

An aerial photograph of a tropical coastline. The top half of the image is dominated by a dense, dark green forest. A narrow strip of white sand beach runs horizontally across the middle. On the left side of the beach, there is a small, simple hut with a thatched roof. To the right of the hut, a small boat is beached. Further to the right, a larger boat is anchored in the shallow, turquoise water. The water's clarity reveals the sandy bottom and some coral reefs. The overall scene is serene and idyllic, representing a coastal environment in Papua New Guinea.

CASE STUDY

MITIGATING AND ADAPTING TO THE CLIMATE CHANGE JUGGERNAUT IN **PAPUA NEW GUINEA**

“ PAPUA NEW GUINEA IS ONE OF THE 10 MOST VULNERABLE COUNTRIES TO THE IMPACTS OF CLIMATE CHANGE. ”

– DR JOHN POULSEN, UNDP'S BUILDING RESILIENCE TO CLIMATE CHANGE (BRCC) PROJECT TEAM LEADER.



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ACRONYMS

REDD	Renewable energy and reduced deforestation	FREAGER	Facilitating Renewable Energy and Energy Efficiency Applications for Greenhouse Gas Emission Reduction	Good oceans, good business	Gutpla solwara, gutpla bisnis
PNG	Papua New Guinea			West New Britain	Kimbe Bay
PA	Protected Areas	STREIT	Support to Rural Entrepreneurship, Investment and Trade	Louisiade Archipelago	Milne Bay
NRM	Natural resource management			BRCC	Building Resilience to Climate Change
UNFCCC	United Nations Framework Convention on Climate Change	OCCD	Office of Climate Change and Development	ADB	Asian Development Bank
NC	National Communication	PNGFA	PNG Forest Authority	PPCR	Pilot Program for Climate Resilience
NDC	Nationally Determined Contribution	FAO	Food and Agriculture Organisation of the United Nations	NAP	PNG's National Adaptation Plan
AFOLU	Agriculture, Forestry, and Other Land Use	NEC	National Executive Council	CCA	Climate change adaptation
NAP	National Adaptation Plan	FREL	Forest Reference Emissions Level	NAP-GSP	National Adaptation Plan Global Support Programme
SIDS	Small Island Developing States	ICCC	Consumer and Competition Commission	GEF	Global Environment Facility
StaRS	Strategy for Responsible Sustainable Development for PNG	NEA	National Energy Authority	CIFOR	Center for International Forestry Research
CoP	Conference of Parties	ESCO	Energy Service Company	SPREP	Regional Environment Program
CEPA	Conservation and Environment Protection Authority	GHG	Combat greenhouse gases	UNDRR	United Nations Office for Disaster Risk Reduction
CCDA	Climate Change and Development Authority	STREIT	Support to Rural Entrepreneurship, Investment and Trade		



INTRODUCTION

FOUR REASONS PNG IS VULNERABLE TO CLIMATE CHANGE

HOW CLIMATE CHANGE WILL AFFECT BIODIVERSITY AND NATURAL RESOURCE MANAGEMENT

FROM WORDS TO ACTIONS: HOW PNG IS RESPONDING TO CLIMATE CHANGE

PNG'S ROLE IN GREENHOUSE GAS EMISSIONS AND CARBON STORAGE

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BACKGROUND | INTRODUCTION

UNDP supports programmes related to climate change mitigation and adaptation in Papua New Guinea (PNG) in four key areas:

- **Policy development, plans and legislation** on climate change and related areas
- **Communication and advocacy** about climate change issues and solutions
- **Mitigation efforts**, including REDD+ (Reducing Emissions from Deforestation and Forest Degradation)
- **Adaptation efforts**
- **Research, plans and actions** to improve adaptation to climate change. This includes planning for national adaptation, and building resilience and adaptive capacity in communities affected by climate change.

Mitigation and adaptation call for more effective management of Protected Areas (PAs), better forest policies and reporting, disaster preparedness and supported internal migration. In these, as well as its programmes and projects in other areas of natural resource management (NRM), UNDP always emphasises local relevance and gender-responsiveness.

This case study looks at UNDP's recent and current efforts to support climate change initiatives in PNG, including lessons learned.



“ Climate change is a juggernaut. It is a faceless monster with no domain. Everything else will become an academic exercise if we do not act now. ”

– HON. WERA MORI, FORMER MINISTER FOR ENVIRONMENT, CONSERVATION AND CLIMATE CHANGE



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BACKGROUND | FOUR REASONS CLIMATE CHANGE IS HITTING PNG SO HARD

Papua New Guineans are aware that climate change threatens every one of them, from ministers and businessmen to local villagers. It is already affecting the environment, people, plants and animals¹ (see Figure 1). What is not commonly known, though, is that the threat from climate change to PNG is more urgent and serious than to many other countries. There are a number of reasons for this.



1. Heavy weather, growing impacts

About 87% of PNG's people live in rural communities and depend on rain-fed fresh water, local agriculture and sustainable fisheries. This makes them especially vulnerable to droughts, floods and changes in seasonal weather patterns. The impacts of climate change – particularly more extreme weather events, sea-level rise, salt water intrusion into freshwater resources such as wells, and changing sea currents – are increasing those vulnerabilities². To make matters worse, PNG is already prone to natural disasters such as floods, landslides and earthquakes. Cyclones and floods are predicted to grow in intensity and frequency. In a nutshell, most Papua New Guineans are likely to be affected by disasters brought on by climate change.

FIGURE 1: QUICK LOOK CLIMATE CHANGE HAZARDS IN PNG

- El Niño and La Niña events will continue to occur in the future, but there is a little consensus on whether these events will change in intensity or frequency
- Annual mean temperatures and extremely high daily temperatures will continue to rise.
- Average rainfall is projected to increase in most areas, along with more extreme rain events.
- Droughts are projected to decline in frequency.
- Sea level will continue to rise.
- Ocean acidification is expected to continue.
- The risk of coral bleaching is expected to increase.
- No changes in waves along the Coral Sea coast are projected, while on the northern coasts, December-March wave heights and periods are projected to decrease.
- Tropical cyclones are projected to be less frequent but more intense.



Source: Papua New Guinea National Weather service et al. 2015



1. For example, see the recent review by the World Bank Group (2021); the PNG Climate Compatible Development Strategy (PNG Office of Climate Change & Development 2014); and the study on renewable energy by Global Green Growth Institute (2019). All reports are available on the COP23 website <https://cop23.com.fj/papuanewguinea/>
2. UNDRR (2019)

BACKGROUND | FOUR REASONS CLIMATE CHANGE IS HITTING PNG SO HARD



2. Rising seas, failing crops

Sea levels surrounding PNG have been rising by 7 mm per year since 1993, more than twice the global average³. Rising sea levels and saltwater intrusion is already forcing communities in low-lying coastal areas and lowlands to flee from their habitats where their crops are failing and their natural resources are depleted. The Hon. Wera Mori remarked during a visit to the remote Carteret Islands atoll: “Every night the mothers quietly shed tears on their pillows as they ponder how they will feed their husbands and children. The crops fail because of the rise of saltwater.”

The ordinary difficulties of daily life on remote islands have been exacerbated by rising sea levels, unpredictable seasons and more frequent extreme weather events⁴. UNDP field missions have noted lack of drinking water, decreased food security, malnutrition and poor health in many communities.



3. Food insecurity and disease

Climate change is impacting spatial patterns of diseases such as malaria, in a country that is already shouldering a heavy disease burden. In the Highlands, a high altitude region with historically little to no malaria, warming temperatures and increasing rainfall have raised the incidence of this disease over the past decade. As crops fail and clean water supplies dwindle, hunger is growing, bringing with it malnutrition and illness, affecting women and children most severely. These issues can compound existing social insecurities and lead to conflict within and between communities. Health and food security issues caused by climate change are now emerging across PNG.



4. Local threats, biodiversity at risk

PNG's biodiversity is significant on a global scale. These intact and unique ecosystems, including forests, mangroves and seagrass, have the potential to store and sequester carbon to mitigate the negative impacts of climate change beyond the country's borders. The effects of the many local threats to biodiversity, including invasive species, land use change, increased human pressure and unregulated anthropogenic fire regimes are amplified by climate change. For example, catches of native fish are reducing as tilapia invade the waters. In Lake Lavu, invasive water lilies covering the water make it nearly impossible for landowners to fish.



- 3. Papua New Guinea National Weather Service and others (2015)
- 4. John Poulsen pers. Comm.

