

GEF PACIFIC  
RIDGE TO REEF PROGRAMME

# PAPUA NEW GUINEA



NATIONAL R2R PROGRAMME  
DOCUMENT





# GEF Pacific RIDGE TO REEF Programme

## Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Biodiversity, Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods in Pacific Island Countries

### FOREWORD

The Heads of States of 13 Pacific SIDS developed and in 1997 endorsed a GEF International Waters Strategic Action Programme (SAP) for Pacific Island Countries. That document identified priority areas for action in the international waters focal area as improved management of ocean and coastal fisheries, integrated watershed and coastal management, and water supply protection. On the basis of the Pacific SAP, the GEF International Waters focal area has subsequently invested in a series of regional initiatives. The first was the UNDP implemented project entitled “Implementation of the Strategic Action Program for the International Waters of the Pacific Small Island Developing States” initiated in 2000 and operated over almost 7 years to 2006.

In light of the critical water resource and sanitation issues facing Pacific SIDS, GEF support in the years following the conclusion of the IWP project has been targeted at improved coordination and planning of water resource and wastewater management to balance overuse and conflicting uses of scarce freshwater resources through the GEF Pacific IWRM Project. The latter was financed by the GEF, implemented by UNDP and UNEP, and executed regionally by the Geoscience Division of the Pacific Community (SPC) in partnership with 14 Pacific Island Countries.

The GEF Pacific IWRM Project built on achievements of previous investments via a focus on national IWRM demonstration projects aimed at providing an opportunity for participating countries to implement, and experiment with, new management models and methods. The practical on-the-ground solutions to water and sanitation issues demonstrated by the national IWRM projects acted to stimulate support at both community and national government levels for policy reform and the mainstreaming of integrated approaches as part of national sustainable development planning.

The experience and local capacity in integrated environmental and natural resource management generated through the GEF Pacific IWRM project has been recognized both regionally and within the 14 participating Pacific Island Countries as an appropriate entry point for the testing of innovative approaches and measures to integrate land, forest, water and coastal management, including climate change adaptation in Pacific SIDS. In this connection, the GEF multi-focal area, multi-GEF agency programme entitled “Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Biodiversity, Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods” (or the GEF Pacific R2R Programme) was developed to provide an opportunity for Pacific SIDS to develop and implement truly integrated approaches for the sustainable development of island economies and communities. Programme activities are organised under the following programme components:

- ✓ National Multi-Focal Area Ridge-to-Reef Demonstrations in all Pacific Island Countries
- ✓ Improved Governance for Integrated, Climate Resilient Land, Water, Forest and Coastal Management
- ✓ Regional and National/Local Ridge-to-Reef Indicators, Monitoring and Evaluation and Knowledge Management
- ✓ Regional Programme Coordination

This National Programme Document summarizes the development of integrated approaches to water resource and coastal management in Papua New Guinea (PNG) to date, including examples of specific results and lessons learned achieved through integrated approaches to environmental and natural resource management. Importantly, this document presents information about the interlinked GEF R2R STAR and GEF International Waters R2R Projects, including programme support activities which focus on science-based planning, human capital development, policy and strategic planning, results-based management, and knowledge sharing.

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# INTRODUCTION

Given the close inter-connections between land, water and coastal systems in Small Island Developing States (SIDS), the integration of freshwater watershed management with coastal area management is considered essential to foster effective cross-sectoral coordination in the planning and management of land, water and coastal uses.

In Pacific SIDS, such integrated approaches to freshwater and coastal area management have been termed 'Ridge to Reef' to emphasise the inter-connections between the natural and social systems from the mountain 'ridges' of volcanic islands, through coastal watersheds and habitats, and across coastal lagoons to the fringing 'reef' environments associated with most Pacific SIDS.

Inherent in the approach is the philosophy of cross-sectoral coordination in the planning and management of freshwater use, sanitation, wastewater treatment and pollution control, sustainable land use and forestry practices, balancing coastal livelihoods and biodiversity conservation, hazard risk reduction, and climate variability and change.

Similarly, the integration of communities, stakeholders, and national governments within such a cross-sectoral planning framework is described by Pacific SIDS as a 'Community to Cabinet' approach.

