



**SUSTAINABLE INTEGRATED WATER RESOURCES AND WASTEWATER MANAGEMENT  
PROJECT IN PACIFIC ISLAND COUNTRIES**

**DEMONSTRATION PROJECT PROPOSAL FOR SOLOMON ISLANDS**



**MANAGING HONIARA CITY WATER SUPPLY AND REDUCING POLLUTION THROUGH IWRM  
APPROACHES**

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## **A. Country**

Solomon Islands

## **B. Title**

The title of the proposed IWRM demonstration project in Solomon Islands is “Managing Honiara City Water Supply and Reducing Pollution through IWRM Approaches”. The purpose of the project is to demonstrate management strategies and protection measures for critical watersheds, aquifers and well-fields within Honiara city through proper assessment of potential water resources to determine the extent and location of aquifers, the extent of threats of pollution and the potential resources available for extraction without over-exploitation of the resources.

## **C. Executing Body**

The project shall be coordinated by the National Executing Agency, the Ministry of Mines, Energy and Rural Electrification (MME&RE) through a Water Resources Steering Committee which comprises stakeholders in the water sector.

The day to day administration of the project will be the responsibility of a Project Management Unit which will be established within the MME&RE. There will be two positions to administer the Project Office; a Project Manager and Project Assistant.

## **D. Cost of Project**

GEF Funding: \$515,000.00 Co-Funding: \$1,943,797.00. The total cost of the project is approximately \$5,216,751.50. Detail project costing is presented in Annex A.

## **E. Linkage to GEF and National Priorities**

This project meets the priorities of the Strategic Action Program for the Pacific International Waters, the MDGs, the priorities of the Pacific Regional Action Plan on Sustainable Water Management and the Solomon Islands National Environmental Management Strategies. It is also consistent with the Government’s policy on improved urban water supply and wastewater services and provision of safe and reliable water supply to urban and rural population in Solomon Islands.

### **i) GEF criteria**

a) Within the GEF Operational Strategy for International Waters this project tackles water and environmental problems using an IWRM approach across GEF Strategic Programme III: Balancing overuse and conflicting uses of water resources in transboundary surface and groundwater basins (*with a specific focus on SIDS to protect community surface and groundwater supplies while reducing sewage releases*).

The geographical nature of small island developing states (SIDS) allows IWRM approaches to rapidly demonstrate the multiple benefits of tackling water resource management in an institutionally horizontal manner, whilst applying a ridge to reef approach, tackling technical and socio-economic issues with communities and civil society at large to demonstrate equity, efficiency and environmental sustainability.

The project will also tackle, through IWRM approaches, many of the issues under GEF Strategic Programmes I and II through identifying and understanding multiple stresses on

fragile coastal environments and linking these to freshwater and land management, especially upstream practices.

b) The Strategic Action Program for the Pacific International Waters prioritised the regions concerns as:

- ⇒ pollution of marine and freshwater from land-based activities;
- ⇒ physical, ecological and hydrological modification of critical habitats; and
- ⇒ unsustainable exploitation of living and non-living resources

The promotion of integrated use of surface water and groundwater by exploitation of the different resources at different times of the year as conjunctive use scheme could be an adaptive measure to addressing the impacts of climate variability/change in the Solomon Islands. The protection of water supplies may be achieved through:

- ⇒ Development and implementation of improved and coordinated water resource management and conservation practices;
- ⇒ Improved policies and regulations addressing water supply and demand;
- ⇒ Conjunctive use of surface and groundwater as adaptive measure to addressing the impacts of climate variability/change;
- ⇒ Management of land degradation and pollution threats to both fresh and marine waters;
- ⇒ Institutional and capacity building;
- ⇒ Information capture to drive and support water management policy development and
- ⇒ Environmental monitoring programs relating to water resource and wastewater management and coastal welfare.

## **ii) Linkage to National Priorities and Programs**

The National Environment Management Strategy (NEMS) was developed for Solomon Islands in 1991 with full support from the Government. The NEMS is the basis for environmental priorities in Solomon Islands. It has strategies designed to provide a long-term perspective that could be used to promote sustainable development without the expense of the natural environment. Some of the strategies include:

- i) Integrating environmental considerations in economic development;
- ii) Improving waste management and controlling pollution;
- iii) Ensuring that exploitation of non-living resources is environmentally safe;
- iv) Land resource (including water) management;
- v) Strengthening resource database, and
- vi) Improving environmental awareness and education

This project proposal is also compatible with the following International and Regional Multilateral Agreements to which the Solomon Islands is a signatory:

- i) Convention on Climate Change (1992);
- ii) Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1972) [London Dumping Convention];
- iii) Conventional on Biological Diversity;
- iv) Convention for the Protection of Natural Resources and Environment of the South Pacific Region (1986) and related Protocols [SPREP Convention], and
- v) The United Nations Convention to Combat Desertification (UNCCD)
- vi) Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP)

**F. Endorsement Authority**

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Date

**Mr. Tione Bugotu**

Permanent Secretary

Ministry of Mines, Energy and Rural  
Electrification (Ministry responsible for water  
resources management)

.....

.....

Date

**Mr. Rence Sore**

Permanent Secretary

Ministry of Environment, Conservation and  
Meteorology  
(Ministry responsible for GEF – Operational  
Focal Point in Solomon Islands)

## G. Project Background, Objectives, Activities and Outputs

### i) Project Context and Background

Sustainable water supply is very important for social and economic developments in the Solomon Islands. With rapidly increasing urban population, industrial developments and other land use changes within the adjacent watersheds, Honiara water resource is facing threats for both quality and quantity. The limited knowledge on the potential water resources available for Honiara water supply, especially groundwater, could lead to severe over exploitation (depletion) of the resource which could lead to other problems such as salt-water intrusion and pollution.

Honiara is the capital city of the Solomon Islands therefore sustainable and reliable water supply is vital for the city. Honiara city is the gateway to the Solomon Islands thereby signifies its importance to the region and the global communities. Honiara city is also important in relation to national developments of the country.

