

INFORMING SPATIAL PRIORITIZATION USING A R2R CONCEPTUAL FRAMEWORK IN TROPICAL ISLAND SETTINGS

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What is the Pacific R2R Programme?

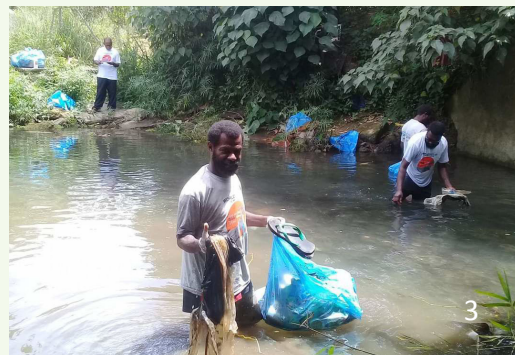
The Pacific Ridge to Reef (R2R) Programme is a multi-country, multi-GEF agency programmatic initiative guiding the coordinated investment of US\$90 million in GEF grant funding across multiple focal areas of biodiversity conservation, land degradation, climate change adaptation and mitigation, sustainable land management, sustainable forest management, and international waters in Pacific Small Island Developing States (SIDS).

Operating across 14 Pacific Island countries, the programme aims to deliver tangible and quantifiable local and global environmental benefits by focusing on cross-cutting approaches to water, land and coastal management with linkages across GEF focal areas including: biodiversity, land degradation, international waters, sustainable forest management, climate mitigation and adaptation and capacity development.

The programme is implemented by United Nations Development Programme (UNDP), the United Nations Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP).

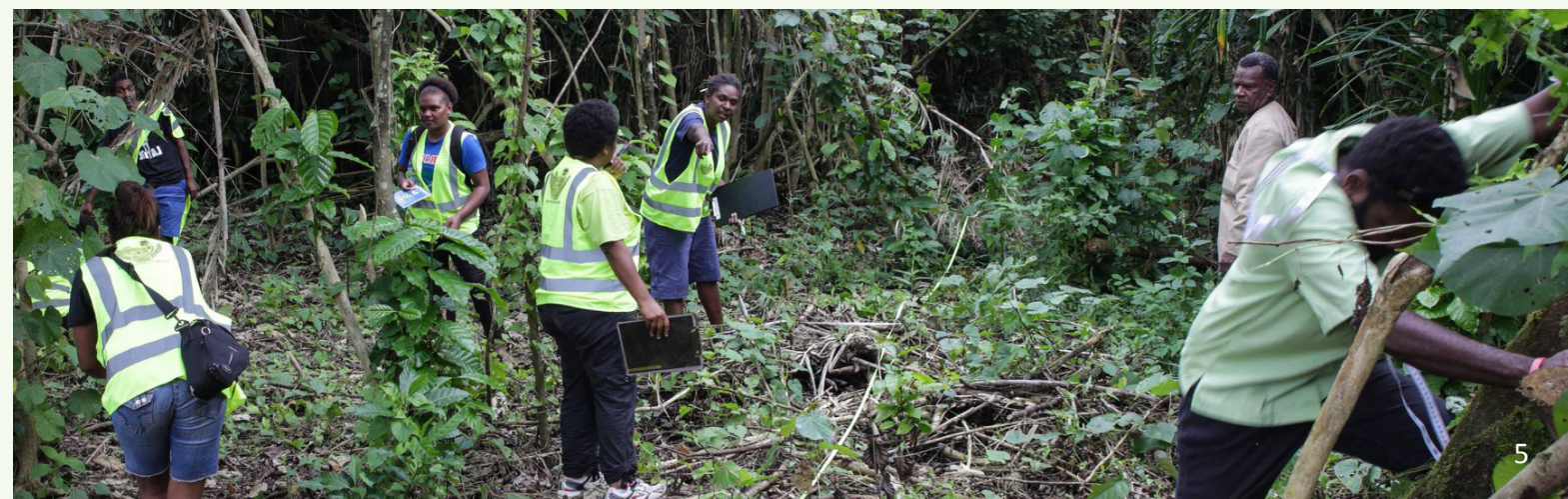
Executed regionally by the Pacific Community through the Pacific Regional Ridge to Reef International Waters project (Pacific Regional R2R IW), the R2R Programme is supported by the Regional Programme Coordination Unit (RPCU) in areas of science-based planning, human capital development, policy and strategic planning, results-based management, and knowledge sharing.