BACKGROUND | HOW CLIMATE CHANGE WILL AFFECT BIODIVERSITY AND NATURAL RESOURCE MANAGEMENT

CLIMATE CHANGE FACTOR



Changes in temperature⁵

Warming of around 3.6°C is expected by the 2090s, compared to the 1986–2005 baseline under the highest emissions pathway (RCP8.5). Maximum and minimum temperatures will rise more, with increased impact on people, crops and wildlife

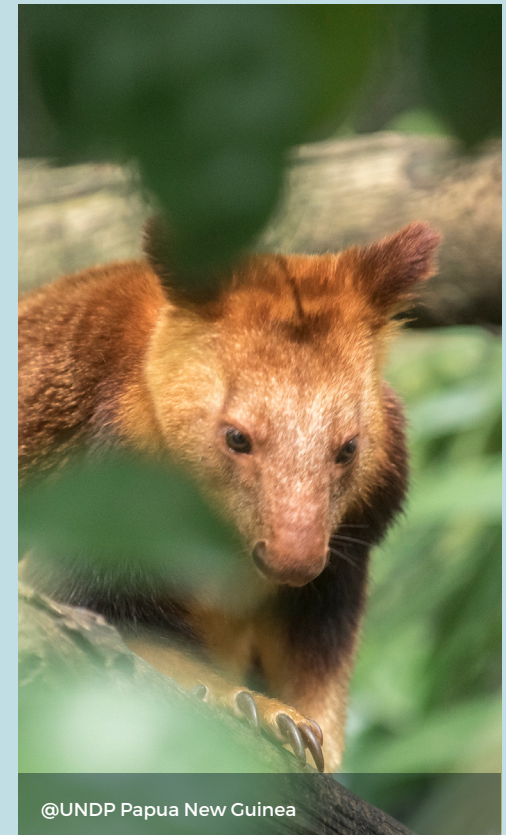
BIODIVERSITY IMPACT

All species can be affected by warming, especially those with narrow and rigid climatic requirements. Species that inhabit high altitudes and upper montane forests, and species that are found uniquely within a restricted range in specific geographic locations are particularly at risk. Montane forests in the Pacific region may disappear by 2100⁶ though some montane systems may be resilient to higher temperatures if they retain moisture⁷. PNG's montane forests, which make up a mere 1% of its total forest area, are likely to shrink further. It is also estimated that about 63% of PNG's plant species will have smaller geographic ranges while 37% will have larger ones. Botanical diversity in ecoregions will decline by an average of 7 species⁸ and the lowlands may see a drop in species richness.

Some animals will move to higher slopes if they find suitable habitats there. In PNG, however, montane tropical bird species are more sensitive to temperature changes than temperate birds, with clear evidence of upslope migrations.⁹ Higher temperatures may also lead to the spatial isolation of some species which might survive in higher or cooler patches but not be able to breed. Other species may die out, not finding habitats high enough to relocate to or because of discontinuity in habitat.¹⁰

Warmer temperatures also bring increased vulnerability to severe fires and invasive plants. The gender balance of turtles, which is determined by temperature, could change as the environment grows warmer. For example, 99% of green turtles hatching in the northern Great Barrier Reef are now female.¹¹

Coral bleaching will become more likely. Warming of 1.5°C could lead to the loss of 70-90% of coral reefs globally, rising to 99% if the temperature increases by 2°C¹². An estimated 15% of PNG's coral reefs were affected¹³ by the coral bleaching event of 2016-17.



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5. World Bank Group (2021)
6. Taylor & Kumar (2016)
7. Hope (2014)
8. Cámara-Leered, R. and others (2019)
9. Freeman & Class-Freeman (2014)

10. This underlines the importance of securing areas of protection with a continuous altitudinal gradient from lowlands to high mountains.
11. Jensen and others (2018)
12. Levin and others (2022)
13. Dr A. Lewis, quoted in the State of Environment Report (2020)

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BACKGROUND | HOW CLIMATE CHANGE WILL AFFECT BIODIVERSITY AND NATURAL RESOURCE MANAGEMENT

CLIMATE CHANGE FACTOR



Ocean acidification¹⁴

As the ocean becomes more acidic, its pH value will fall from the slightly alkaline 2020 value of 8.1. Shelled organisms cannot reproduce in highly acidic waters.

BIODIVERSITY IMPACT

As the acidity of oceans rises, corals and other marine animals such as crustaceans and molluscs will lay down weaker exoskeletons¹⁶, slowing down their growth. The decline of coral reefs will affect PNG's inshore marine areas seriously, impacting fisheries and other marine industries upon which many coastal communities depend.

CLIMATE CHANGE FACTOR

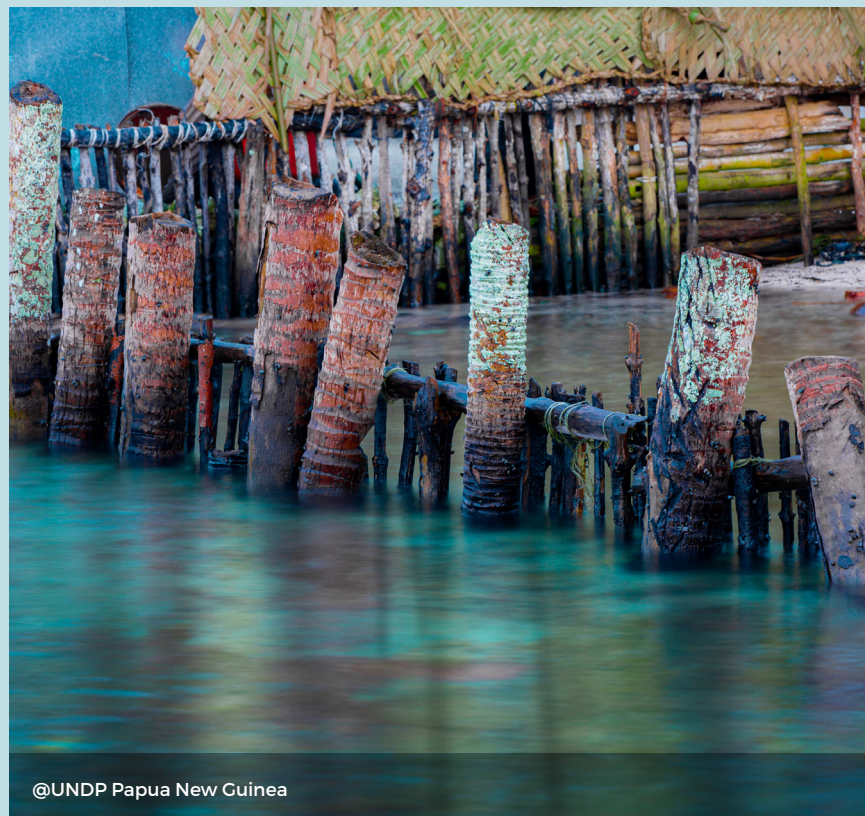


Sea level rise¹⁷

An average of 7 mm per year since 1993, more than twice the global average. 10 cm rise estimated by the end of the century.

BIODIVERSITY IMPACT

As sea levels rise, coastal ecosystems and communities will migrate inland or be wiped out entirely. Increasing coastal erosion will devour existing beaches and seaside communities. When sea levels have been rising as rapidly as they have been, even a small increase can profoundly change the shoreline, engulfing sand cays, islets, atoll islands, river deltas such as the Fly and Sepik, mangrove forests and freshwater swamps.¹⁸ Species that nest on cays and beaches, including seabirds and turtles, will be affected. According to communities, some turtle nesting beaches have already been lost. Salt water invading freshwater systems is now a common experience among PNG's coastal communities.¹⁹



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- 14. Dr J Poulsen pers comm; and many protected area management committees (Leverington and others, 2017).
- 15. Papua New Guinea National Weather Service and others (2015)

- 16. Mollica and others (2018)
- 17. Papua New Guinea National Weather Service and others (2015)
- 18. Conservation and Environment Protection Authority (CEPA) (2019)
- 19. Peterson and Peterson (2017)

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CLIMATE CHANGE FACTOR



Changing rainfall patterns²⁰

PNG is expected to receive more rainfall but with greater variability as well as more extreme rainfall events which cause erosion, landslides and floods.

BIODIVERSITY IMPACT

Unpredictable patterns of rainfall are already making it challenging for farmers to plan when to plant crops²¹. Meanwhile, the number of people affected by coastal flooding is expected to double, in a country already highly vulnerable to flooding after severe rainfall.

Heavy rainfall, whether long or short, spells disaster for both people and wildlife when they occur in catchments with dam tailings. PNG can expect an increase in devastating landslides²² that destroy villages, crops and forests.