The following sections summarize achievements to date in the development of 'Ridge to Reef' and 'Community to Cabinet' approaches to integrated natural resource and environmental management in PNG. An overview of the purpose of the Ridge to Reef Programme, its GEF R2R STAR Projects and GEF International Waters Projects is also provided.

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### 1. RIDGE TO REEF CONTEXT

This section provides a brief background of the geography and environmental threats in PNG. This information has been used as the basis for the identification of priority activities for the testing of 'Ridge to Reef' approaches to integrated land, water, forest and coastal management in PNG.



### 2. GEF PACIFIC R2R PROGRAMME

An overview of the "Pacific Islands Ridge-to-Reef National Priorities – Integrated Water, Land, Forest and Coastal Management to Preserve Biodiversity, Ecosystem Services, Store Carbon, Improve Climate Resilience and Sustain Livelihoods" (or GEF Pacific R2R Programme) is provided in this section. Information about the interlinked GEF R2R STAR and GEF International Waters R2R Projects, and Programme Coordination Unit, is also presented.



### 3. PNG R2R STAR PROJECT

A summary of PNG's national project to be financed through the GEF System for Transparent Allocation of Resources (STAR) is provided in this section. The planned contribution of this STAR project to the achievement of the targets for the regional Ridge to Reef program is outlined. The management arrangements for this project are also provided.



### 4. INTERNATIONAL WATERS R2R PROJECT

Priority actions identified for testing the integration of water, land, forest and coastal management to preserve ecosystem services, store carbon, improve climate resilience and sustain livelihoods in PNG are outlined. A brief strategy for PNG IW R2R national pilot project is provided along with the logical framework matrix. Key assumptions and risks are summarized to guide planning during the project's inception period.

# 1. RIDGE TO REEF CONTEXT



Country:	Papua New Guinea
Size:	462,840 km <sup>2</sup>
Population:	7.1 million
Population growth:	2.2%
Density:	15.4/km <sup>2</sup>
GDP:	USD 12.6 million
Growth Rate:	8.8 %
Gross National Income:	USD 1,638

Located south of the equator in the South-western Pacific, PNG is the largest and most populous Pacific Island nation. It consists of the eastern half of the island of New Guinea, several large high volcanic islands and numerous high volcanic islands and coral atolls. Its diverse geography gives rise to an equally diverse range of ecosystems which accommodate a wide variety of flora and fauna making up 5% of the world's biodiversity.

Its population of 5.8 million people is also diverse in ethnicity, language, custom and culture. Eighty five percent of the population live in the rural areas on a subsistence lifestyle while the rest live in urban areas either as employees in the formal sector or engaged in a range of informal sector income earning activities such as market gardening, small livestock husbandry and other service based business activities. A large proportion of urban dwellers are unemployed and rely on relatives for support.

The country has a substantial amount of freshwater resources including springs, creeks, rivers, lakes, wetlands and groundwater. The main water uses are domestic consumption, hydropower generation and a wide range of industrial uses. In the rural areas the main sources of potable water are rainwater tanks, shallow hand-dug wells, springs, creeks and rivers.

Only 33% of the rural population have access to improved water supply systems, a major factor in the 2009 cholera outbreak that affected 14,000 people, while the rest consume rainwater contained in tanks or water obtained directly from the source. In the urban areas 60% of the population have access to treated water reticulated to their households while the rest who reside in the peri-urban areas have to make do with water delivered through standpipes.

The story with sanitation is not as good. In the rural areas three modes of human waste disposal are used: septic toilets, pit toilets and direct defecation into the environment. Fifty five percent of the population do not have access to safe sanitation services. Contaminated drinking water, lack of proper sanitation services and poor personal hygiene contribute to the high incidence of water and food borne diseases such as

diarrhoea, dysentery and typhoid. Diarrhoea is the seventh biggest killer in PNG. Two of the main reasons for the above situation are the lack of coordination in the water supply and sanitation sector and inadequate funding by the government.

Water resources availability in terms of quantity and quality is coming under increasing threat from the pressure from rapid population growth as well as runoff and point source pollutant laden discharges from mining, logging, agriculture, infrastructure development and industrial processing, entering surface and groundwater bodies. While existing regulatory controls are in place to minimise these impacts, better monitoring and compliance arrangements are required to regulate these activities.

