gardening techniques to adapt to changing soils and climates**
- ✓ **Invest in safer water and sanitation solutions which are climate-resilient.**