Alternating with seasons of extreme and unreliable rainfall, in recent years severe droughts in the El Nino patterns have reduced crop diversity²³ and increased fires, including forest fires.²⁴

If there is a bright side to this grim picture, it is that much of PNG is protected by its natural landscapes, though even that may be under threat. As the Prime Minister wrote in 2020:

“At present, we are protected from some of the worst impacts of climate change by our outstanding and unique natural capital. Mangroves have helped buffer the impacts of storm surges on coastal communities. High levels of forest cover help maintain weather patterns and reduce soil loss and flash flooding. Our country acts as one of the most important global sinks for trapping and storing greenhouse gases by reducing deforestation and promoting forest conservation and sustainable management of its forests through our national REDD+ strategy. With increasing population and our need for economic development many of these protections are under threat.”²⁵

– HON. JAMES MARAPE, PRIME MINISTER, 2020



20. Papua New Guinea National Weather Service and others (2015), The World Bank Group (2021)
21. Leverington and others (2017)

22. Robbins (2016)
23. Conservation and Environment Protection Authority (2019)
24. Bryan & Shearman (2015)
25. Government of Papua New Guinea (2020a p. 2)

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BACKGROUND | FROM WORDS TO ACTIONS: HOW PNG IS RESPONDING TO CLIMATE CHANGE

PNG has been a world leader in pressing for action against climate change and has made strong international commitments as well as internal legislation and policy statements.

It has been an active party to the United Nations Framework Convention on Climate Change (UNFCCC) since 1992, and ratified the Convention in 1993. In 2009, PNG made a commitment to the UNFCCC to reduce greenhouse emissions by 50% by 2030 and to become carbon neutral by 2050. In compliance with UNFCCC's reporting obligations, PNG submitted its first National Communication (NC) in 2002 and its second one in 2014. PNG adopted the Paris Agreement in 2015, and submitted its intended Nationally Determined Contribution (NDC)²⁶ soon after, committing itself to achieving 100% renewable energy by 2030. However, this was modified to 78% in 2020²⁷ through an enhanced [NDC](#) which also included targets for reducing forest degradation and deforestation.

An [implementation plan](#) for the NDC was published in 2021, and roadmaps for the Agriculture, Forestry, and Other Land Use (AFOLU) and the [electricity sectors](#) have also been developed²⁸. PNG will submit its National Adaptation Plan (NAP) for climate change to the UNFCCC in the latter half of 2022.



26. Government of Papua New Guinea (2016)

27. Government of Papua New Guinea (2020b); Global Green Growth Institute and CCDA (2021)

28. For a more detailed history of PNG's involvement in the UNFCCC, see the enhanced NDC (Climate Change and Development Authority 2021, p.4)

BACKGROUND | FROM WORDS TO ACTIONS: HOW PNG IS RESPONDING TO CLIMATE CHANGE

In 2019, PNG submitted its First Biennial Update Report (BUR1)²⁹ to the UNFCCC, with figures of emissions up to 2015. BUR2 was submitted in 2022³⁰.

PNG is a member of the Small Island Developing States (SIDS) and is aligned with the [Alliance of Small Island States \(AOSIS\)](#) in the context of the UNFCCC. PNG is also the current chair of the [Coalition for Rainforest Nations](#), which has negotiated under the UNFCCC on behalf of its 52 member countries.

PNG's National Climate Compatible Development Management Policy was approved by the government in 2014³¹ and the Climate Change Management Act was passed in 2015³². Other policies recognised the imperatives of climate change action, especially the National Strategy for Responsible Sustainable Development for PNG (StaRS)³³, which calls for a green economy based on protecting PNG's wealth of environmental assets on which its development depends. As discussed below, PNG has also published policies and procedures related to REDD+.

In 2021, a delegation from PNG joined the Conference of Parties (CoP) to the UNFCCC, COP26, in Glasgow and supported the [Glasgow Climate Pact](#)³⁴. PNG was also one of the 127 signatories of the 2021 [Glasgow Leaders' Declaration on Forests and Land Use](#)³⁵ which commits it to "working collectively to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation". Although the declaration is not legally binding and was endorsed outside the UNFCCC process, its intent is important because the signatory countries govern around 90% of the planet's tree cover.

PNG's challenge now is to act on its environmental intentions and commitments while ensuring economic progress and a secure social environment. Reducing deforestation has been challenging; the rate of clearing and degradation actually rose after 2009 when the pledges were made to the UNFCCC. Over a million hectares of tree cover were lost between 2011 and 2020, dealing a significant blow to PNG's carbon balance, though the rate has slowed somewhat since 2015³⁶.



29. Government of Papua New Guinea (2018a)

30. Government of Papua New Guinea (2022)

31. PNG Office of Climate Change and Development (2014)

32. The Act is currently under review to ensure that it can effectively respond to PNG's obligations under the Paris Agreement.

33. Department of National Planning and Monitoring (2015)

34. https://unfccc.int/sites/default/files/resource/cma2021_L16_adv.pdf

35. UNFCCC (2021)

36. Official government figures for years after 2015 are not available. This data is obtained from the mapping of Global Forest Watch accessed March 2022 (Hansen and others 2013). Tree cover loss can include degradation of forests, as well as clearing.

BACKGROUND | FROM WORDS TO ACTIONS: HOW PNG IS RESPONDING TO CLIMATE CHANGE

In a report published in 2021, NOGAT Coal, an advocacy group that includes NGOs, the business community, think tanks, academia and key public figures, points out that “PNG leads on climate targets but lags on action”³⁷ and outlines major areas of continuing concern. These include the lack of political will to take drastic action to reduce logging and increase revegetation; the lack of supervision, enforcement and transparency in the timber industry; barriers to adopting renewable energy; and plans for new fossil fuel projects.³⁸

Many organisations support PNG in meeting its climate commitments and to help its people adapt to climate challenges. UNDP is a key development partner, along with other UN and intergovernmental agencies; governments, including Australia, USA and New Zealand, the European Union and its member states; and a number of NGOs and other institutions. The BUR2 lists 26 partner projects and estimates that more than US\$1 billion will be needed over the next 10 years to achieve the Enhanced NDC targets.³⁹

“The removal capacity from our forests is over 100 million tonnes per year. Our energy emissions are presently around 10 million tonnes annually. Therefore, if the REDD+ mechanism delivers as it should, PNG can remain where every country needs to be by 2050 under the Paris Agreement – a net remover of carbon from the atmosphere.”

– HON. JAMES MARAPE, PRIME MINISTER OF PAPUA NEW GUINEA (2021).

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37. Kuman and Jeong (2021)

38. According to this report, planned fossil fuel projects include Papua LNG, PNG LNG, P'nyang, Pasca A and a coal-fired power station in Lae. Energy companies that can no longer profit from fossil fuels in other countries because of declining demand for fossil fuels are turning their attention to PNG, which has pledged to rapidly increase its present low level of electrification.

39. Government of Papua New Guinea 2022

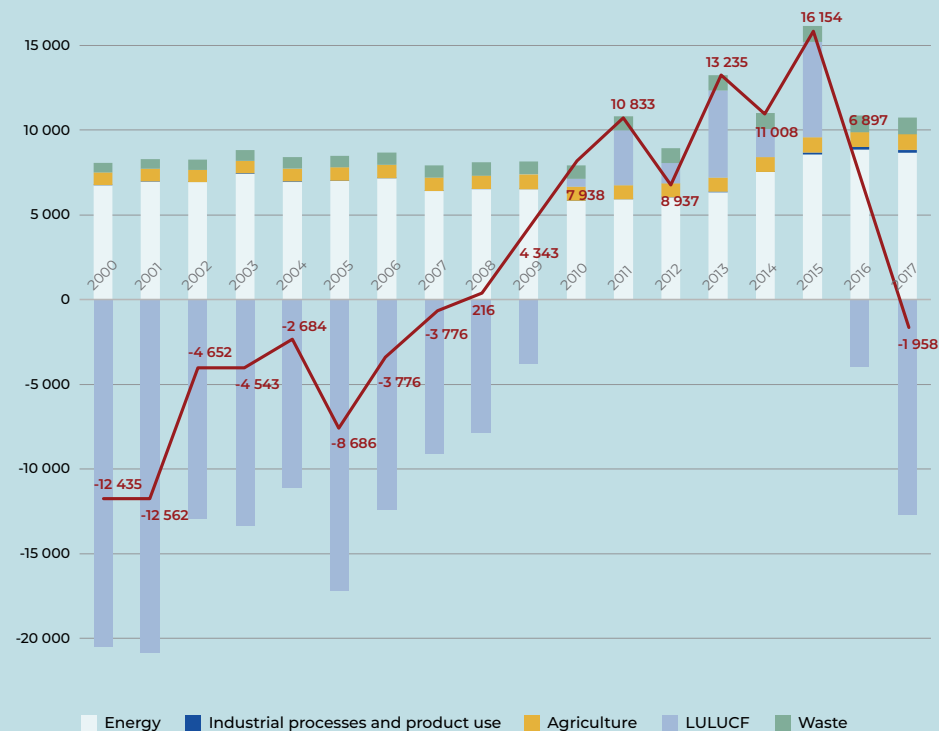
BACKGROUND | PNG'S ROLE IN GREENHOUSE GAS EMISSIONS AND CARBON STORAGE

While PNG is disproportionately affected by climate change, it also has a greater role to play in climate mitigation than might be expected for a country this size. The island of New Guinea⁴⁰ has the third largest contiguous block of tropical forest in the world.⁴¹ In 2015, about 78% of the country was covered with 12 forest types and more than 23% of the total forest area had been degraded through human activities⁴². These forests play a crucial role in regulating climate and in absorbing and storing carbon.⁴³

Until 2015, the carbon-removing functions of these forests combined with relatively low emissions of polluting gases meant that PNG was a carbon sink. However, as land clearing and land use change accelerated, PNG turned into a net source of carbon. Net emissions returned to below zero in 2017 as the rate of forest clearing and logging decreased but emissions from energy sources have continued to increase (Figure 2)⁴⁵.

