



GEF Pacific IWRM Demonstration Project

Sustainable Management of the Sarakata Catchment



Vanuatu

Final Report
Sarakata, Vanuatu
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PREFACE





1. Water and Sanitation Issues in the Development of the Vanuatu GEF Pacific IWRM National Demonstration Project

In 2007, to initiate the IWRM Project, Vanuatu was asked to prepare a Diagnostic Report, Hotspot Analysis, and demonstration project design related to the specific water resource challenges and needs of the country.

Summary of Diagnostic Report

Vanuatu's Diagnostic Report highlighted the country's current water situation including existing water sources, vulnerabilities, uses, current management efforts, and existing gaps. The main issues to water management highlighted in the Diagnostic Report were:

- Lack of information on sectoral demand;
- Declining ground water levels in areas of high density use with competing demands;
- Contamination of ground and surface water in areas of high density living, septic tank use and cattle grazing;
- Decline in coastal water quality where septic tanks are used in high density along the coast;
- Several point sources of pollution go unchecked;
- Water resource surveillance and monitoring is poor, severely under resourced and there is only one private lab capable of water quality testing; and
- Information on water resources is not easily available or shared with other policy makers, managers, and users.

In addition to these issues, the islands natural vulnerabilities pose an additional challenge to water management. Vanuatu is the most natural disaster prone country in the South Pacific with disasters including volcanic eruptions, earthquakes, cyclones, and isolated droughts and floods. It is also indicated that climate change will increase water vulnerability over the next several decades.

The diagnostic reports called for the need for a cross-sectoral approach to encourage resource and information sharing, encourages greater institutional and political support, and provides more comprehensive responses to current and future management challenges.

Summary of Hot Spot Analysis

As part of the 2007 diagnostic, a Hot Spot Analysis (HSA) exercise was also conducted to identify and evaluate areas of national and regional significance where conditions severely affect human health, natural disasters related to the site, the nature and extent of threats to pollution

reducing biodiversity, and compromising the social and economic benefits in a manner that warrants priority management attention.

The HSA considered nine hot spots and seven sensitive areas. Using a prescribed HSA Methodology which took into considerations the thematic, geographic, institutional and policy/legislation aspects of the water issues; three hot spot sites were selected. Sarakata Catchment was then selected as the most suitable hot spot for the GEF supported National IWRM Demonstration Project. The Aggregated Scoring Table for the Hot Spot Analysis can be found in Annex 1. The Sarakata water source in Sarakata Catchment is the Water Source for the SANMA Provincial Headquarters in Luganville. Sarakata was also selected based on the fact that it hosts the nation's only largest Hydro Station and also served Vanuatu's second town and Municipality.

The Sarakata River Catchment is located down in the central part of South Santo and host a number of important water catchments including the Luganville Municipality water catchment. The watershed is important for subsistence farming and livelihood activities, commerce and water supply for more than 20,000 people that live within the vicinity. The Watershed not only host the large Sarakata River that is highly prone to flooding in cyclones and rainy seasons, but also a hydro scheme that is a major electricity supply for Luganville town. Settlements and a variety of domestic and commercial enterprises occur within the watershed and a number of settlements and activities are within the proposed Luganville water supply protection zone for the existing water supply intake. These activities impact the watershed and cause water quality concerns for the main water supply for Luganville.

Scope and Need for a National IWRM Demonstration Project

The Sarakata Catchment is faced with the impacts and challenges of both natural and human based activities with multiple threats and has not been managed very effectively or sustainably over the years. Various Departments and Organizations had attempted to mitigate issues in their own using a sectoral approach and trying to tackle issues at specific locations versus looking at the full ecosystem.

At the project site level the GEF-IWRM project was then initiated and charged with formulating and implementing a land use management plan for the watershed ensuring the watershed sustainably managed from ridge to reef to meet the needs of the rural and urban population.

The GEF Funded project is entitled "Integrated Water Resource Management for the Sustainable Management of Sarakata Watershed".