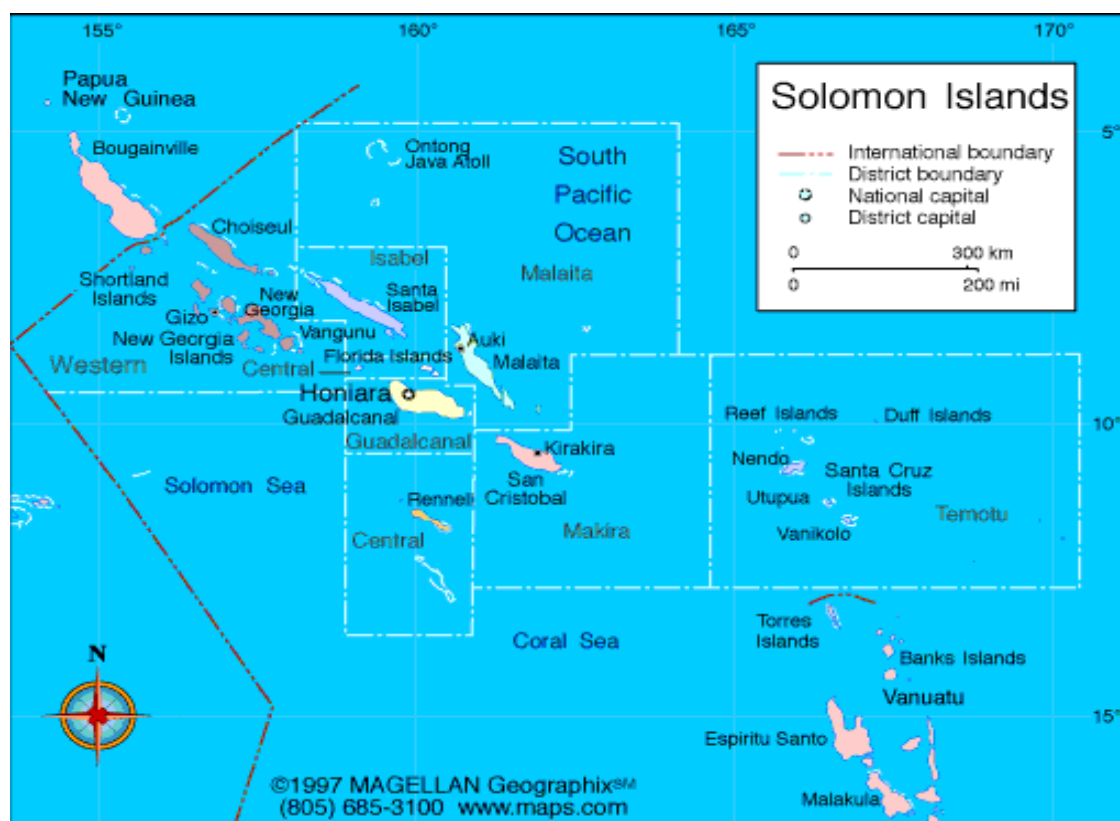
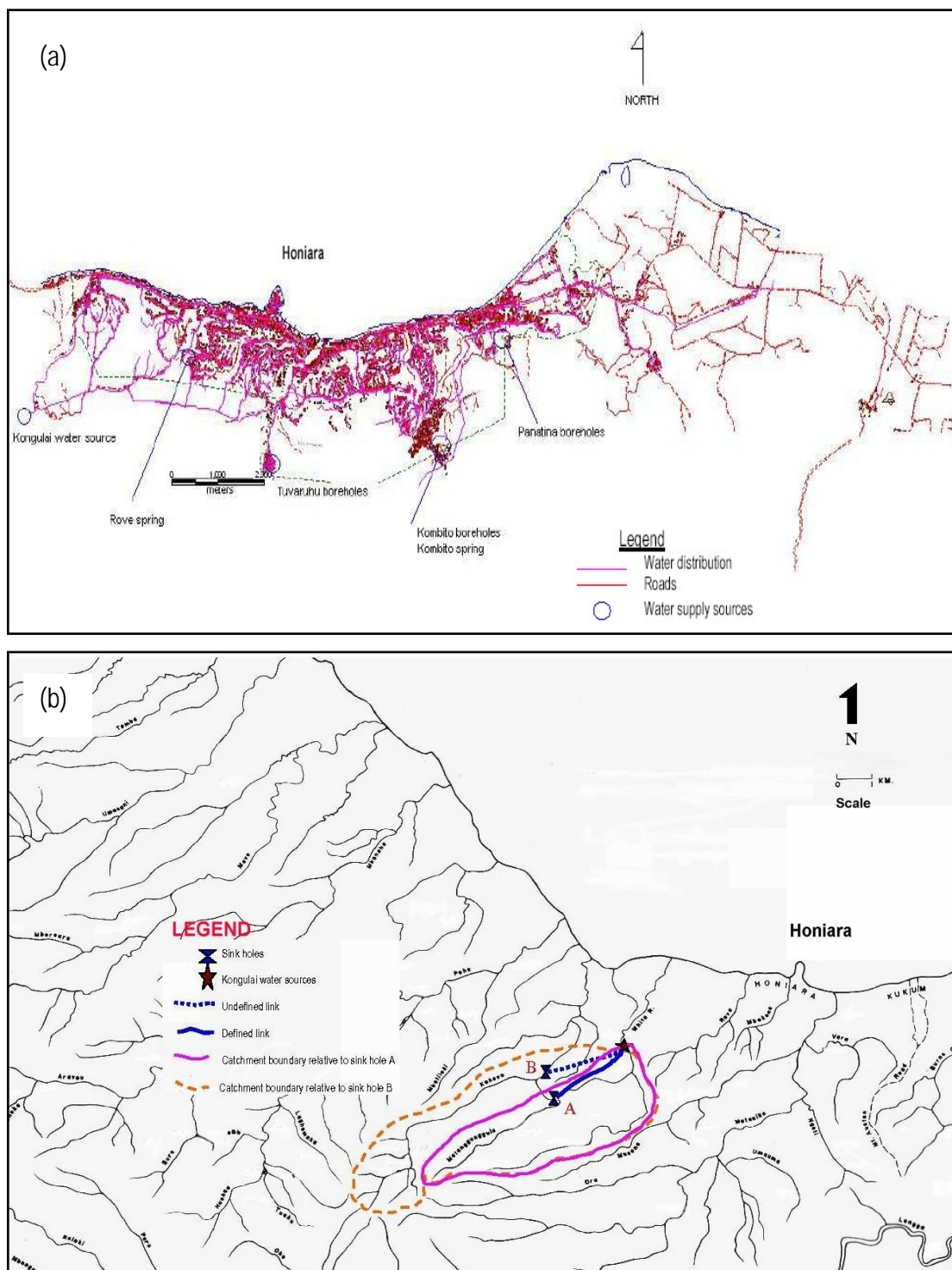


Figure 1 – Map of Solomon Islands





Most developments in Solomon Islands are occurring in Honiara city. Honiara water supply comes from combination of surface water and groundwater. According to the latest study of Honiara water supply (JICA, 2006) the total water production for Honiara city is approximately 25,000m<sup>3</sup> per day with population approximately 60,000. The daily water demand is approximately 60% of the total daily water production. The remaining 40% accounts for water lose through leakage and other means. Groundwater is extracted within Honiara city boundary while surface water sources are located outside the city boundary. Whilst surface water is threaten by human activities within the watersheds outside Honiara, groundwater aquifer underneath Honiara is threaten by potential pollution from sewage and chemical from Honiara city itself. It is also under threat from over-extraction and potential salt-water intrusion.

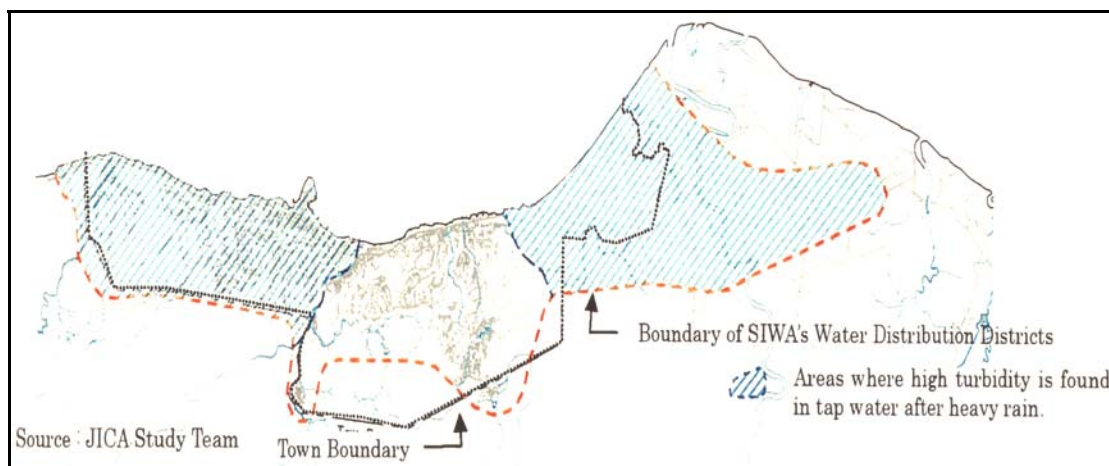


Figure 3(a) - Current water supply services situation in Honiara city (JICA, 2006)