The Enhanced NDC set a conditional target to reduce emissions from the LULUCF sector by 10,000 Gg of CO₂ per year by 2030 (against the 2015 level) by reducing deforestation and forest degradation and by revegetation. An interim assessment indicated that these targets are being exceeded but warns that additional efforts will be needed to make these achievements permanent⁴⁶.

FIGURE 2:
Total estimated emissions of greenhouse gases, 2001-2017



Source: (Government of Papua New Guinea 2022)



40. New Guinea island includes PNG plus the Indonesian provinces of Papua and West Papua.

41. Shearman (2008)

42. Gamoga and others (2021)

43. Makarieva and Gorshkov (2015)

44. The Hon James Marape (2021) <https://thediplomat.com/2021/10/pngs-prime-minister-wants-to-save-his-countrys-rainforest-he-cant-do-it-alone/>

45. Government of Papua New Guinea 2022

46. Global Green Growth Institute and CCDA (2021)

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[COMMUNICATION AND ADVOCACY](#)

[MITIGATION THROUGH RENEWABLE
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[MITIGATION](#)

[MARINE AND COASTAL RESILIENCE](#)

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UNDP CLIMATE CHANGE INITIATIVES | **POLICY DEVELOPMENT, PLANS AND LEGISLATION**

All current UNDP activities related to NRM are heavily focussed on the impacts of climate change, which is integral to every discussion about PNG's future. UNDP's current climate change projects focus on four areas.



Policy development, plans and legislation



Communication and advocacy



Mitigation



Adaptation



47. United Nations in Papua New Guinea (2020, p.31)

POLICY DEVELOPMENT, PLANS AND LEGISLATION

UNDP has supported and advised the PNG government in developing its climate change policies and commitments, including PNG's position at COP26 in Glasgow in 2021.

PNG is one of 120 countries whose governments and communities are being supported by [UNDP's Climate Promise](#) program to deliver on their national climate goals as stated in their NDCs.

UNDP, in collaboration with other development partners, helped PNG's government to develop its updated NDC, which was published in 2021. The NDC includes emissions reductions of more than 60 million tonnes of CO2 over the coming decade while delivering economic, social and environmental co-benefits. Achievement of the action areas in the enhanced NDC will be critical in helping transform the livelihoods of PNG's rural communities and safeguard biodiversity.⁴⁷

UNDP has also provided some program funding for [general assistance](#) in developing climate change policy and action frameworks within specific projects.

UNDP CLIMATE CHANGE INITIATIVES | COMMUNICATION AND ADVOCACY

In June 2021, UNDP and partners supported the Conservation and Environment Protection Authority (CEPA) and the Climate Change and Development Authority (CCDA), in hosting a high-level National Environment and Climate Emergency Summit. The two-day event, which was live-streamed on social media, convened the government, community members and development partners to develop strong commitments for tackling climate change and preparing for the Glasgow COP26.

Later in 2021, UNDP promoted a wide range of Papua New Guinean perspectives leading up to the Glasgow COP26. Social media was again used to amplify messages.



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UNDP CLIMATE CHANGE INITIATIVES | COMMUNICATION AND ADVOCACY

This advocacy included the outcome statement from the National Environment and Climate Emergency Summit, which —

- **Called on development partners and the private sector to orient their investments towards sustainable, climate-friendly actions** and solutions to ensure the greening of Papua New Guinea's economy;
- **Highlighted the need for the PNG government to develop policies and legislation** to better regulate against actions by the extractive, agricultural, forestry and fisheries sectors that could harm the environment;
- **Called on all partners to enhance collaboration between stakeholders**, coordination between departments and partnerships with the private sector;
- **Stressed the urgency of actions required**, and the overwhelming scientific evidence of catastrophic consequences of climate inaction using the real-life case of the Autonomous Region of Bougainville;
- **Called for more effective financing of the Sustainable Development Goals** from all development partners, including the private sector, as a way to support Papua New Guineans in their efforts to address climate change, protect the environment and shake off the shackles of poverty.

The screenshot shows a Facebook post from the official page of UNDP in Papua New Guinea. The post is dated 11 November at 11:37. It announces a 'LIVE Event: Youth Perspectives on the Climate Crisis' scheduled for Friday 12 November at 1:00am (PGT). The text invites users to join the United Nations Development Programme - UNDP LIVE - for a #twitterspaces conversation, where youth will share their views on #ClimateCrisis and expectations from #COP26. Below the text is a promotional graphic for the event. The graphic has a blue background with the UNDP logo in the top right corner. It features the title 'Youth Perspectives on the Climate Crisis' in large white letters. Below the title, it says 'Join UNDP for a Twitter Spaces conversation on'. The event details are listed: 'Date: Thursday, 11 November' and 'Time: 10am EST / 3pm GMT'. Four speakers are featured with their photos and names: Cassie Flynn (Head of Climate Promise, UNDP), Elizabeth Gulugulu (Climate Activist, African Youth Initiative on Climate Change), Maximo Mazzocco (Climate Activist, GenerationIT Young Leader), and Paloma Costa (Climate Activist, Member of UN Secretary-General's Youth Advisory Group). Each speaker has their Twitter handle listed below their name.

UNDP in Papua New Guinea ✓
11 November at 11:37 · 🌐

LIVE Event: Youth Perspectives on the Climate Crisis
Date: Friday 12 November
Time: 1:00am (PGT)

Join the United Nations Development Programme - UNDP LIVE - for a [#twitterspaces](#) conversation, youth will share their views on [#ClimateCrisis](#) & expectations from [#COP26](#). ... [See more](#)

Join UNDP for a [Twitter Spaces](#) conversation on

Youth Perspectives on the Climate Crisis

Date: 📅 Thursday, 11 November
Time: 🕒 10am EST / 3pm GMT

Cassie Flynn
Head of Climate Promise
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Elizabeth Gulugulu
Climate Activist
African Youth Initiative on Climate Change
@lizguluz

Maximo Mazzocco
Climate Activist
GenerationIT Young Leader
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Paloma Costa
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@pocpaloma



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UNDP CLIMATE CHANGE INITIATIVES | MITIGATION THROUGH RENEWABLE ENERGY AND REDUCED DEFORESTATION (REDD+)⁴⁸

Climate mitigation efforts supported by UNDP in PNG include assisting transitions to renewable energy and reducing emissions caused by deforestation and destructive land conversion. These outcomes are both captured in PNG's NDC, to return PNG to its status as a sink for greenhouse gases, the revised NDC aims for —

- **Reduction of 10,000 Gg of CO₂-equivalent by 2030** by reducing emissions from deforestation and forest degradation from the expansion of commercial agriculture and logging;
- **A carbon-neutral energy industries sub-sector by 2030**, increasing the share of installed capacity of renewable energy from 30% in 2015 to 78% by 2030⁴⁹.

As its contribution to reducing emissions, UNDP has helped develop the UNFCCC framework for Reducing Emissions from Deforestation and Forest Degradation (REDD+) as an important tool for tackling deforestation, and has also been supporting more sustainable land use planning projects. Two separate projects, both described in detail in the following section, are helping with the transition to renewable energy.

- Facilitating Renewable Energy and Energy Efficiency Applications for Greenhouse Gas Emission Reduction (FREAGER)
- Support to Rural Entrepreneurship, Investment and Trade (STREIT)

CURRENT PNG TARGETS

2030

A carbon neutral energy industries sub-sector by 2030

Halt and reverse forest loss and land degradation by 2030
(Glasgow Leaders' Declaration on Forest and Land Use)

78%

Renewable energy by 2030 (reduced from earlier target of 100%)
(Enhanced NDC)

25%

Annual deforestation and degradation reduced by 25% of the 2015 level by 2030 (equivalent to reduction of 8,300 ha of annual deforestation and 43,300ha of degradation) (Enhanced NDC)

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⁴⁸. Mitigation focuses on reducing CO₂ emissions such as those generated through energy generation, transport and forest clearing, while increasing carbon storage in forests and seas.