Due to its position at the intersection of the stable Australian plate and the mobile Pacific plate, PNG is geologically young and dynamic with high seismic and volcanic activity. Its northern portion forms a part of the so called "Pacific Ring of fire" which makes the country prone to volcanic eruptions, earthquakes, landslides and tsunamis. In addition, with one of the wettest climates in the world, floods occur annually with magnitudes differing from one year to another.

Even with its very wet overall climate, the topography of the country is such that there are areas which experience distinct dry seasons where droughts can develop during extended dry seasons. Climate change and variability have increased the country's vulnerability to sea level rise, tropical storms, tidal surges and saline intrusion.

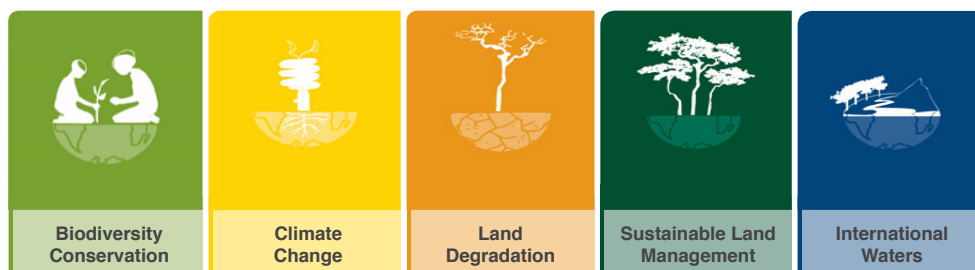
In order to safeguard the availability of water with respect to quantity and quality to maintain ecological integrity, cater for natural and anthropogenic water uses as well as minimise impacts arising from floods, droughts and climate change, there is an urgent need to apply integrated water resources management involving all stakeholders and focusing on catchment units. Several institutional, legislative, operational, strategic, capacity, public consciousness and resource related barriers have been identified for appropriate treatment in order to achieve effective IWRM in PNG.

## 2. THE GEF PACIFIC RIDGE TO REEF PROGRAMME

The GEF Pacific Ridge to Reef (R2R) Programme was developed to guide the strategic investment of GEF grant and national funding in actions aimed at achieving the sustainable development of Pacific SIDS within a truly integrated environmental and natural resource management framework.

### A GEF Multi-Focal Area Approach

Initiatives of the R2R programme aim to deliver tangible and quantifiable global environmental benefits by focusing on a more cross-cutting approach to water, land and coastal management that captures the complementarities among the following GEF focal areas

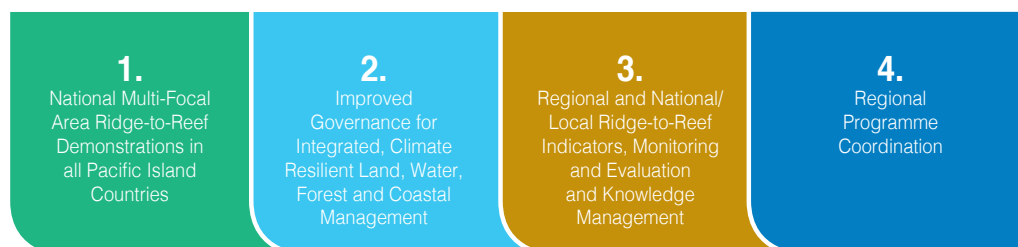


### A Multi-GEF Agency Approach

The GEF Pacific Ridge to Reef Programme is a multi-agency initiative involving the United Nations Development Programme (UNDP), the United Nations Food and Agriculture Organization (FAO), and the United Nations Environment Programme (UNEP) as GEF implementing agencies. Coordination support is provided by the Pacific Community (SPC), a regional intergovernmental organisation that works with Pacific Nations across a wide range of areas relevant to programme implementation, including water resource management, geoscience for development, public health, forestry, fisheries, disaster management, youth, gender and culture.