Pacific R2R participating countries include: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of the Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.



Benefits of the R2R Approach

- The Pacific R2R Programme aims to maintain and enhance Pacific Island Countries (PICs) ecosystem goods and services through integrated approaches to land, water, forest, biodiversity and coastal resource management that contribute to poverty reduction, sustainable livelihoods and climate resilience.
- The R2R approach explores and targets ways to reduce the transfers of chemicals, nutrients and sediments from agriculture, forestry in catchments, and untreated wastewater to maintain and enhance ecosystem services by minimizing the damage from land to coastal ecosystems, including forests, agricultural lands, watersheds, coral reefs and coastal waters.
- Improves climate resilience by supporting the reduction of greenhouse gas emissions from agriculture, deforestation, forest and coastal degradation and increased carbon sequestration.
- The distinct inter-connection between land, water and coastal systems in PSIDS, coupled with their high vulnerability to climatic changes and limited human resource capacity make a strong case for the R2R approach in the Pacific.
- Operating across 14 Pacific small island developing states (SIDS), participating countries have the opportunity to strengthen capacity to successfully demonstrate and transfer technology to support targeted vulnerable areas, improve livelihoods and public health, and upscale their effective R2R mainstreaming efforts to support countries in achieving their sustainable development goals.
- A “whole of ecosystem” and “whole of island” approach ensures that policies, multiple sectors, agencies and community interests are properly considered and integrated in the planning and management of resources.



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Translating R2R into action through the Spatial Prioritization Model

What is a Spatial Prioritization Model?

- It is a Science-based and spatial planning procedure that supports selection of priority areas and sites for R2R interventions and reforms.
- It shows the boundary between science and policy thus improving the understanding and improving the knowledge base on the cause and effect relationship of Ridge to Reef environmental degradation.
- The model is used by researchers for mapping priority areas and policy makers will be using it to base their decision and policy.

Why this Model?

- With growing population numbers, many Pacific Island countries coral reefs are threatened by activities such as urbanization, logging, and commercial agricultural expansion. The Spatial Prioritization Model allow and enable users to trace and identify areas to focus terrestrial actions that will mitigate downstream impacts on the most affected areas.

Benefits of using this Model

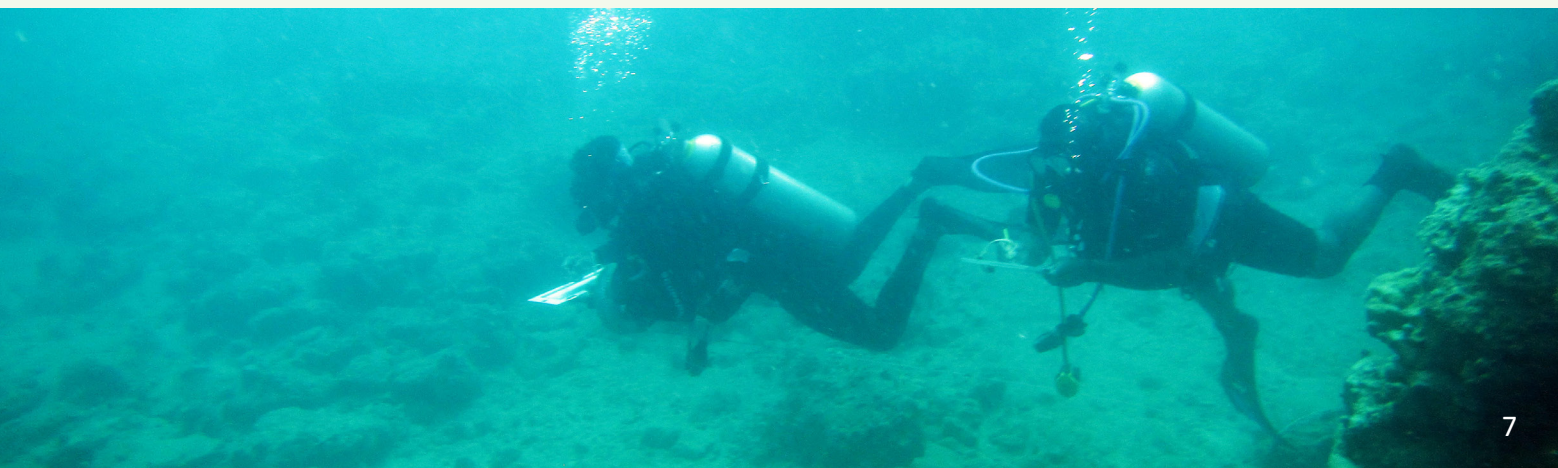
- Can be used to inform land-sea planning and management help prioritize local conservation and management actions.
- It provides the basis for ongoing research and modelling work to better identify and understand the impact of trade-offs of other equally important model potential interactions.
- Using this model would greatly benefit local communities, livelihoods and wellbeings.