⁴⁹. Government of Papua New Guinea (2020b, p.10)

UNDP CLIMATE CHANGE INITIATIVES | MITIGATION THROUGH RENEWABLE ENERGY AND REDUCED DEFORESTATION (REDD+)

REDD+ contributes hugely to conserving biodiversity and reducing carbon dioxide emissions by supporting countries in their efforts to reduce or stop deforestation/ which. The REDD+ global framework is attributed to, and was greatly supported by, the late Sir Grand Chief Michael Somare, founding father of PNG⁵⁰.

In environmental policy reform, PNG has come far from its early days when so-called “carbon cowboys” would dupe innocent villagers into signing over their biodiversity against future carbon credits. The corruption was alleged to extend into the upper reaches of the bureaucracy but was stopped after the government took strong measures to halt the speculation.

PNG’s early climate change policies were criticised as “being controlled by small policy elite comprised of select government officials and international consultants⁵¹”. An independent report in 2014 showed that PNG had not moved much closer to REDD+ readiness. However, the country has made appreciable progress since then.

To receive REDD+ support, countries must clearly demonstrate that they can generate accurate, reliable and transparent data about their emissions, the area of their forests, and current forestry conditions and activities. They should also have supportive policies, legislation and stakeholder involvement, with demonstrated processes for ensuring the prior and informed consent of landholders. Meeting these criteria for demonstrating preparedness for REDD+, known as REDD+ readiness, are financed through the [Readiness Fund](#). Once a country meets these conditions, the [Carbon Fund](#) remunerates it according to their negotiated contracts for verifiable emission reductions.



50. According to some sources, the idea came from Sir Michael's close associate, Kevin Conrad, founder and Executive Chairman of the Rainforest Coalition and also PNG's Special Envoy and Ambassador for Environment and Climate Change till 2014. (Filer 2011).

51. Babon and Gowae (2013, p.34)

UNDP CLIMATE CHANGE INITIATIVES | MITIGATION THROUGH RENEWABLE ENERGY AND REDUCED DEFORESTATION (REDD+)

UNDP FOREST CARBON PARTNERSHIP FACILITY REDD+ READINESS ⁵²

UNDP has supported PNG's efforts towards REDD+ readiness through several phases. UNDP's three-year support to the Office of Climate Change and Development (OCCD) and the PNG Forest Authority (PNGFA) in implementing the country's UN-REDD programme was set to finish in 2013. However, tangible progress was only recorded in the final year, after \$3.5 million had already been spent. Reasons cited for the delay included slow recruitment and visa problems, data-sharing issues caused by distrust between government agencies, and tension between national and subnational systems. UNDP's work in this joint programme was completed in December 2015, while the activities of the Food and Agriculture Organisation of the United Nations (FAO) and

the United Nations Environment Programme (UNEP) ran through to December 2016.

[Phase One](#) of the UNDP REDD+ work⁵³ began in 2015. A mid-term review in 2017 concluded that significant progress had been made towards developing an approach to REDD+ and recommended a project extension with additional funding. Communication and cooperation, as well as the need for stronger government commitment towards REDD+ work⁵⁴, continued to be serious concerns.

By the end of Phase Two, UNDP had successfully brought PNG to REDD+ readiness. This included strengthening PNG's capacities related to the [National Forest Monitoring System](#), establishing Forest Reference Emissions Levels and safeguards, and increasing engagement with a range of stakeholders.

In both projects, UNDP worked with the lead implementing agencies — the OCCD in the first phase and the [CCDA](#) in the second, while the PNGFA acted as the lead party. The FAO was also a key implementation partner in REDD+ preparation, including the development of the [National Forest Inventory](#).

The final independent evaluation assessed the two phases as successful⁵⁵ noting that the project had led to significant policy reforms in aligning the land use legislative and policy frameworks (climate change, forestry, land use) with the National REDD+ Strategy. The adoption of these reforms could represent historical progress towards an economy supported by carbon storage. PNG was officially ready to participate in REDD+.



52. (FCPF II) (UNDP 2020a) 2018–2020 US\$5 million World Bank's Forest Carbon Partnership Facility Readiness Fund. Available at https://www.pg.undp.org/content/papua_new_guinea/en/home/projects/forest-carbon-partnership-facility-redd-readiness-project.html
53. UN-Reducing Emissions from Deforestation and Forest Degradation work to enhance PNG's REDD+ Readiness. (FCPF I) 2015-2020 \$4 million Forest Carbon Partnership Trustee
54. UNDP in PNG (2017)
55. Legrand and Gowae (2020)

UNDP CLIMATE CHANGE INITIATIVES | MITIGATION THROUGH RENEWABLE ENERGY AND REDUCED DEFORESTATION (REDD+)

OUTPUTS OF THE PROJECT INCLUDED⁵⁶ –

- A [National REDD+ Strategy](#) developed through a participative and intersectoral process, and endorsed by the National Executive Council (NEC) in May 2017. The national REDD+ Strategy 2017-2027 was submitted to the UNFCCC in April 2018⁵⁷.
- A Forest Reference Emissions Level (FREL) submitted to the UNFCCC in 2017, technically assessed by them and resubmitted the same year⁵⁸. The FREL provided the basis for a REDD+ annex to the [Biennial Update Report](#) that was submitted to the UNFCCC in 2019⁵⁹. The information in the annex, which covers the 2014-2015 period, has been deemed compliant by the UNFCCC and makes PNG eligible for results-based payments.
- A National Forest Monitoring System with a web portal. This should be strengthened with new data from the National Forest Inventory and the re-measurement of Permanent Sampling Plots to improve the accuracy of estimating greenhouse gas removal in degraded forests.
- A summary of information on safeguards and a National Safeguards Information System, both endorsed by the NEC in November 2020, as well as guidelines for a grievance and redressal mechanism.



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⁵⁶. All reports are available at <https://pngreddplus.org/publications-and-reports/>

⁵⁷. Several partners were involved in this process. "Between 2011 and 2017 PNG was supported by, among others, UN-REDD Programme (implemented by UNDP, FAO and UNEP), JICA, GIZ, the EU and the FCPF Readiness Fund (implemented through UNDP). The process aimed to increase capacity and understanding of REDD+ among key PNG stakeholders as part of moving towards REDD+ Readiness. PNG has also assessed the drivers of forest cover change through the partnership between CCDA and PNGFA as well as UNDP and FAO." <https://pngreddplus.org/about/>

⁵⁸. Climate Change Development Authority (2017)

⁵⁹. Government of Papua New Guinea (2018a)

UNDP CLIMATE CHANGE INITIATIVES | MITIGATION

FACILITATING RENEWABLE ENERGY AND ENERGY EFFICIENCY APPLICATIONS FOR GREENHOUSE GAS EMISSION REDUCTION (FREAGER)

Less than 15% of PNG's population has access to electricity and few settlements away from urban areas are connected to the electricity grid. In rural areas, access to electricity is estimated to be under 3.7%⁶⁰. In remote places, generating electricity requires unreliable diesel generators which are expensive to maintain and contribute to poor air quality and increased greenhouse gas emissions.

Only about 6% of the country uses renewable energy.⁶¹ According to the [Green Growth Potential Assessment](#), PNG could benefit enormously from moving to renewable energy from hydropower, solar, wind, biomass and geothermal sources. Not only would this increase cost-effective access to electricity for larger numbers of rural and remote residents but it would also set off a cascade of other improvements. These would include a boost to agricultural productivity; increased fuel savings and reduced household expenditure on energy; reduced greenhouse gas emissions from the power generation sector; and job creation associated with constructing and maintaining the renewable energy infrastructure⁶².



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60. There are widely varying statistics on the current coverage of electrification in PNG. The Global Green Growth Institute (2017) concludes that the figure is more likely to be under 8%, a decline from the 1990s. This information has not been verified.

61. UNDP in PNG (n.d.).

62. Global Green Growth Institute (2019)

63. Global Green Growth Institute (2019)

UNDP CLIMATE CHANGE INITIATIVES | MITIGATION

As an example, renewable power would enable agricultural produce to be stored until it could be transported to markets. There would also be notable reductions in emissions if solar lighting replaced kerosene lamps and improved cooking technologies replaced open wood fires⁶³.

The FREAGER project began with a policy analysis to define gaps and barriers to moving to renewable energy sources⁶⁴. The analysis revealed serious legislative and policy impediments to renewable energy and off-grid electrification, including the absence of standards for solar equipment and installation, and hardly any incentives for consumers and the PNG Power Limited to move to renewables.

FREAGER complements the national electrification plan by helping national agencies to develop the policy and regulatory frameworks needed for operating off-grid markets using hydro and solar mini-grid systems. By demonstrating relevant technologies, the project hopes to achieve the widespread replication of micro- and mini-hydro mini-grids, solar photovoltaic mini-grids, and township energy efficiency programs. At the same time, it aims to remove barriers to these technologies in the areas of policy and planning, technical and commercial viability, financing, and information and awareness⁶⁵.