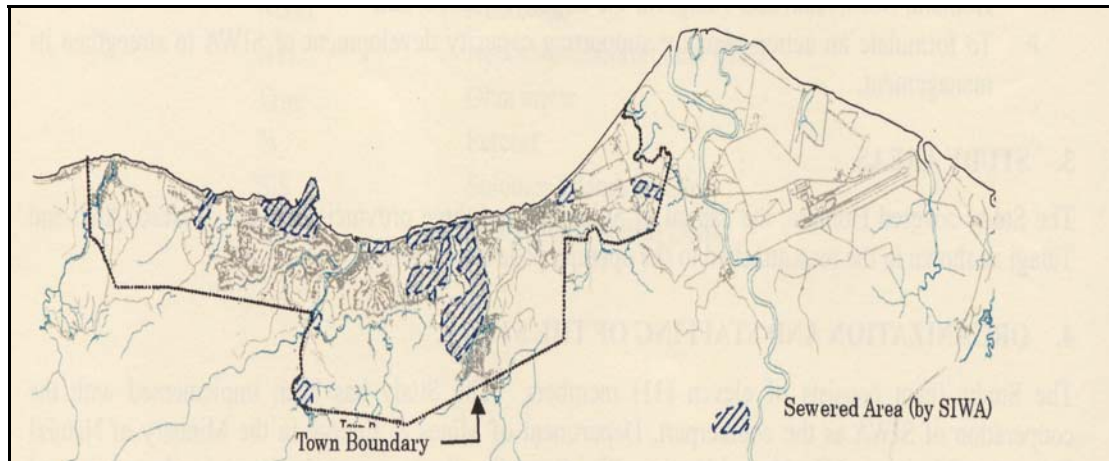


Figure 3(b) Current sewerage services situation in Honiara city (JICA, 2006)

From 1986-1999, the population increased rapidly at an average annual growth rate (AAGR) of 2.8%. The urban population grew more rapidly with an AAGR of 3.8%. The Ministry of National Planning and Aid Coordination (MNP&AC), assuming that these AAGRs will continue, estimates a national population of 716,000 by 2019 with Honiara reaching 105,000, more than double the 1999 population. These estimates are highly uncertain, as the country has only recently emerged from a period of considerable unrest, during which much of the large migrant population on Guadalcanal returned temporarily to their home islands. The Pacific Islands Forum Secretariat (PIFS), based on SPC reports of 2004, estimates a 2015 population of 589,700, suggesting a lower AAGR than the MNP&AC estimate. In part, this probably reflects poor national statistics and the loss of much statistical information during the civil unrest during the period 1998-2003.



Currently raw sewage outfalls are located along the coastal front of Honiara city threatening the coastal waters ecosystems and public health of the city residents as the surrounding coastal waters are also used as fishing ground, especially the highly vulnerable low income earners settle in squatter areas within Honiara city boundary. There is evident of uncontrolled and unmanaged waste disposal system in the city resulting in residents dumping their waste into the drains and streams flowing through Honiara city. Major type of toilet in Honiara is flush type, accounting for 70 percent. Direct contamination of water sources includes people's wrong use of streams, rivers, bush and beaches for recreation spots or as toilets.

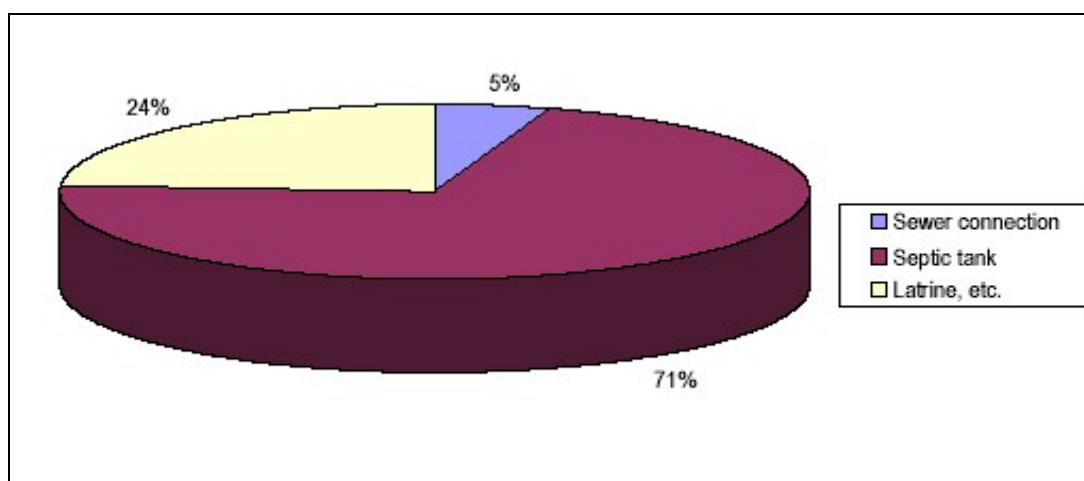


Figure 4 – Types of sewerage discharge systems in Honiara city (JICA, 2006)

General sanitation in the use of water seal latrines and flush toilets became major problems during water shortage periods and low water supply from the water authority, especially in densely populated areas of Honiara city. Statistics from Honiara city Health Centers revealed that there have been cases of diaphorreal and skin diseases within such communities in the Honiara city. Such events often correlated to availability of water supply.

Figure 5 provides summary of communicable disease infections in one of the most vulnerable areas in the Honiara city. Although the trend indicates a steady rise during the reporting period they are mild and sporadic in occurrences. There has not being a heavy persistent outbreak occurred but mostly on and off basis only. The correlation to disrupted water supply service due to demand and availability problems have been noted as one of the major contributing factor to such diseases.

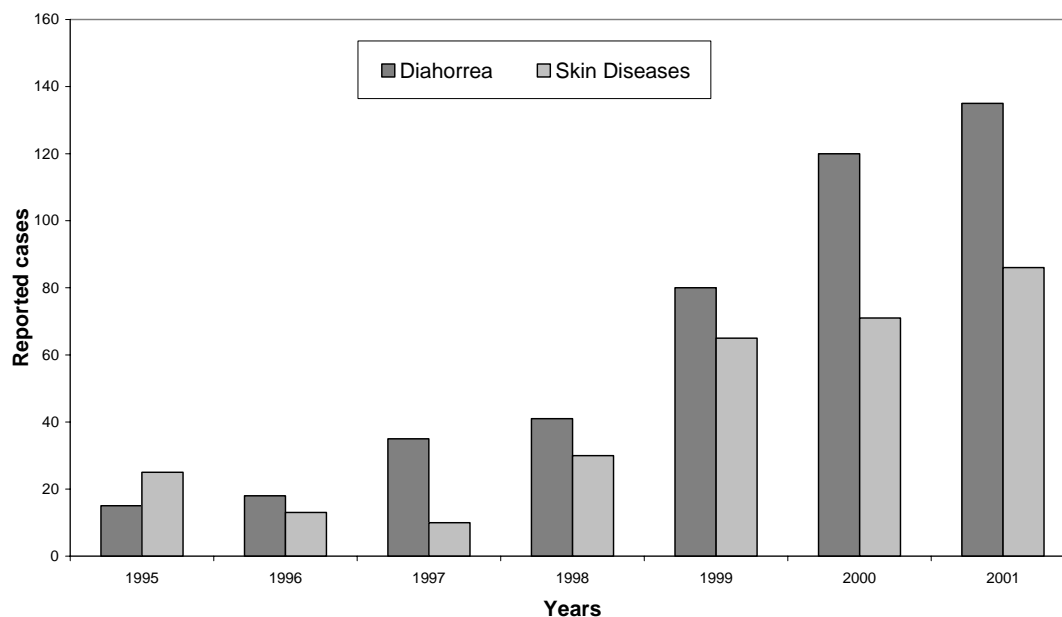


Figure 5 - Reported skin diseases and diahorrea cases for Kombito Residential Area of Honiara City (Honiara City Council office)

The project will involve customary resource owners and non-governmental organizations (NGOs) and the private sectors in the overall implementation of the project objectives to ensure the expected deliverables are achieved. This is important to promote and encourage integrated management of land-based activities and water resources, especially in the upper watersheds of Honiara city water resources. The integrated management of watersheds and land use is very important to Honiara water resources protection and management. This arrangement can certainly promote the proper management and protection of water resources for Honiara city water supplies which will also benefit the quality of surrounding ecosystems.