Pilot site testing In Vanuatu

- The Tagabe River catchment is the pilot site for Vanuatu's national IW R2R project.
- It is of national significance as it supplies 100% drinking water of Port Vila.
- Under threat due to increased urbanization and growing population.

Testing R2R Model

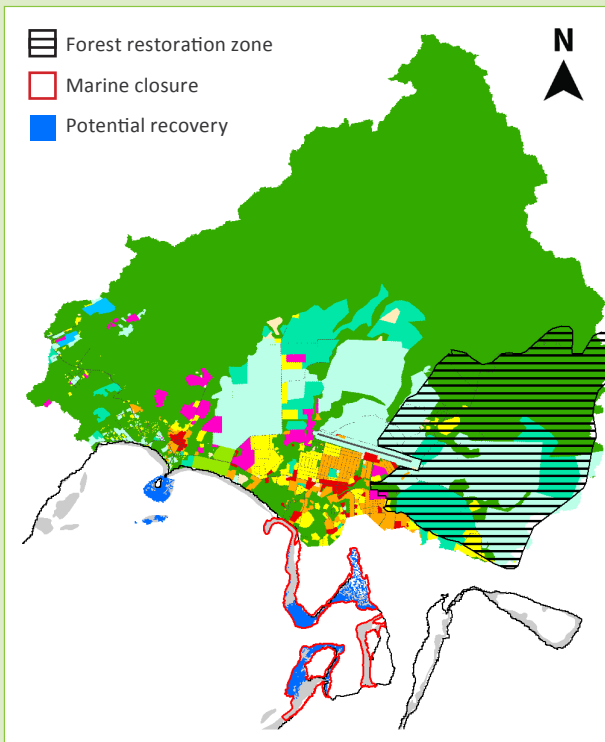
- To adapt and apply a spatially-explicit framework planning method with scenario planning using 3 GIS models (InVEST sediment model, plume model and predictive coral reef model) to identify national priority areas that benefit land and sea and downscale it to test the effect of proposed local R2R management action in the Tagabe watershed.



Stakeholders

Department of Meteorology	Department of Geology, Mines & Water Resources	Department of Education
Sanma Provincial Government	Public Works Department	Live & Learn Vanuatu
Luganville Municipality	Department of Forestry	Department of Agriculture & livestock
Luganville Water Supply	Department of Fisheries	Department of Water
Nambauk & Butmas communities	Department of Health	Rural Health

Present Scenario (without R2R) vs the Benefits of R2R using the Prioritization Model in Tagabe Watershed

Present scenario	Benefits of R2R approach
<p>After updating the different scenarios (land cover, land management, urbanization and marine scenario) using the Prioritization model, the results are as follows:</p> <ul style="list-style-type: none"> The key land cover types are forest cover, grass and shrubland and human land use type which result in Tagabe exporting 760 tonnes per year. For the Marine closure scenario, fish mass can increase by 2.5 tonnes due to the closure. Under the Restoration scenario, 1330 hectares of native forest will be restored, which will lead to a decrease of 210 tonnes of sediment exported per year. Under the Urbanization scenario, human land use expands over 1340 ha. which will result in an increase of 5180 tonnes per year. For the Urbanization and Marine closure scenario, over 75 ha is due to be lost in coral cover resulting in a loss of 5 tons in fish biomass. 	 <p>Restore Native Forest: +1,330 ha -210 ton/yr of sediment Restore/ Protect marine habitat: up to 75 ha Restore/ Protect fish biomass: up to 8.3 ton</p>

For more information contact

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