The FREAGER project has four components —

- Energy policy, planning and Institutional development
- Renewable energy and energy efficiency technology applications
- Project financing
- Awareness raising

Each of these components is described below.

1. ROBUST POLICIES, STABLE INSTITUTIONS

The focus of FREAGER's first component is on developing and implementing sound energy policies, plans and standards to promote renewable energy and energy efficiency technologies across PNG. The goal was to establish energy efficient mini-grid systems based on renewable energy. After a policy gap analysis in 2018-2019, FREAGER began developing an Off-Grid Regulation for systems with capacity less than 1 MW. It soon became clear that deep institutional changes were needed to prepare the agencies involved for the transition, namely the newly established National Energy Authority (NEA) which was now taking over the licensing from ICCCL. This delayed the work by almost six months but eventually the Off-Grid Regulation was ready and is now being reviewed by the NEA before submitting it for the government's gazettal process.

Once gazetted, the Off-Grid Regulation will open the doors to private investment in providing energy from renewable sources and encourage economic activities in remote communities.



64. UNDP in PNG (2019)

65. Gretel Orake, UNDP personal communication, 19 August 2020

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2. SHOWCASING TECHNOLOGY, CREATING OWNERSHIP

FREAGER's second component aims to set up viable renewable energy (PV, solar, small hydro) and energy efficiency applications. Mini-grid demonstration sites for community hydro-mini grids have been installed in the Eastern Highlands, and a similar pilot on an island in Milne Bay to showcase a solar mini-grid. By working closely with the communities and the government there, FREAGER hopes to foster acceptance and ownership of the new technology. Meanwhile, feasibility studies for setting up more such sites at Miruma and Gotomi villages in the Eastern Highlands indicate that both will require government co-financing to move forward.

With technical support from FREAGER, the PNG Power Limited reviewed designs for the hybrid solar mini-grid system on Samarai Island in Milne Bay Province. The company, which owns and operates the island's existing mini-grid, hopes that installing a hybrid system will lead to reduced reliance on fossil fuel and savings on fuel costs. At the moment, the system is being tested for user acceptance.



3. FINDING WAYS AND MEANS

Technology transitions cost money, and FREAGER's third component squarely focuses on improving access to financing for renewable energy and energy efficiency initiatives targeting primarily industrial energy users and social buildings. To this end, the project examined the feasibility of setting up a so-called ESCO (Energy Service Company) fund within the PNG Power Company to finance the upfront costs of energy transitions, efficiency retrofits and energy-efficient appliances among major consumers of electricity. The loans would be paid back based on verified monthly electricity savings.

After a year of slow, unsatisfactory progress with the PNG Power Company, the project is exploring its options for establishing a fund within the CCDA instead. It completed energy efficiency audits in Maprik and Wewak in East Sepik Province in 2020. The retrofitting demonstration will be good to go as soon as further financing becomes available.



Photo: Courtesy of University of Technology Sustainable Energy Research Institution.

UNDP CLIMATE CHANGE INITIATIVES | MITIGATION

4. SPREADING THE WORD

FREAGER has developed handbooks for enhancing community champions' knowledge of the decision-making process for starting a micro/mini hydro power station project (5kW to 100kW), and the best practices for energy efficiency and conservation measures to reduce electricity bills and combat greenhouse gases (GHG) at a local level.

A Writeshop workbook has been developed for enhancing local level government officials' skills in project proposal writing for the use of RE/EE technology within their communities. The Writeshop covers best practices, the study of a successful project proposal, and how spatial data can be used to support project proposals. Also included in the Writeshop is basic knowledge of the PNG Biodiversity and Climate Geoportal, the repository for environmental data such as the wind, solar and hydro potential datasets.

Knowledge exchange sessions were also conducted to share findings on financing renewable energy and energy efficiency in Papua New Guinea. The sessions were attended by stakeholders from academia, development partners, NGOs, financial institutions and government entities.

Still in development is a website for telling FREAGER's story and archiving e-versions of materials produced with links to articles, legislations, and initiatives. The website will also list the project's completed milestones.



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UNDP CLIMATE CHANGE INITIATIVES | **MITIGATION**

SUPPORT TO RURAL ENTREPRENEURSHIP, INVESTMENT AND TRADE (STREIT)

Solar panels are sprouting in six remote schools and health facilities in the provinces of East Sepik and Sandaun. They are backed by the Support to Rural Entrepreneurship, Investment and Trade (STREIT) programme, funded by the EU and joint UN agencies. The goal is to increase the use of solar energy to enhance agricultural value chains and improve production, particularly for women-led micro and small enterprises⁶⁶.

Within the project, UNDP's role is to build capacity and raise public environmental awareness to make the management and maintenance of solar panels more sustainable, including advocacy for the whole-hearted support of district and provincial governments. Project officers had to overcome the resistance of community members who did not understand that poorly installed solar power systems could cause fires and explosions⁶⁷. Accustomed to cheap, sub-standard solar power systems smuggled across the border, they underestimated the complexities of installing solar systems that would be safe, fit for purpose and could be expanded.

The project is working with vocational training institutions to develop certified courses in solar installation and maintenance.



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66. FAO (2020)

67. Karen Anawe, UNDP, personal communication

UNDP CLIMATE CHANGE INITIATIVES | MARINE AND COASTAL RESILIENCE

GOOD OCEANS, GOOD BUSINESS

Global Fund for Coral Reefs

Putting the health of the reef first can be a surprisingly good model for so-called 'blue business'. In PNG's local language, *tok ples*, this is expressed as *Gutpla solwara, gutpla bisnis*⁶⁸ (Good oceans, good business). UNDP is in the early stages of a joint project with the UN Capital Development Fund to demonstrate this model's viability by supporting local blue enterprises, leveraging local skills and ultimately unlocking private capital from domestic and international sources. The project will start with Kimbe Bay (West New Britain) and Milne Bay (Louisiade Archipelago), both sites high in biodiversity and coral reefs. Supported businesses and projects will include marine ecotourism, coral reef restoration and sustainable aquaculture or seaweed farms, among others.

The Global Fund for Coral Reefs is a blended finance instrument for mobilising action and

resources to protect and restore coral reef ecosystems.

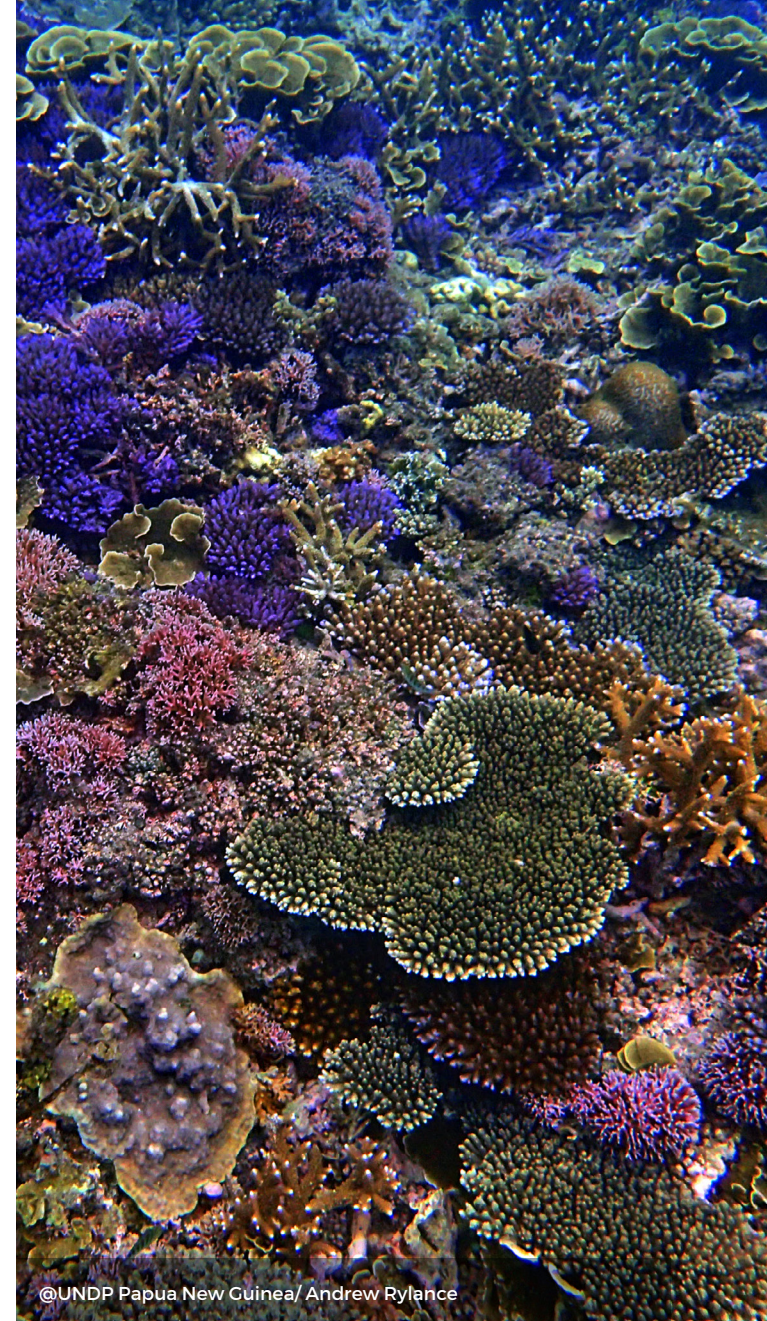
CHANGING TO MEET CHANGING TIMES

Building Resilience to Climate Change (BRCC)