Until now there is no effective policy on water use efficiency and proper management of water resources within Honiara city. With rapidly expanding population and increasing social and economic developments in the country it is critical to plan water resource management well in advance, and to develop sustainable water resource extraction policies in parallel with protection of the resource and reduction of wastage and leakage. Similarly, activities from within the Honiara city and surrounding watershed will end-up in the surrounding marine and coastal environment. The current raw sewage discharge into the coastal areas warrants integrated management of Honiara city solid waste and sewerage disposal and uncontrolled land uses within the watershed outside Honiara city.

(a)



(b)



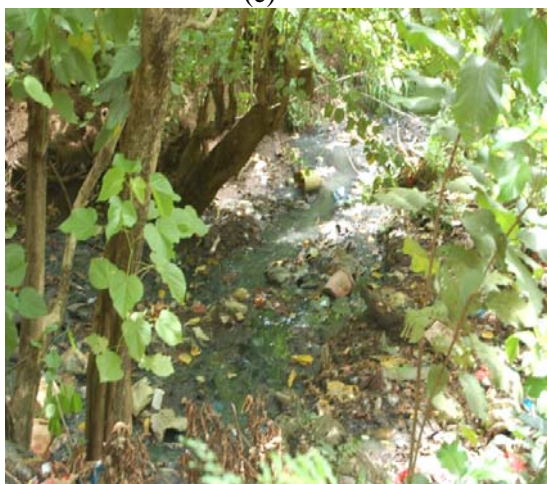
(c)



(d)



(e)



(f)





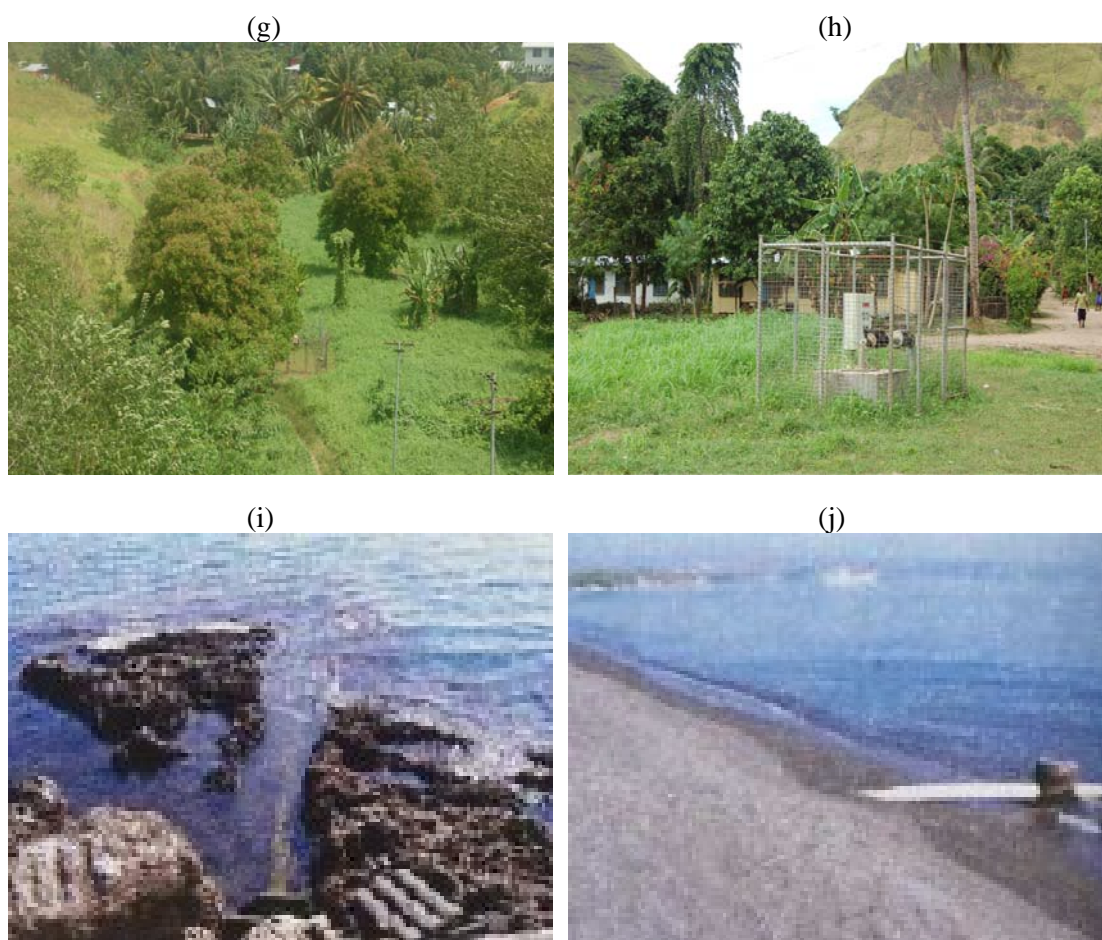


Figure 6 – Current key environmental threats within Honiara city (a-b) Activities within adjacent catchments of Honiara City; (c-d) Improper waste disposal within Honiara City; (e-f) Sewage leakages into streams within Honiara City; (g-h) Boreholes within residential areas within Honiara City; (i-j) Sewer outfalls on coastal front [Photo by MME&RE]

Key environmental issues in managing Honiara city water supply and reducing pollution through IWRM Approaches include the following:

- i) Threats from agricultural and industrial pollution;
- ii) Threats from domestic (solid and wastewater) pollution;
- iii) Improper land use changes and inappropriate development planning threatening the quality of the aquifer/well field and water supply;
- iv) Inadequate management and control of water abstraction to ensure sustainability;
- v) Inadequate management and protection of the surrounding coastal water and its supportive ecosystem functions, and
- vi) Lack of control over leakage and wastage, or inappropriate use of water resources

## ii) Objectives

The overall objectives of the project is to have best management strategies and protection measures for Honiara city water resources to ensure there is sustainable water supply and wastewater services in the Honiara City. The lessons learnt would be transferable to other urban centers in the country.

The purpose of the project is to demonstrate management strategies and protection measures for critical watersheds, aquifers and well-fields within Honiara city through proper assessment of potential water resources to determine the extent and location of aquifers, the extent of

threats of pollution and the potential resources available for extraction without over-exploitation of the resources.

Human activities slowly impact the quantity and quality of water resources within Honiara city but this should not prevent the need to implement plans to ensure the proper management and protection of the vital resources for Honiara city water supply. Integrated water resources management plays an important role in ensuring the maintenance and protection of water resources for the benefit of human consumption and supporting the function of the surrounding freshwater and marine ecosystems or the natural environment.

Based on the above objectives and scenario, the project proposes to demonstrate long-term strategies required for the proper management and protection of Honiara city water supply through the implementation of the following project components and activities as IWRM approaches represented by the chart below.