The key objectives of the project are:

- Operative Sarakata Ridge to Reef Watershed Management Plan;
- Ecology and Biodiversity from ridge to reef supports & sustains wise resources use
- Consumer water quality is consistently meets WHO Standards
- Impacts of Flooding mitigated
- Community actively contributes to and benefits from sustainable watershed management.

The IWRM project was initiated and charged with formulating and implementing a land use management plan for the watershed in ensuring the watershed sustainably managed from ridge to reef and providing an exemplary national model.

The approach taken at the demonstration site will also have national implications. A National Water Resource (NWR) Strategy was also drawn up in 2007 as a way forward for Vanuatu to embrace the principles of IWRM and hence a National IWRM Plan for the water sector. The National Water Resource Strategy emphasizes the need to move away from a sectoral approach of managing water to an integrated approach which will indirectly benefit citizens of Vanuatu. The NWR Strategy aimed at providing the Government of Vanuatu with a rational basis for sector-

wide planning which involves direct engagement with local government and communities, civil society groups, private sector organizations and donors for effective national water resource management. It will further provide the Ministry of Lands and Natural Resources and the Department of Geology, Mines and Water Resources (DGMWR) with a clear regulatory framework under which to implement the strategy.

The National IWRM Project provides the DGMWR with an opportunity to put the NWR Strategy into practice and identify both the strengths and weaknesses of the strategy. What is learned through the project will allow the MLNR, DGMWR, and other partners to refine and strengthen their working relationships.

The Project will also tackle through IWRM approaches, many issues under GEF strategic programme I and II through identifying and understanding multiple stresses on coastal environments and linking these to fresh water and land management, especially upstream practices. The Project will at the national and local level address land base pollution, protection of water supplies, and vulnerability to climate change and prevention of land degradation. It will include measures to protect biodiversity and promote integrated coastal and watershed management. Through what is learnt during the implementation of the National IWRM Demonstration Project, stakeholders will learn to more effectively Vanuatu's water sources.





2. Management of the GEF Pacific IWRM National Demonstration Project in Vanuatu

The National IWRM Project is managed by the Department of Geology, Mines, and Water Resources (DGMWR) under the Ministry of Lands, Energy, Environment, Geology, Mines, and Water Resources (MLNR). This was selected as the most appropriate institution to oversee the implementation of the project as through the national government the MLNR has the legal mandate through the Water Resources Management Act of 2002 to protect the country's water resources and also preserve our unique lifestyle and growing state of economy. The MLNR has the overall responsibility to ensure the sustainable use of the nation's water resources. This ministry has a charter which provides the opportunity to make a significant impact on the nation's future, and the wellbeing of its communities.

The Department of Geology, Mines, and Water Resources (DGMWR) administers the Water Resources Management Act on behalf of the

Ministry. In undertaking this role, not only does the DGMWR have a responsibility for the country's water resources and water supply to citizens, it also has a major role in facilitating economic development in Vanuatu. The Department's resource registry, information management, policy formulation, implementation and monitoring functions underpin their roles and responsibilities.

The Director of the Department of Geology, Mines, and Water Resources, Chris loan, was selected as the IWRM Focal Point. As the Director responsible for the country's water resources and water supplies, this was the most appropriate person to be able to facilitate the implementation of the IWRM demonstration project and mainstream IWRM principles into daily management of Vanuatu's water resources. Chris loan also serves as the Chairman for the National Water Advisory Committee.

Lead Agency

Department of Geology, Mines and Water Resources

IWRM Focal Point



Mr Christopher loan

Director, Department of Geology, Mines and Water Resources

National IWRM Project Manager



Ms Rossette Kalmet

Department of Geology, Mines and Water Resources

3. Establishment of a Coordinating Body for the Operation of the GEF Pacific IWRM Demonstration Project in Vanuatu

As a part of World Water Day 2005, the DGMWR established a Luganville Water Advisory Committee to oversee the management of the Luganville Water Supply. The Luganville Water Advisory Committee (LWAC) was established under the National Water Advisory Committee (NWAC) and a representative from LWAC sits on the NWAC. In 2008, the Luganville Water Advisory Committee noted a need in the rural areas for someone to oversee water projects and management of drinking water sources. The LWAC decided to expand its scope to include the entire province of SANMA. To reflect this change, the committee changed its name to SANMA Water Advisory Committee (SWAC).