### R2R Programme Goal and Components

The goal of the GEF R2R programme is “to maintain and enhance Pacific Island countries’ ecosystem goods and services (provisioning, regulating, supporting and cultural) through integrated approaches to land, water, forest, biodiversity and coastal management that contribute to poverty reduction, sustainable livelihoods and climate resilience”. Programme activities are organised under the following components:



### GEF R2R STAR Projects

Significantly, the programme involves the execution of 13 GEF R2R STAR<sup>1</sup> projects which address national priorities and development needs while delivering global environmental benefits in line with the abovementioned GEF focal area strategies. These UNDP, UNEP and FAO implemented projects are executed nationally on a bilateral basis in partnership with local stakeholders. To ensure cohesion, complementarity and efficiency of GEF investments under the R2R programme, each GEF R2R STAR project has been provided US\$175,000 of International Waters (IW) funding in addition to their national STAR allocations. The intent of this IW funding increment is to enable effective linkages with the GEF International Waters R2R project, the adoption of integrated approaches aimed at addressing critical water-related issues, and intra-regional capacity building and knowledge sharing.

### GEF International Waters R2R Project

The operation of the R2R programme is supported in areas of science-based planning, human capital development, policy and strategic planning, results-based management, and knowledge sharing through the International Waters R2R project which is executed regionally by the Pacific Community. R2R pilot projects, to be implemented through the R2R IW project, are designed to strengthen R2R integration by establishing synergies among the work of the various sector agencies and the GEF R2R STAR Projects, between governments and communities, and civil society and the private sector.

<sup>1</sup> The Global Environment Facility's System for the Transparent Allocation of Resources (STAR)

## Programme Coordinating Unit

The Programme Coordinating Unit (PCU), hosted by the Pacific Community's Geoscience Division in the Fiji Islands, is tasked with the provision of technical, operational, reporting and monitoring support as requested by the participating Pacific Island Countries. The PCU also facilitates the consolidation and sharing of sectoral knowledge and expertise to support the uptake of best-practice management approaches in policy-making and planning. Led by the Regional Programme Coordinator, the PCU possesses multidisciplinary expertise, including administration and financial management officers, to support programme coordination.

## 3. PNG'S NATIONAL STAR PROJECT

Advancing sustainable resource management to improve livelihoods and protect biodiversity in PNG	
To effectively conserve and sustainably use biodiversity and maintain ecosystem goods and services in PNG by building institutional capacity to integrate the PNG Protected Area Network (PAN) with the Sustainable Land (SLM) initiative, and fostering a ridge-to reef approach across and within these initiatives.	
<b>Component 1: Improving PNG's Protected Area Network</b>	
<b>Outcome 1.1</b>	PAN National Strategy under implementation with all 16 States engaged in PAN (baseline is 9 )
<b>Outcome 1.2</b>	PAN management capacity and coordination improved at all levels (site, state, national) and long-term sustainability and management effectiveness of PAN sites (new or existing) measurably improved, including adding not less than 4 protected areas to help ensure ecological representativeness
<b>Outcome 1.3</b>	States and local communities are measurably more aware and involved in PAN and are active in management and monitoring processes.
<b>Outcome 1.4</b>	PAN Sustainable Financing needs reviewed, planned and programmed and monitored in implementation
<b>Outcome 1.5</b>	PNG closer to meeting Micronesian Challenge Endowment TF 2020 target goal.
<b>Component 2: Effective implementation of PNG's Sustainable Land Management (SLM/SFM) Policy</b>	
<b>Outcome 2.1</b>	Effective implementation of National SLU Policy.
<b>Outcome 2.2</b>	Enhanced and effective national coordination of SLM/SFM across all sectors and levels of government (state, national).
<b>Outcome 2.3</b>	Recognition, integration and complementarity of the National PAN Strategy with the wider National SLM Action Plan.
<b>Outcome 2.4</b>	Institutional infrastructure (land use plans) in place to enable reduced land-based pollution from land based activities
<b>Component 3: Integrated Coordination, Mainstreaming &amp; Project Management: integrated knowledge management, outreach design, coordination, lessons learned dissemination, regional and international engagement, programme management, monitoring and evaluation.</b>	
<b>Outcome 3.1</b>	Effectively integrated EA role by the Office of Environmental Response and Coordination (OERC) for component outcomes ensuring cross sectoral mainstreaming of investments, implementation and results.
<b>Outcome 3.2</b>	Two –way peer learning approach fostered through participation in regional initiatives (Micronesia Challenge, R to R, IW)
<b>Outcome 3.3</b>	Effective national and state coordination of PAN, SLM, and associated cross-sector issues including: <ul style="list-style-type: none"> <li>• harmonized IAS policy implementation resulting in improved biosecurity</li> <li>• streamlined forest management across sectors, government levels, and within watersheds with at least one-third (1/3) of native forest under protection and sustainable management (2100 ha in PAN sites) and an additional 6000 ha in SFM catchments).</li> <li>• reduced vulnerability to impacts from climate change in PAN sites and wider catchment</li> <li>• increased effective local capacity in PNG for SLM and PAN management</li> </ul>