Building Resilience to Climate Change in PNG (BRCC) is a \$3 million, five-year program (2018-2021, extended to 2023) funded by the Asian Development Bank (ADB) through the [Pilot Program for Climate Resilience \(PPCR\)](#).⁶⁹

BRCC in PNG is a major project supporting vulnerable islands and atoll communities in the provinces of East New Britain, Manus, Morobe and Milne Bay, and the Autonomous Region of Bougainville. UNDP's involvement began in 2020 when it entered a tripartite agreement with ADB and the CCDA to implement and deliver two of BRCC's components —

- Climate change vulnerability assessments and small island-level sub-projects.
- Food security and fisheries in Manus, East New Britain and Milne Bay.



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68. 'New Investment in Papua New Guinea's coral reefs and blue economy | UNDP in Papua New Guinea'

69. The PPCR, part of the Strategic Climate Fund (SCF), a multi-donor trust fund within the Climate Investment Funds, provides financing through multilateral development banks to support programs in pilot countries. Its goal is to help

UNDP CLIMATE CHANGE INITIATIVES | MARINE AND COASTAL RESILIENCE



1. CLIMATE CHANGE VULNERABILITY ASSESSMENTS AND SMALL SUB-PROJECTS AT ISLAND LEVEL.

Many of the island communities in the five focus areas are vulnerable to sea-level rise, with limited and decreasing freshwater access, food gardens threatened by salt water, and eroding and receding coastlines. Many are isolated and hard to reach, with limited ability to communicate with the outside world. For example, of the 140 or so inhabited islands in Milne Bay Province, only around 15 are in touch with the provincial government. Warning islanders of imminent climate disaster is a daunting challenge.

To better understand and respond to the needs of these communities, UNDP and its partners developed a bottom-up, community-driven process aligned with local and provincial development plans. First, they conducted vulnerability assessments by talking with islanders and their local and provincial government representatives. The analyses, combining climate change predictions for the areas with findings from structured face-to-face community consultations, led to a summary of vulnerabilities and exposure of each island community to climate change and disasters. During the

consultations, participants were also encouraged to suggest how they could adapt to climate changes. Their priorities formed the basis for small-grant sub-project investment proposals.

Both the climate change vulnerability assessments and the sub-project proposals were validated in workshops with provincial and local government agencies. They will now be mainstreamed into local and provincial policies and planning.

Disaster response strategies and emergency response plans for island communities are being developed through gender-balanced consultations with the island communities, and complement the early-warning systems that are being set up. The project also trains islanders and government officials in disaster preparedness and emergency response, and detailed emergency response plans are being prepared for each community.

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2. FOOD SECURITY AND FISHERIES IN MANUS, EAST NEW BRITAIN AND MILNE BAY

How does climate change affect home food gardens and marine food sources? UNDP is working to identify such vulnerabilities caused by climate change and enhance food security. Activities include setting up pilot home gardens and locally managed marine areas that can help maintain the health of marine ecosystems, sustain fishing resources and improve watershed integrity.

Climate change vulnerability assessments for each island/atoll community as a basis for —

- Investment plans
- Gender-sensitive disaster response strategies and emergency response plans for each community
- Over 80 sub-project proposals developed for enhancing adaptation to climate change



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Megapode eggs on sale at a roadside stall



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UNDP CLIMATE CHANGE INITIATIVES | ADAPTATION

ADVANCING PNG'S NATIONAL ADAPTATION PLAN PROJECT

Adapting to climate change requires anticipation and planning. [PNG's National Adaptation Plan \(NAP\)](#) is the result of a technically robust and inclusive effort led by the PNG government through the CCDA. The NAP's objectives are to —

- Strengthen institutional capacities in priority sectors, including sectoral and provincial planning to mainstream climate change adaptation (CCA), mitigate disasters and respond to emergencies.
- Build resilience at the national, sub-national and sectoral levels by raising awareness, building capacity and setting up early warning systems.
- Mobilise resources and foster public and private investments in priority sectors of CCA.

PNG's NAP is supported by a \$1.74 million grant from the Green Climate Fund. UNDP and CCDA are leading the NAP development process through iterative planning and the strategic integration of institutions. A range of development partners are also supporting the development of PNG's NAP, including the UNDP-UN Environment National Adaptation Plan Global Support Programme (NAP-GSP), funded under the Global Environment Facility (GEF); the ADB's BRCC programme; and [USAID's Climate Ready Project](#).

The NAP project will review regulatory and policy frameworks and mainstream CCA into national and sectoral policies and planning documents, and highlight the urgent need for CCA. The NAP will define strategic actions in cross-cutting and sectoral areas to guide PNG in achieving its climate adaptation targets by 2030 through a gender-responsive and whole-of-society approach. For example, climate-ready building codes could ensure that coastal infrastructures are fortified against flooding.

OUTPUT

The final output of the processes will be the NAP, including a financing strategy and an implementation plan. After peer review and validation, it will be endorsed by the PNG government and submitted to the UNFCCC in the second half of 2022.

The NAP process so far has already sensitised various sectors and scales and built their capacity to participate in CCA planning. UNDP has consulted with provincial representatives through workshops in the four project regions, where it has also conducted training on CCA planning and shared lessons learned and progress made from other CCA projects.

PNG's Sustainable Development Goal 13 Roadmap Report 2020⁷⁰ was produced by GoPNG with support from UNDP. This includes a summary of the implications of climate change for all SDGs and a roadmap of 30 actions across all sectors.



70. Government of Papua New Guinea (2020a)

OUTCOMES & LESSONS



WHAT WERE THE OUTCOMES FROM
UNDP'S WORK ON CLIMATE CHANGE?

WHAT DID WE LEARN?

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OUTCOMES & LESSONS | WHAT WERE THE OUTCOMES FROM UNDP'S WORK ON CLIMATE CHANGE?

PNG today is in a better place in its efforts to safeguard itself from the impacts of climate change. It has a strong framework for climate change action, with CCA plans headed for endorsement. Government commitment to tackling climate change is stronger than it has ever been. The technical reporting capacity is well developed and should enable the country to make the most of opportunities for funding and support to help tackle climate issues. However, the hardships being faced by people in PNG's rural areas remains grave and the outlook depressing, especially for low-lying coastal and island communities who are battered by increased flooding as the sea level rises.

Despite its earlier commitments, policies and intentions, PNG's forest loss increased by 72% between 2004 and 2015.

Combined with increasing emissions, including from the energy sector, this turned PNG into a net source of greenhouse gases instead of a sink. In recent years, though, the trajectory has been reversed, and PNG is once again a carbon sink thanks to interventions, including those supported by UNDP.

Using materials prepared through the REDD+ project⁷¹, PNG measured a verifiable decline in the rate of clearing from its highs of the period from 2013 to 2015. These carbon emission reductions (9 million MT) will become the first nationally issued REDD+ forestry carbon credits to go on sale to corporations and consumers.⁷² PNG's REDD+ capacity may help it to achieve real reductions in emissions and increased access to funds. New data on clearing expected in 2022 will clarify whether the downward trend in emissions is holding steady.



Once it is endorsed and becomes official, the NAP will spur the phased introduction of CCA into all government activities. Phase one will focus on the agriculture, health, infrastructure and transport sectors. Implementation will begin in 2023.



71. Government of Papua New Guinea 2018a

72. Coalition for Rainforest Nations 2021)

OUTCOMES & LESSONS | WHAT DID WE LEARN?

The following lessons and insights were [documented by UNDP⁷³](#) in early 2021 after the revised NDC was validated. They include findings from a literature review and discussions with past and present UNDP staff and project beneficiaries.



1. ROBUST AND MEANINGFUL STAKEHOLDER CONSULTATIONS ARE IMPORTANT⁷⁴

The consultative process that led to the first NDC in July 2020 was an outstanding demonstration of the contributions that can come from a well-structured and deep consultative process with a range of stakeholders. Following the CCDA's guidelines, sub-technical working committees of over 200 stakeholders (35% female) were involved, representing government agencies on energy, forestry, climate change, agriculture and land, as well as private sector and civil society representatives. Their inputs fed into a broader and more comprehensive stakeholder consultation, with updates on progress and key issues being provided regularly to decision makers.