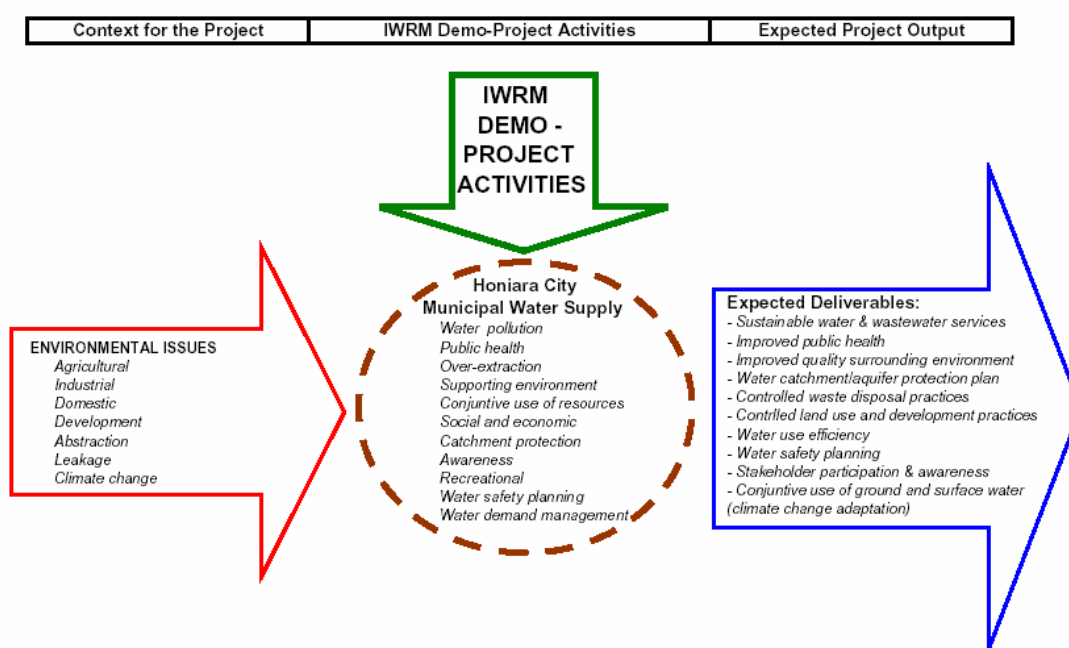


Figure 7 - Project context and activities representation

Figure 7 above illustrates the overall project scenario and provides, in diagrammatic form, the necessary project planning, implementation and monitoring for the demonstration project for Solomon Islands. It illustrates IWRM approaches to managing Honiara city water supply and reducing pollution of Honiara city water resources

Table 1 presents summary details for project components in relation to activities that will be implemented as part of the project work plan, outputs and indicators to monitor project implementation and the success of the IWRM demonstration project for Solomon Islands.

Table 1 – Summary of project strategies and activities for the implementation of the demonstration project and expected indicators

Project Components	Activities		“Outputs”/Impacts	Baseline Indicators	Target Indicators	Benefits	
						National	Global
Water Safety Planning and Demand Management	1	Assessment to quantify sustainable water abstraction for Honiara water supply	Water managers have clear understanding of current resources’ quality and quantity (including accumulation rates relating to water cycle)	General agreement by all that there is enough/abundant water resource available for Honiara	Long-term sustainability of water supply services for Honiara City OR Agreement amongst water managers on interpretation of data and their analysis OR Panatina bore field and Rove spring water supply sources assessment complete in 3 <sup>rd</sup> year	X	X



Project Components	Activities		“Outputs”/Impacts	Baseline Indicators	Target Indicators	Benefits	
						National	Global
	2	Survey of the ecosystem functions and natural resources of the surrounding environment including intended Honiara Protected Zone for aquifer/well field protection and that this should also include an assessment of liquid and solid waste pollution going into the marine environment;	Water managers (and public) aware of existing (and potential) ecosystem functions and existing or potential threats to the Honiara supply area	Identification of pollution points to Honiara water supply sources and surrounding environment within Honiara City, especially Panatina bore field and Rove spring sources	Identification and mapping of pollution threats to Honiara city water resources complete in 3 <sup>rd</sup> or 4 <sup>th</sup> year OR Exact source of contamination identified for Panatina bore field and Rove spring water sources in 3 <sup>rd</sup> year	X	X
	3	Review of land based activities (land use, industrial and residential waste) likely to impact water quality and supportive ecosystems within Honiara city;	Comprehensive understanding of size, location and significance of various land based activities impacting on quality and quantity of Honiara’s water.	All land use types within Honiara assessed and effects to water supply known	All land based activities review complete in 2 <sup>nd</sup> year OR Recommendations for improved water resources management and protection complete in 3 <sup>rd</sup> year OR Possible policy and legislation on control of activities within Honiara catchments complete in 4 <sup>th</sup> year	X	

Project Components	Activities		“Outputs”/Impacts	Baseline Indicators	Target Indicators	Benefits	
						National	Global
	4	Recommend Water Safety Planning for urban and rural water supply services	Water managers and the public are alert to identified potential risks and prepared with ameliorative measures	Develop WSP for Honiara and rural water supply	Planning to adopt a water safety plan for Honiara in 2 <sup>nd</sup> year OR Water Safety Plan in place for Honiara and being implemented in 3 <sup>rd</sup> year OR 10-20% improvement on Coliform for Panatina water supply in 4 <sup>th</sup> year	X	X
	5	Survey to identify wastage and leakages in selected Honiara city water supply zones as wastage and leakages can be classed as a water demand management approach, and	Water managers knowledgeable of high priority wastage and leakage areas	Limited knowledge of leakage points	High and medium wastage zones identified (quantified and explained) in 2 <sup>nd</sup> year	X	X
	6	Recommend options for recovery and reduction in losses in the system	Effective strategies to reduce wastage and leakage can be developed	Limited strategies currently undertaken	Recommendations for water use efficiency agreed in 3 <sup>rd</sup> year OR Strategies developed through legislative review in 3 <sup>rd</sup> year	X	X

Project Components	Activities		“Outputs”/Impacts	Baseline Indicators	Target Indicators	Benefits	
						National	Global
Management Strategies, Policy and Legislative review	7	Adoption of a Water Use Efficiency Plan for Honiara city to promote water conservation	Water managers and public/ community aware of opportunities and responsibilities to conserve water	WUE plan limited practised for Honiara	Policy for WUE developed and agreed (by SIWA and Honiara City Council) and publicised in 3 <sup>rd</sup> year OR 10-15% improved on WUE in 4 <sup>th</sup> year	X	X
	8	Adoption of a Water Safety Plan to promote the protection of urban and rural water supply services	Water managers and public/ community aware of opportunities and responsibilities to protect water supply sources OR Safe drinking water for consumers	WSP limited practised in the country	Water Safety Policy for Honiara and rural areas developed, agreed and publicised. OR 10% improvement of water supply for consumers in 5 <sup>th</sup> year	X	X
	9	Designation of a conservation area for selected Honiara city aquifers/well fields	Improved understanding of areas where land use activities have the potential to compromise water quality and quantity	Pollution threats to bore field perceived by public	Protected Zone designated in 4 <sup>th</sup> year for 2 Honiara City water supply sources OR Panatina bore filed and Rove spring sources protected	X	X

Project Components	Activities		“Outputs”/Impacts	Baseline Indicators	Target Indicators	Benefits	
						National	Global
	10	Develop and adopt a watershed/aquifer protection Management Plan, and	Water managers and public empowered to safeguard water resources through appropriate land management	Limited action for catchment protection due to various reasons	Policy formulated; legislation reviewed and amended where appropriate OR Kongulai catchment protected in 4 <sup>th</sup> year	X	X
	11	Adopt monitoring and compliance mechanisms based on amended policy and legislations	Information and management systems informing water (and land) management to secure water resources.	Limited information available to fully understand current problem associated with land, water and the supporting environment	Long-term compliance monitoring functioning OR Responsible authorities or institution set-up to provide monitoring services	X	
Stakeholder participation, awareness and capacity building	12	Building awareness for integrated Honiara water resources management and protection;	Public conscious of (and taking steps to secure) quality and quantity of water resources.	Lack of public conscious of the importance of Honiara water resources management and protection	On-going awareness OR Improvements in public's use and management of water	X	X
	13	Training and education for effective IWRM, and	Students informed in water cycle, Provincial and local water issues	Lack of knowledge of IWRM principles in the country	IWRM incorporated into curricula in 4 <sup>th</sup> year	X	X

Project Components	Activities		“Outputs”/Impacts	Baseline Indicators	Target Indicators	Benefits	
						National	Global
	14	Develop and implement clear communications strategies for the projects general campaigns	Public/community sensitive to water cycle and water management issues influenced by their behaviour	Fragmented institutional arrangement and responsibilities underpin water sector problems	Dissemination of project findings in 5 <sup>th</sup> year	X	X

### iii) Activities

The project will involve many activities as part of the field surveys to ascertain the key environmental issues for Honiara city water supply management and protection. The hydrogeological survey component of the project aims to assess groundwater resources and to identify potential threats of pollution to the groundwater resource underneath Honiara city. The main activities to undertake as part of the hydrogeological survey activities include:

- i) Hydro-chemical tests would involve the testing of water and soil samples from within the selected study area;
- ii) Test drillings would involve water quality analysis of test boreholes at regular intervals to assess impacts of pollution from potential contaminants and,
- iii) Groundwater modelling to assess current and future threats so that management strategies are taken before serious and potentially irreversible impact could take effect.