In 2009, at the initiation of the IWRM Demonstration Project, the PMU identified the SWAC as an already established committee with similar objectives to that of the project and consisting of many of the government departments involved in water management. The project decided to utilize this body as the foundation for the Steering Committee.

Initially, the Committee consisted of the Department of Public Works, Rural Water Supply, Luganville Municipality, SANMA Provincial Council and the Department of Health. Following the 'Integrated' model, the PMU decided to expand the stakeholders involved in the committee. At the initial Steering Committee Meeting the PMU also invited the Department of Agriculture, the Department of Environment and Conservation, the Department of Fisheries, the Department of Forestry, the Department of Tourism, local NGOs, representatives from the Provincial Council of Chiefs, representatives from the Council of Women, a business house representative, and a community representative from the Sarakata Water Catchment Committee to attend. At the initial meeting, all stakeholders chose to participate with the exception of the Council of Chiefs, Council of Women, and Business House representative.

The current stakeholders actively engaged in the management of the IWRM are outlined in the following table. A full list of committee members can be found in Annex 1, TOR for the committee can be found in Annex 2.





4. Planning Stakeholder Participation in the Execution of the Vanuatu GEF Pacific IWRM Demonstration Project

In order to ensure national and local ownership as well as transparency at all stages of the IWRM project cycle, stakeholder analysis was conducted at the project's inception. The aim was to identify key stakeholders that could influence prominent level decision making and drivers for effecting positive policy/institutional changes using an Integrated approach.

The following table highlights the stakeholders that were identified during the project inception phase and have since been engaged during various stage of the project.

Key Stakeholders	Expected Role	Current Level of Engagement
Community members (Men, Women, and Youth)	Actively take part in workshops and development of demonstration sites within their community. Give community perspective during consultation meetings	Community members have been taking part in active, but without equal representation. It has been difficult in most communities to engage women in activities.
Traditional Landowners	Actively take part in workshops and development of demonstration sites within their community. Advise and allow Government Departments, PMU, and NGOs with activities on their land	Several landowners have allowed activities on their land. Landowners have assisted PMU in finding appropriate locations for demonstration sites. Land disputes have halted certain demonstration projects.
Community Leaders (Chiefs and Ministers)	Assist PMU with coordinating community activities. Take an active role in project activities. Advise the project on community needs and issues	Chiefs have played a key role thus far in coordinating activities within communities. Chiefs have advised PMU and other stakeholders on community needs and issues.
Local Councils (Council of Women; Council of Chiefs)	Assist PMU in coordinating project activities. Advise project on community needs and concerns. Participate in workshops, meetings, and consultations.	Local councils have not been utilized except in the initial planning meeting. Both Council of Women and Council of Chiefs were asked to send representatives to take part in the IWRM Steering Committee, but representatives did not show.
Provincial & Municipal Government	Provide advice on community structure, needs and concerns, and leadership Member of IWRM Steering Committee	SANMA Province and Luganville Municipality both have representatives on the Steering Committee. Have advised
National Government Departments with IWRM interests	Member of IWRM Steering Committee Advise PMU and Steering Committee on issues arising within their sector Implement Project activities	Different Government Departments have been engaged in varying levels. Several have implemented their activities.
NGOs	Member of IWRM Steering Committee Advise PMU and Steering	Local NGOs have implemented activities and actively taken part in the Steering Committee.