All stakeholders were given a clear picture of the NDC revision process and also how their contributions during technical discussions and consultations would inform the final decisions. A technical steering committee made sure that technical issues were taken to experts for discussion, freeing the broader consultations to focus on high-level targets, policies and programmes.

The discussions on how forest re-growth could be included in PNG's NDC targets was a good illustration of this. This is a complex issue because of how reforestation is addressed within PNG's reporting process.



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However, by gaining clarity on this at the technical level first, the team was able to present decision makers and other stakeholders with concise options and recommendations without losing them in a jungle of reporting complexities.



73. Isoev (2021)

74. UNDP feedback also emphasises the importance of early and continuous involvement of provincial and local governments to ensure the long-term sustainability of projects.

OUTCOMES & LESSONS | WHAT DID WE LEARN?



2. CONSULTATIONS SHOULD BE ITERATIVE PROCESSES, NATIONALLY OWNED AND DRIVEN, TO OVERCOME LIMITATIONS.

The recently concluded process of developing the NAP highlighted some limitations of consultative processes during a time of COVID-19 restrictions. The NAP process is intended as a continuous, iterative, country-driven process. Using external contractors to provide technical inputs and develop the planning and guidance documents helped align the process with international best practices and approaches to NAP development. However, COVID-19 restrictions made face-to-face meetings challenging, especially when dealing with contractors without in-country teams, impeding robust and meaningful consultations and retarding the NAP development. Several rounds of follow-up were needed to collect full inputs from all stakeholders. An important lesson learnt was that country ownership grows out of such an iterative process. Materials development for any consultative process should be a part of the process rather than be tied to the availability of external contractors.



3. INTERNATIONAL SUPPORT SHOULD BE COORDINATED BY THE NATIONAL GOVERNMENT

A wide range of partners and agencies, some of them with overlapping areas of expertise, supported Papua New Guinea in revising its NDC. To ensure communication and coordination between them, the government convened them early during the process. This proved to be crucial in avoiding a proliferation of consultations, data requests and technical inputs, and paved the way for partners to provide clear, coherent guidance to the government. It also enabled development partners to be more focused while supporting the government in building capacity, financing and drafting documents. This in turn took the pressure off government actors, allowing them to focus on facilitation, coordination and document reviews.



OUTCOMES & LESSONS | WHAT DID WE LEARN?



4. CAPACITY BUILDING AND DEVELOPMENT SHOULD BE INTERDISCIPLINARY

The process adopted for the NDC revision brought together a wide range of experts but the common ground needed for effective NDC revision did not emerge because each worked within their own areas of expertise. This changed only when capacity building and learning became interdisciplinary, making it possible for sector specialists to understand mitigation and adaptation targets, and climate specialists understand sector-specific targets and areas where change was possible.

A series of 2- to 4-day 'lockdown' sessions held outside Port Moresby gave stakeholders time and space to participate in capacity-building training, supported by international experts, but also to share knowledge informally with their peers during breaks and post-workshop discussions.

Such lockdown sessions proved critical to the development of both the NDC and the NAP, enabling the discussions and deliberations that stakeholders needed to reach consensus. These enhanced stakeholders' technical understanding of issues and their awareness of contextual and cultural challenges across institutions and sectors. Stronger relationships between participants was a bonus side effect.

For example, senior decision-makers received regular briefs that kept them in the loop about the evolving objectives and approaches of the NDCs well ahead of the formal review or endorsement.



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OUTCOMES & LESSONS | WHAT DID WE LEARN?



5. THE NAP SHOULD BE BUILT UPON EXISTING DOMESTIC POLICY

The NDC was the critical building block upon which the NAP designed its CCA plans. However, the NDC process which drove PNG's climate agenda forward was itself built upon the government's existing policies and initiatives.

This was a strategic decision. By grounding early work in existing domestic policies, the process gained rapid buy-in from key government agencies while building existing capacity and understanding of policy options. Some examples of the linkages with climate action developed through these processes include PNG's SDG13 Climate Action Roadmap, the National REDD+ Strategy, and the Forestry Reference Level. All of them were developed after the first NDC was submitted in 2015.



6. IMPLEMENTATION DELAYS MUST BE TAKEN INTO ACCOUNT DURING PROJECT PLANNING

Projects and processes can be delayed by a range of circumstances, some of them difficult to anticipate or manage. Institutional changes and internal issues of government agencies can sometimes hold up projects. Agencies undergoing restructuring, changes in departmental responsibilities or relocating to new premises can effectively be out of action for weeks or even months. Such delays can be devastating for projects on a tight timeframe, and it is difficult to see a way around them, especially when governance issues are complex and beyond UNDP's control. Risk matrices in project design documents should factor in such delays and suggest alternative approaches for dealing with delays.

Delays caused by natural events such as pandemics are also difficult to anticipate or plan for. Many projects experienced delays or difficulties because of COVID-19's restrictions on meetings and consultations, travel bans and illness among staff and contractors.



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OUTCOMES & LESSONS | WHAT DID WE LEARN?



8. PROJECTS SHOULD HAVE SOUND 'EXIT STRATEGIES'

The REDD+ evaluation noted that UNDP needs to “develop a formal exit strategy, with a clear action plan and priorities to support the REDD+ process, and strategies to support institutional memory, continuation of activities and staff”.

For example, small projects funded by the BRCC in response to community requests could be jeopardised as communities struggle to maintain activities after the project ends. For instance, project-funded boats are helping communities to access markets and healthcare, and communication is also improving. To ensure that these improvements are not short-lived and that sub-projects continue to be maintained, monitored and properly managed even after the funding ends, people need training and support.

Poor attention to long-term sustainability is a complaint commonly heard about all development programs in PNG but one that does not seem to have led to any changes in practice. Projects that are sustained by trained communities at the community and local government levels are urgently needed.



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CONCLUSION | TACKLING CLIMATE CHANGE IN PNG

Speaking at the COP26, PNG's Prime Minister James Marape unequivocally named UNDP as the country's partner of choice in helping PNG's government and communities address the complex problems of climate change. With numerous countries and organisations jostling for position⁷⁵ to help PNG's adaptation and mitigation efforts, UNDP has played a useful coordinating role, making sure that international partners avoid overlaps and contribute constructively. As the leading agency among development partners in PNG, UNDP is ideally placed to minimise overlaps and conflicts and ensure that opportunities, funding and new technologies are put to use optimally.

With the global focus on climate change, many different countries and organisations are keen to help PNG with its mitigation and adaptation efforts. This has benefits but also risks for PNG, as the government can be overwhelmed with donors jostling for recognition as leaders in this field. As discussed above in relation to the NDC, clear leadership from the government and UNDP can help ensure that the international partners are coordinated and contributed constructively.

Forums like the Climate Emergency Summit provide excellent opportunities for all partners and the public to see what is happening and to communicate in both formal and informal settings. At a more detailed level, consultations for the NAP have brought together a mosaic of stakeholders from different sectors to share their experiences and

“ Our country acts as one of the most important global sinks for trapping and storing greenhouse gases. . . However, with increasing population and our need for economic development many of these protections are under threat. ”

– HON. JAMES MARAPE, PRIME MINISTER, 2020

discuss how they are mainstreaming climate priorities into their policies, practices and lives. One suggestion was that greater sectoral involvement and discussions with each sector separately could raise both awareness and ownership of plans.

UNDP has facilitated inputs into the NAP from a number of other climate-related projects. Indeed, its most transformative contributions have come from its facilitative role.



75. Comments from UNDP staff indicate that some countries are reluctant to cooperate in programs or to openly disclose their plans. In the earlier development of the REDD scheme, there were also some issues of cooperation between government departments and a reluctance to share information.

CONCLUSION | TACKLING CLIMATE CHANGE IN PNG

The projects discussed in this case study indicate that a holistic approach – working concurrently with policy, advocacy, mitigation and adaptation — is essential if the country is to play its role in carbon storage while protecting its highly exposed population and biodiversity from the worst effects of climate change.

The flexibility to adjust and adapt to changes and challenges in climate change projects is crucial for overcoming delays and barriers, though tight timeframes and rigid deadlines can impede this.

The time for trials and pilot programs will soon be over. There is a strong policy framework, stated government commitment and a high level of community support for climate change actions. The challenge now is to implement actions on the land and seas. Practitioners have a good idea what needs to be done. If only more donor programs could cover long-term, sustainable inputs into worthy institutions and activities, hard-won gains will be consolidated.



75. Comments from UNDP staff indicate that some countries are reluctant to cooperate in programs or to openly disclose their plans. In the earlier development of the REDD scheme, there were also some issues of cooperation between government departments and a reluctance to share information.

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