In addition to the hydrogeological survey the project will involve implementation of Water Safety Planning and Water Demand Management for Honiara city water supply. This component aims to review Honiara city water supply and prepare a Water Safety and Water Use Efficiency Plan for Honiara city. The Water Safety Plan for Honiara will be further reviewed and developed for the whole of Solomon Islands.

Through the above the project will identify areas of excessive use, areas of wastage, and areas where there is natural leakage in the distribution system. With appropriate management plans will be developed to reduce such water wastage. There will also be incentives for adopting these improved practices through policy reforms and legislative amendments. In order to ensure the sustainability of these practices there will be compliance monitoring mechanism in place for implementation of the management plan.

Financial benefits to encourage better management of Honiara city water supply will be developed through cost recovery benefits, tariffs and incentive/disincentive. This will be integrated into the management plan for the conservation of Honiara city water resources. There will be policy reforms and legislative amendments to cater for the implementation of the management plans formulated to address the management and protection of Honiara city water resources and the supportive ecosystems.

One of the primary success indicators of the project would be a realistic sustainability and replicability plan which would not only demonstrate the project's success but continue to implement project objectives with full political support to ensure there is appropriate mechanism to replicate any successful lessons and practices within other parts of the country or the region as the basis for the Regional IWRM Project.

The work plan and detailed project planning and scheduling is presented in Annex B. The proposed work plan depends entirely on the implementation of project activities and reflects the overall budgetary requirement for the project as well. The project work plan will be implemented according to the project components as described earlier above. The reporting and monitoring for the project will be based on the work plan as well.



#### **iv) End of Project Landscape**

The improvement in water use and waste disposal practices within the Honiara city should translate benefits to the surrounding and supportive ecosystems such as the freshwater aquatic habitat and the receiving marine and coastal environment. Above all the benefits of improved water use and management should indicate the success and sustainability of the project objectives and outputs. Some tangible benefits to the people of Honiara and the customary resource owners would be:

- i) The improvement on the quality of marine and coastal waters and surrounding ecosystems for recreational and fishing ground by Honiara residents;
- ii) The sustainability of water and wastewater services for Honiara residents and the business communities, in particular improving social and economic developments in Honiara and for the country at large;
- iii) The improvement and protection of the surrounding environment through proper management and disposal of waste in Honiara contributes to the protection of groundwater aquifer for Honiara city water supply which should translate into improved public health and reducing water-related diseases within Honiara residents;
- iv) The sustainable development of water resources provides sustainable source of income to the customary resource owners, and
- v) The conjunctive use of groundwater and surface water as sources for Honiara water supply provides adaptive measures on the impacts of climate variability/change on water resources for Honiara city water supply with study recommendations transferable to other parts of the country as well

The project should enable good understanding of potential problems to Honiara city water resources. The outcome of the project will see proper management plan and protection of the resource for Honiara city water supply. The Honiara city water supply should be properly managed to ensure its water abstraction is carefully controlled to ensure groundwater and well-fields are actively protected against contamination. The control and management of water resources within Honiara city should ensure there is improved water demand management and water use efficiency for sustainable and reliable water supply and distribution for Honiara city.

With proper guidelines and effective management plan and implementation of project objectives and outcomes there should be practical outputs which will be used as indicators for the success of the project. These primary indicators will be used in the project monitoring and evaluation process as well.

In particular, the following indicators are apparent as the outcome of the project which will be used for the monitoring and evaluation process for the project:

- a) Mitigation of pollution threats to aquifers and well-fields;
- b) Sewage and wastewater handling practices will have improved resulting in a reduced threat to the aquifer pollution;
- c) Formulation of Water Safety Plan for Honiara city;
- d) Adoption of a long-term monitoring program for water quality;
- e) Verification of sustainable abstraction rate for Honiara city water supply;
- f) Formation and adoption of Water Use Efficiency Plan for Honiara city water supply;
- g) Re-activation of National Water Resources Advisory Committee (overall for Solomon Islands);
- h) Formation of Honiara City Water Resources Steering Committee (only for Honiara)
- i) Implementation of an NGO-driven public awareness program at the community (resource owners) and national;
- j) Training and education for effective IWRM;

- k) Building awareness for integrated management and protection of Honiara city water resources and the supporting ecosystems;
- l) Maintenance of aquatic ecosystems within Honiara city and the surrounding coastal and marine environment;
- m) Policy reform and legislative amendment will reflect support for changes in land-use practice, reduced pollution, sustainable and protective management of the aquifer and well-fields,
- n) Designation of a Protection Zone for Honiara aquifer/well fields;
- o) Development and implementation of a watershed/aquifer protection zone Management plan;
- p) Adoption of monitoring and compliance based on amended policy, revised legislation and incentive/disincentive scheme;

The environmental benefits from implementation of this project would certainly replicable within the country and the region. The adoption of management strategies for sustainable management and protection of aquifer/watersheds should result in marked improvements in the quality of the coastal and watershed environment, supported by communities and stakeholders who recognise improvements within their own quality of life as a result of these initiatives. It is intended that lessons and best practices from this demonstration project as a whole would be transferred globally to other SIDS (and non-SIDS) situations as relevant.

#### **H. Project Management Structure and Accountability**

A Project Management Unit (PMU) will be set up under the Ministry of Mines, Energy and Rural Electrification (Fig. 8). The PMU will consist of a Project Manager and Project Assistant. The PMU will be guided by a Steering Committee responsible for Honiara city water and water-related issues only. This Committee will include representatives from relevant government departments and stakeholders. It will also include representation from the customary resource owners, from at least one relevant NGO, and from the private sector.

The Steering Committee will be chaired by the Permanent Secretary for the Ministry of Mines, Energy and Rural Electrification. The Steering Committee will report to the Minister responsible for water resources management in Solomon Islands. The Steering Committee will evolve out of the existing National Water Resources Advisory Board. The Steering Committee will seek advice and guidance from technical experts and stakeholders to review, monitor and evaluate project strategies as they are being developed and implemented.

The Steering Committee may also choose to create technical sub-committees to advice on specific issues. Such technical bodies may be given a permanent status for the life of the demonstration project, where appropriate, and at the discretion of the Steering Committee. The Steering Committee will report from time to time to the National Executing Agency on the status of the demonstration project.