5. Results Oriented Planning and Implementation of the GEF Pacific IWRM Demonstration Project in Vanuatu

5.1 Logframe Development

The National GEF Supported IWRM demonstration project in Vanuatu focuses on Integrated Water and Sustainable Land Management for the Sarakata Watershed on the Island of Espiritu Santo. The overall aim of the Demonstration Project is to address land-based pollution, protection of water supply, vulnerability to climate change and prevention of land degradation and establish measures to reduce modification of the ecosystems, protection of biodiversity and protect integrated coastal and watershed management, focusing on practical demonstration of best practices to address national priority of water issues and raise political will to act in the interests of IWRM. In early 2010, the original scope of work was reviewed and the PMU and relevant stakeholders worked to meet local needs, priorities and available resources.

During this time, each Implementing agency was tasked with breaking their related objectives into specific activities and Work Plans with appropriate timelines and budgets to meet their objectives and the overall goal of the Demonstration Project. Using inputs from a long time consultant of the Department of Geology, Mines and Water Resources, the Logframe was finalized in late May of 2010. The Conservation Area Tilapia Farming was offered as an alternate livelihood. Another change to the Logframe was the use of regional experts in delivering Water Demand Management training with the Department of Public Utilities and installation of Pressure Reducing Valves and Water Flow Meter in the Luganville Water Supply System. This was identified as a priority need to improve the water service delivery in Luganville. The following table summarises the priority objectives and activities of the IWRM project. The full project logframe is included with this report as Annex 4.

Project Objectives	Activity
Goal:	
Outcome 1: Sarakata Watershed Management Plan completed	1.1 Participatory ecological (biodiversity) and socio-economic surveys complete in order to understand existing situation
	1.2 Desktop Review on available data collected to date including the Sarakat Hydro water level data
	1.3 Technical data for water resource management collected and collated for planning
	1.4 Watershed landuse maps including land use patterns, water resource technical info, ecological info, & socio-economic data included as part of VANRIS
	1.5 Core values and uses identified for developing management strategies, policies and plans
	1.6 Management strategies for dealing with land use identified with communities
	1.7 Identify policies and plans
	1.8 Identify stakeholder monitoring, evaluation, reflection & learning practices
Outcome 2: Ecology & diversity from ridge to reef support & sustain wise resource use	2.1 Good subsistence and commercial farming practices established within the watershed
	2.2 Deforestation and forestation managed in a way that improves ecology & water quality
	2.3 Alternative land use practices developed and promoted
	2.4 Best collaborative & sustainable coastal management practices developed and implemented.
	2.5 Community resource management incorporating customary practices in place
	2.6 Protected areas established to support biodiversity and provide regional benefits



Outcome 3: Safe and secure water to communities delivered - Luganville, Fanafo, Palon, Russell, Donovan, & others	3.1 Luganville water supply intake reallocated with bores, pumps, storage tanks and pipes established and connected to existing water system
	3.2 Protect luganville source by excluding unwanted activity from zone
	3.3 Water Safety Plans for water supplies within watershed
	3.4 Sound ecological and healthy sanitation & waste management practices in place with regional application e.g. compost toilet
	3.5 Water supply management personnel competent in demand management replair to pipes, leaks etc
	3.6 Water quality monitoring program established and operational (combine budget lines 4.6 & 4.7)
Outcome 4: Flooding Mitigated	4.1 Preliminary flood mapping on Topo maps
	4.2 Updated telemetric flood management data
	4.3 Flood mitigation guidelines developed including best land practices, prevention, awareness raising
	4.4 Flood warning system in place including awareness and education
Outcome 6: Policies and Regulations Developed and Implemented	6.1 Water Protection Zones established and gazetted
	6.2 Watershed Management Plan polices and procedures established
	6.3 Land acquisition compensation policy & delivery
	6.4 Local resource use policies & plans developed and implemented
	6.5 Ensure enforcement of policies and procedures
Outcome 7: Community actively engaged in watershed management	7.1 Rivercare awareness program implemented
	7.2 Water safety Plan program implemented
	7.3 Sarakata communities mobilised into sustainable projects reducing environmental stress
	7.4 Waste management education & awareness program delivered
	7.5 Community training on installation of water supply projects within within watershed
	7.6 Community Water committees formed and trained
Outcome 8: Monitoring & evaluation of all projects undertaken & fed back into project	8.1 Regular monitoring & evaluation undertaken by communities & stakehoders
	8.2 Regular monitoring & evaluation undertaken by IWRM team of project progress
Outcome 9: Project Management Unit Established	9.1 Project manager and staff appointed and implementing the project
	9.2 Project office established on site to ensure coordination of all components
	9.3 Review of water committee TOR completed and in effect
	9.4 Project management and monitoring procedures developed
	9.5 Existing Sanma Water Advisory Committee strengthened and actively invovled in executing the project