GEF Agency: UNDP

National Lead Agency: Office of Environmental Response and Coordination

Funding Source: GEF Trust Fund

GEF Focal Area: International Waters

Indicative Grant Amount: USD 3,747,706

Indicative Co-financing: USD 15,729,915

Approval Date: 2013



## 4. GEF PACIFIC INTERNATIONAL WATERS R2R PROJECT

This regional project will support 14 Pacific Island Countries in the development of “Ridge to Reef” and “Community to Cabinet” approaches designed to guide the integration of water, land, forest and coastal management required to fashion sustainable futures for island communities. The project also aims to address the recent high-level recognition and calls for results-based approaches to the management of development assistance programmes and projects, and will provide support in areas of coordination, capacity building, technical assistance, and monitoring and evaluation for the operation of the GEF Pacific Ridge to Reef Programme. Components and outcomes of this programme are:

<p><b>Component 1: National Demonstrations to Support R2R ICM/IWRM Approaches for Island Resilience and Sustainability</b></p> <ul style="list-style-type: none"> <li>• Successful pilot projects testing innovative solutions involving linking ICM, IWRM and climate change adaptation</li> <li>• National diagnostic analyses for ICM conducted for prioritizing and scaling-up key ICM/IWRM reforms and investments</li> <li>• Community leader roundtable networks established for strengthened ‘community to cabinet’ ICM/IWRM</li> </ul>
<p><b>Component 2: Island-based Investments in Human Capital and Knowledge to Strengthen National and Local Capacities for R2R ICM/IWRM approaches</b></p> <ul style="list-style-type: none"> <li>• National and local capacity for ICM and IWRM implementation built to enable best practice in integrated land, water, forest and coastal management and CC adaptation</li> <li>• PIC knowledge on climate variability, coastal area planning in DRM, integrating ‘blue forest’ and coastal livelihoods consolidated and shared to support evidence-based coastal and marine spatial planning</li> <li>• Incentive structures for retention of local ‘Ridge to Reef’ expertise and inter-governmental dialogue on human resource needs for ICM/IWRM initiated</li> </ul>
<p><b>Component 3: Mainstreaming of R2R ICM/IWRM Approaches into National Development Planning</b></p> <ul style="list-style-type: none"> <li>• National and regional strategic action frameworks for ICM/IWRM endorsed nationally and regionally</li> <li>• Coordinated approaches for R2R integrated land, water, forest and coastal management and CC adaptation achieved in 14 PICs</li> <li>• Physical, natural, human and social capital built to strengthen island resilience to current and emerging anthropogenic threats and climate extremes</li> </ul>
<p><b>Component 4: Regional and National ‘Ridge to Reef’ Indicators for Reporting, Monitoring, Adaptive Management and Knowledge Management</b></p> <ul style="list-style-type: none"> <li>• National and regional formulation and adoption of integrated and simplified results frameworks for integrated multi-focal area projects</li> <li>• National and regional platforms for managing information and sharing of best practices and lessons learned in R2R established</li> </ul>
<p><b>Component 5 - Ridge-to-Reef Regional and National Coordination</b></p> <ul style="list-style-type: none"> <li>• 5.1 Effective program coordination of national and regional R2R projects</li> </ul>

R2R pilot projects, to be implemented through the R2R IW project, are designed to strengthen R2R integration by establishing synergies among the work of the various sector agencies, between governments and communities, and civil society and the private sector. The following pages present the results framework for the PNG IW pilot project.