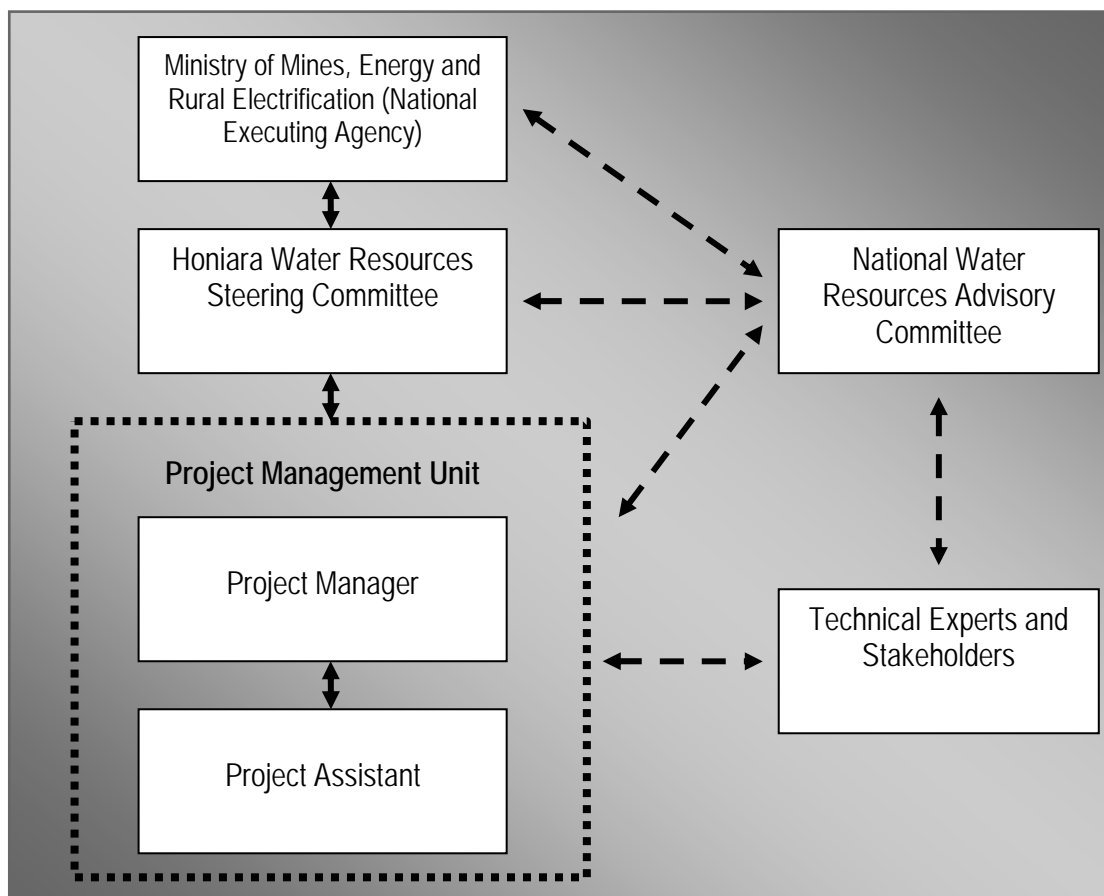


Figure 8 - Project implementation and management structure

## I. Stakeholders and Beneficiaries

The project will promote the involvement of land owners or community, the NGOs and the private sectors in the implementation of the project. This is to ensure that stakeholder participation is effectively promoted. This will ensure those impacted directly by the project and other stakeholders benefited from the project output.

The integrated coastal and watershed management, especially the control of activities in the upper watersheds of Honiara city water resources is vital in preventing pollution of the coastal environment from uncontrolled land-based activities, including uncontrolled disposal of solid waste and sewerage from residential areas. It is also very important to the Honiara city social and economic activities as the supporting ecosystem is vital to the general health of surrounding coastal waters where recreational activities are taking place.

NGOs have on-going support in developing and implementing public awareness programs for environmental protections and management in the country. This was done by theatre groups and radio programs throughout the country. These public awareness programs links and provide information to those in the rural areas especially.

The project will be implemented in an integrated and multi-sectoral approach through stakeholder participation. There will be government departments and institutions that will be involved in the implementation of the objectives and deliverables of the project. The institutions include:

- The Ministry responsible for Public health;
- The Ministry responsible for Environment and conservation;

- c) Honiara City Council;
- d) The Solomon Islands Water Authority;
- e) The Ministry of Commerce, Employment and Trade;
- f) The Ministry responsible for Tourism
- g) The Town and Country Planning Board;
- h) The Ministry responsible for Water Resources Management;
- i) The Ministry responsible for Agriculture and land use;
- j) The Ministry responsible for forest resources, and
- k) The Private sectors or developers

As part of the current government's policy on "bottom-up approach" to development, it is vital to involve community and resource owners in the implementation of the project objectives and deliverables. This is to ensure they are benefited from the project and similarly the project outputs touch the lives of the resource owners. This is also another benefit of the IWRM project which aims to remove barriers through implementation of IWRM projects.

Accordingly it will be additional benefit to involve NGOs in order to capture IWRM knowledge and expertise through implementation of the IWRM project. It will also provide opportunity to explore new and innovative ideas and options in integrated management through stakeholder participation approach and process. The NGOs and community groups that will be directly involved in the IWRM project include:

- i) Solomon Islands Development Trust;
- ii) Live and Learn;
- iii) Schools;
- iv) Youths and
- v) Customary land owners

## **J. Long-term Sustainability Strategy**

The sustainability of the project depends very much on stakeholder participation in the implementation of the project objectives and the expected deliverables. The on-going support in the long-term planning and management of Honiara city water resources is vital as it brings together institutions and organisations that have direct link to the project. The integrated management and planning on the exploitation of water resource for Honiara city water supply should ensure there is coordinated approach for the sustainability of the project output.

Certainly the project will ensure there are improvement in the quality of Honiara water supply and the supporting environment in response to implementation of activities under the demonstration project. The sustainability of these environmental changes provides a measure on the success of the project but on-going management and monitoring of these indicators is going to form the post-project management.

The long-term sustainability of project indicators will be the focus of the capacity building and stakeholder partnership component of the project. It is very important to integrate post-project management and compliance monitoring as part of sustainability of the project itself. There are institutions and authorities in place that could implement post-project management. The government, being responsible for water resources management and environmental protection should take a leading role in post-project management as means to measure the success and sustainability of the project, especially in ensuring that the project deliverables are achieved. This will always regarded as the successful integrated management and protection of Honiara city water resources and the supporting environment which should translate benefits to;

- o improving the coastal marine environment;

- o proper waste disposal (solid and sewerage);
- o promote economic development;
- o improving public health;
- o water use efficiency and conservation;
- o water safety plan;
- o improved community knowledge in IWRM;
- o better coordinated approach to water issues;
- o stakeholder participation;
- o community awareness and education;
- o improved water tariff and
- o cost recovery benefits

The success of the project can be measured through improved and sustainable livelihoods and public health. Socio-economic activities should generally improved indicating on-going improvements in the water sector, especially Honiara city water resources management which should link to improvement of other activities in Honiara, including the general quality of freshwaters within and around Honiara and the supporting environmental functions including the coastal marine areas. This should give an indication of the success of the general environmental activities in Honiara.

Financial sustainability of the project objectives and deliverables will depend on government commitment and stakeholder support. Certain disincentives for water wastage of inappropriate land use and practices may well include financial penalties. However, the focus would be on voluntary self-regulation and management where feasible. There will need to be some transfer of benefits from the commercial sector, which exploits the resource for its own financial gain, into the management process. This may require user tariffs and other revenue collection mechanisms.

As part of promoting awareness at the grass-root level, water quality monitoring programmes (and other associated environmental monitoring) would be developed through local communities and schools and supervised by the Management Authority through the relevant government agency. The need for the monitoring process would be explained and communities and schools would be trained in sampling and observation. This would provide a linkage and an explanation to the overall management and policy process as well as any legislative requirements. In this manner, communities and schools would be directly involved in creating and steering the management requirements and the decision-making process.

## **K. Replicability**

In Solomon Islands water supply in most urban centres have similar problems associated with supply sustainability and water quality issues. The lessons learnt from this project could benefit other urban water supply services in the country and the general awareness for IWRM in Solomon Islands.

The IWRM principle could be brought right down to the community as a means to implement Water Safety Plan and Water Use Efficiency for community rural water supply and sanitation. The promotion of resource sustainability and protection will not only benefit the local environment but provides the overall national and global environmental benefits.

Furthermore, the project aims to demonstrate whether water resource management process has been successfully demonstrated as model for possible replication. The project outcome should emphasise the cost of implementing and maintaining similar management strategies in other urban areas versus the long-term economic and environmental damage associated with not providing such mechanisms.

The integrated management of watershed through promotion of conjunctive use of surface water and groundwater could be replicable to other towns in the country and the region. The utilisation of different resources at different times of the year as conjunctive use schemes could act as adaptive measures to the impacts of climate variability/change to local weather patterns which became more pronounced during the recent years.