5.2 Priority Areas of Work and Results

1. Strengthened Coordination for IWRM in the Sarakata Watershed
 - Fencing of the Luganville Water Supply source at the new intake site
2. Development of Sarakata Watershed IWRM Management Plan
 - Ecology and biodiversity from ridge to reef supports and sustains wise resource use
 - Manage de-forestation and promote re-forestation to protect watershed and provide future resource use
 - Promote alternative land uses to meet management strategies
 - Establishment of protected areas with community management systems
3. Delivery of Safe and secure water to consumers
 - Help with the Relocation of Luganville water intake
4. Mitigate Flooding and establishing flood monitoring systems
 - Development & Implementation of Water Safety Plans (WSP) including integrated water monitoring
 - Develop Water Demand Management programme and mechanisms for efficient water delivery
 - Implement appropriate sanitation and waste management
 - Establish ground water and surface water quality monitoring programmes
 - Preliminary flood mapping on topographical maps for planning purposes
 - Improve existing flood monitoring systems
 - Develop & implement guidelines for best land use practices and flood mitigation in flood prone areas

The following table provides a summary of key results linked to the project's goal and objectives. Progress towards the projects objectives can be found in Annex 5 and a comprehensive Results Note linked to performance indications can be found in Annex 6.

Issue	Key Results
1. Establishment of Conservation Areas	Over 1000 hectares conserved in the upper catchment Nambauk and Butmas through extensive community engagement. 62.5 hectares compensated by the Government of Vanuatu for the Protection of water source and establishing Water Protection Zones.
2. Establishment of the Sarakata Basin Integrated Flood Management Plan	Initial activities toward the Flood Management Plan saw the establishment of the Sarakata Basin Flood Hazard Map. The Flood Hazard Map will be the initial tool for the Development of the Sarakata Basin Flood Management Plan
3. Increase in Community Engagement with National Government on Water Issues	A key outcome of the community engagement is the increase of women and youths participating in the on ground activities of the project.



6. Strengthening National Coordination and IWRM Policy and Planning in Vanuatu

6.1 Linkages of Demonstration Activities with IWRM Planning

One of the guiding documents for water management in Vanuatu is the National Water Strategy 2008 – 2018. The first objective in the strategy is to develop 'A clear regulatory framework and roles between Departments established to provide for transparent and accountable regulation and management of water resources.' In the opening the strategy calls for the need for an IWRM approach in order to meet this and the other six objectives of the strategy. The strategy calls for Provinces to develop IWRM Master Plans appropriate to the local context. At the national level these will be overseen by the National Water Resource Advisory Committee (NWRAC).

The IWRM Demonstration Project in Sarakata Watershed is the first chance to put these principles into action. Through both the successes and challenges faced throughout the duration of the project DGRMWR will learn the most effective way to integrate IWRM principles at the National, Provincial, and community level.

National Water Strategy and National IWRM Plan

One of the outcomes of the IWRM Demonstration Project is to develop a National IWRM Plan. In the final year of the project consultations will be held with National Government Departments and NGOs in order to examine the results of the project and develop the National IWRM Plan which will provide the framework to clear different Department's roles in water management and provide guidelines for cooperation in management.