### INFORMATION BOX

GEF Agency: UNDP  
 Regional Executing Agency: SPC  
 National Lead Agency: Dept. Of Environment & Conservation  
 Funding Source: GEF Trust Fund  
 GEF Focal Area: International Waters

## R2R IW PILOT RESULTS FRAMEWORK

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
1. Improving community access to and understanding of technical information on climate and hazard vulnerability	1.1 Awareness of climate and hazard vulnerability in pilot communities	% increase in Awareness of climate and hazard vulnerability	Little grass root level access to climate and hazard vulnerability information	Climate and hazard vulnerability aware and responsive communities	Reporting of training and awareness raising Information sources established and accessed	Communities have interest in information
	1.2 Enhanced tertiary institutional engagement in research and community outreach	Established tertiary institution outreach programme	No existing linkage	Tertiary institution with established and valued community outreach programme	Outreach material and press Quarterly reports	Institutional interest and support Adequate availability of resources to maintain programme
	1.3 Provincial partnerships in sustainable coastal area vulnerability assessment	Number of local level, government, business and community partnerships	Limited cooperation between sectors	Partnerships between the CBOs, private sector and local government established, functional and generating effective assessments and responses	Annual Reports and Press	Willingness of partners to engage in joint assessment and response planning



Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
2. Enhancing participative community assessment of climate and hazard vulnerability & adaptation capacity	2.1 Self-reliant communities able to assess vulnerabilities and decide on appropriate adaptation responses	Number of Communities with vulnerability assessment and response plans	No community based response currently mostly at individual or enterprise levels.	Community vulnerability assessment and response plans implemented with resultant climate and hazard resilient communities	Publication of plans	Available resources to work with communities Responsive communities
	2.2 Increased local community, business and government agency commitment to enhancing coastal area ecosystem services	Percent increase in protected or restricted use coastal areas	No planned conservation or restricted use areas	Target areas ecosystem services maintained	Conservation and Protected areas published	Target population are willing to maintain areas
	2.3 Best practice for coastal area community assessment of climate and hazard vulnerability assessment determined	Best practice and lessons learned catalogued and reported for replication	No documentation for replication	Best practice for coastal area community assessment of climate and hazard vulnerability assessment documented and replicated	Publication and Reporting	Available resources to work with responsive communities

Components	Outcomes	Indicator	Baseline	Targets End of Project	Source of Verification	Risks and Assumptions
3. Strengthening community livelihoods and resilience through sustainable R2R coastal area use	3.1 Sustainable water, land and coastal area use adopted by pilot communities	% of water, land and coastal users that have adopted sustainable use practices	Unsustainable practices common	Sustainable water, land and coastal area use adopted resulting in resilient communities	Publications and Press reports. Research Papers	Willingness of stakeholders to adopt and maintain sustainable use practices
	3.2 Ecosystem services preserved through rehabilitation and conservation programmes (including promoting and preserving Traditional conservation knowledge)	% Area conserved, protected and rehabilitated	Little protection for ecosystem services	Traditional conservation knowledge and formal protection strategies brought together to maintain ecosystem services and resilient communities	Published reports	Willingness of community to sustain participation
	3.3 Public-private partnerships for coastal area use preserving ecosystem services and community resilience	Number of partnerships established	No existing partnerships	Public-private partnerships established and functioning preserving coastal ecosystems	Publications and Press reports. Research Papers	Willingness of stakeholders to form and maintain Partnership.  Availability of establishment resources





The GEF unites 182 countries in partnership with international institutions, non-governmental organizations (NGOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives.

[www.thegef.org](http://www.thegef.org)



The Pacific Community is an international development organisation with 26 member countries and territories. It is the principal scientific and technical agency proudly supporting development in the Pacific region since 1947.

[www.spc.int](http://www.spc.int)



UNDP is on the ground in 177 countries and territories and partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone.

[www.undp.org](http://www.undp.org)



UNEP is the leading global environmental authority that sets the environmental agenda and promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system.

[www.unep.org](http://www.unep.org)



FAO has 194 Member Nations working to achieve food security for all, to make sure people have a regular access to enough high-quality food to lead active and healthy lives.

[www.fao.org](http://www.fao.org)