National Water Resource Advisory Committee

The National Water Resource Advisory Committee (NWRAC) which is Vanuatu's version of National Water Apex Body (NWAB). The NWRAC was established by Article 15 of the Water Resource Management Act. It consists of members from different Ministries, Departments, NGOs, and

community representatives all stakeholders in water management.

In the Act the NWRAC is mandated to:

1. Provide advice to the Director on matters relevant to the protection, management and use of water;
2. Oversee the proper planning and development of urban and rural water supplies;
3. Operate in such a way as to ensure co-ordination of water resource management activities;
4. To do such other tasks as are agreed with the Director.

The already established NWRAC provides the ideal body to oversee the implementation of the National IWRM Plan once it is created. The terms of reference and composition of committee can also be reviewed during the process of creating the National IWRM Plan to give it the mandate to ensure full implementation of the plan.

National Integrated Coastal Management (NICM) Framework and Implementation Strategy

Through a past project Vanuatu has adopted a National Integrated Coastal Management Framework which provides the framework for inter-agency cooperation towards ecosystem management. While this plan uses the coastal zone as the focal point, all the same principles apply and the same stakeholders are involved. The NICM Framework was developed in 2010 and Department of Environment selected as the lead agency. While this framework has been in place for 3 years, it has yet to be utilized. The IWRM Project will use this as the basis for its National IWRM Plan to review it, address any gaps, and turn it into a working document.



7. Capturing Lessons Learned for Replication and Scaling-up of IWRM Best Practice in Vanuatu

7.1 Lessons Learned

1. Involvement of higher level government officials involved in development of initial work plan.

Initially work plans were developed with stakeholders located within the watershed. Directors and other supervisors in the capital were not consulted. This resulted in activities not being worked into stakeholders work plans causing conflicts and delays in implementation. It is believed if higher level officials were involved in the initial planning phase there could be more support for implementation of activities. In the second half of the project, PMU will sign MOUs with stakeholders to try to get support at higher levels.

2. Use of existing Advisory Committee as Steering Committee effective.

PMU instead of establishing a new steering committee decided to use the existing SANMA Water Advisory Committee. This was mutually beneficial. For the project, using an existing committee allowed for the project to begin activities for quickly. For the committee, being involved in the project gives them a clear TOR and builds capacity for future activities.

3. Identifying and Addressing Community's needs.

PMU instead of establishing a new steering committee decided to use the existing SANMA Water Advisory Committee. This was mutually

beneficial. For the project, using an existing committee allowed for the project to begin activities for quickly. For the committee, being involved in the project gives them a clear TOR and builds capacity for future activities.

4. Identifying and Addressing Community's needs.

During the first planning workshop with Government, Provincial, NGO, and community representatives, communities were asked which community would be interested in starting a conservation area within on their land. Butmas community said that they would be interested, but that their community had never received any assistance from the government, and that would be a priority. The project determined that although it had not been budgeted for, the priority was to address the community's interest. PMU diverted funds and installed a rainwater system and compost toilet. The community saw their needs were addressed and then agreed to even a larger conservation area than the one that was initially planned. Through this experience PMU learnt that in order to gain community support the project must be responsive to community needs.

7.2 Replication and Scaling Up

Planning for future replication and scaling up of the activities will be the focus of the 5th year of the project. Replication and scaling-up will be based on what has been learnt throughout the demonstration project and use the framework laid out in the National IWRM Plan to implement this. The Replication and Scaling Up Template can be found in Annex 5.





8. Planning the Transition from IWRM to the Regional Ridge to Reef Initiative

Annex 1: List of Committee Members and Photograph

Annex 2: Committee Terms of Reference

Annex 3: Stakeholder Analysis and Engagement Action Plan

Annex 4: Project Logframe

Annex 5: National IWRM Results Note

Annex 6: Awareness Materials Developed and Media Coverage

Annex 7: Participatory Monitoring and Evaluation Plan

Annex 8: Replication and Scaling-up Plan

Annex 9: IW R2R logframe