The project should provide invaluable experiences through community involvement and stakeholder participation as well as the lessons and practices derived from policy reform, legislative amendments, changes in waste disposal and land-use practices and incentives for water conservation, etc. Where feasible, it will identify appropriate management approaches in relation to integrated watershed and land use management that should provide benefits to the community and resources owners as well as supporting the functions of the natural environment ecosystems.

Equally if not more important with respect to replicability will be the potential for transferring the best lessons and practices developed through this demonstration to the main IWRM project for dissemination throughout other Pacific SIDS. This approach to conjunctive use of groundwater and surface water resource as management mechanism to promote sustainable water supply services should benefit SIDS as adaptive measures to the impacts of climate change.

#### **L. Monitoring and Evaluation Process**

The Project will be co-ordinated by a Steering Committee made up of stakeholders to the project and chaired by the National Executing Agency while the implementation will be the responsibility of the Project Management Unit (PMU).

The PMU will also be responsible for reporting to the National Executing Agency and the Regional IWRM Executing and Implementing Agencies with the following reporting requirements.

- i) Quarterly Progress Report updating the Steering Committee and the project Executing Agencies on the progress of the demonstration project activities and deliverables;
- ii) Annual Report will be submitted through the Steering Committee to the Executing Agencies. This report will provide a full review of the work plan to identify project achievements and deliverables versus the approved schedule, budget expenditures, recommendations with respect to any amendments to work plan and budget, staff contracting and performance, and any other information required by the Steering Committee and/or the Executing Agencies.

The Regional IWRM Executing and Implementing Agencies will carry out monitoring and evaluation of the demonstration project. The monitoring and reporting on the project depends on the End-of-Project Landscape which provides initial guidance on the indicative areas of success that would need to be measured (Section G (iv) a-p above).

As part of its implementation stage, the PMU will develop a detailed list of indicators which will be approved by the Steering Committee and will be submitted to the Executing Agency as part of the PMU's first Progress Report. This indicator measurement mechanism will be linked to and measured against a baseline situation of the field surveys.

#### **M. Co-Funding**

This section discusses budgetary requirement for GEF funded projects in relation to co-financing and baseline activities through Incremental Cost Assessment (ICA). The ICA result



presented in Table 2.0 provides major IWRM demonstration project components and their respective baseline and incremental costing and the full alternative budget for the project. The ICA provide the basis for identification of appropriate activities that can be used as co-funding for the demonstration project as provided in Table 3.0. From the ICA the total project cost has been estimated to be US\$5,216,751.50 over five (5) year period with the budget details for the demonstration project provided in ANNEX A.

Table 2.0 – Incremental Costing Assessment (ICA) Result

Project component	Baseline scenario	Alternative scenario	Incremental costing (B-A)	
			GEF	Co-funding
Water Safety Planning and Demand Management	\$ 2,013,154.50		\$ 250,000.00	\$ 1,553,440.00
Management Strategies, Policy and Legislative review	\$ 532,000.00		\$ 150,000.00	\$ 216,046.00
Stakeholder participation, awareness and capacity building	\$ 212,800.00		\$ 115,000.00	\$ 174,311.00
<b>TOTAL</b>	<b>\$ 2,757,954.50</b>	<b>\$ 5,216,751.50</b>	<b>\$ 515,000.00</b>	<b>\$ 1,943,797.00</b>

All identified co-funded initiatives discussed below represent management and conservation measures which mitigate pollution pressures, reduce wastage within the distribution system, streamline the overall water resource management process, and provide valuable lessons for the demonstration project. Some of the activities will provide direct baseline information to the demonstration project. The total donor co-funding activities allocated for this demonstration project is approximately US\$455,387.00. An additional US\$108,410.00 will be allocated by the Solomon Islands Government for Solomon Islands water governance program and provision of project management costs and Solomon Islands Water Authority with US\$1,380,000.00 bringing the total co-funding to US\$1,943,797.00.

- Donor co-finance US\$ 455,387.00
- SI Government co-finance US\$ 108,410.00
- Others (NGO/private sector) [in this case SIWA] co-finance US\$ 1,380,000.00
- Total co-finance US\$ 1,943,797.00

Table 3.0 – List of co-funding activities for IWRM Demonstration project in Solomon Islands

Activities	Implementing Organisations
Regional Pacific HYCOS Project	SOPAC
Regional Water Demand Management Project	SOPAC
Regional IWRM ACP-EUWF Project	SOPAC
Pacific Program for Water Governance	SOPAC
Solomon Islands Government (SIG) - Water resources program	SIG
IWC Kongulai Catchment Risk Assessment Research	IWC
SIWA Program to improve water supply and wastewater services in the urban centres of Solomon Islands	SIWA

The Solomon Islands Water Authority (SIWA) could provide some level of co-funding in relation to logistic support and partnership arrangement in the implementation of the demonstration project, especially on the integrated management and protection of the watersheds and land use changes within the adjacent catchments and the selected protected areas within the Honiara city water supply zones. Other Governmental institutions and NGOs may be attracted to jointly support the education and awareness aspect of the project. The National Government is providing significant co-financing through ongoing commitment to staff salaries, maintenance and other logistic support to ensure the smooth operation of the project.

The co-funding activities which closely linked with the objectives of the proposed IWRM Demonstration project in Solomon Islands include national and regional projects and programs that is currently taking place and planned to take place in the country concurrent with the demonstration project. The activities are discussed below:

***1. Solomon Islands Water Authority – Program for the improvement of water supply and wastewater services in the urban centres of the Solomon Islands***

SIWA is the agency responsible for providing water supply and wastewater services in the urban areas in Solomon Islands. However, with on-going financial and other logistic support problems SIWA is currently unable to provide services to every urban centre in the country. There are four (4) urban centres SIWA is currently responsible for water supply services. They are Honiara city, Tulagi, Auki and Noro towns.

As part of its long-term objectives and plans in its endeavour to provide sustainable and reliable water supply and wastewater services to its urban customers, SIWA is committed to long-term management and protection of water resources and the protection of surrounding environment in the urban centres. These activities are discussed below as SIWA's contribution towards implementation and on-going monitoring and management of the demonstration project.

The activities of SIWA discussed below links closely with the proposed IWRM demonstration project output/deliverables which SIWA would like to include as co-financing for the demonstration project. The activities and programs are categorised as follows:

- a. SIWA's water conservation awareness program to achieve water use efficiency through water conservation measures. The program is being implemented through awareness and consumer services by the Customer Services Department. The program involves awareness through newspaper, the local radio and during celebration or campaigns of international days such as World Water Day. The projection for this program in the next three (3) years is US\$80,000.00.
- b. The leakage detection and prevention is part of the water demand management also to achieve water use efficiency. This is to ensure SIWA provides sustainable and reliable water supply services to its customers. The budgetary provision for this program in the next three years is approximately US\$230,000.00. The programme comprises the following activities:
  - i. Leakage detection program involving low flow tests at night;
  - ii. Materials and fittings for corrective and preventive maintenance program and
  - iii. Acquisition of new bulk flow meters for water production monitoring
- c. As part of SIWA's program in waste reduction and improvement in service delivery there is on-going infrastructure replacement and upgrading of its water supply systems. This is the major capital work programs for SIWA and accounts for substantial investment by

SIWA. The budgetary provision for this capital works for the next three years is US\$560,000.00. The program involves the following activities:

- i. Water pipe replacement and amplification program involving capital works on annual basis;
  - ii. Tank rehabilitation involving capital works on annual basis, and
  - iii. Water meter replacement program involving replacement of non-functional meters
- d. SIWA is also engaged in on-going environmental management and water quality monitoring program. This is part of the water quality surveillance program in line with water quality guidelines and regulation as required under Public Health and other health related regulations. There is also concern for the environment, not only the water supply catchments but also to the surrounding environment where urban residents used as recreational areas or fishing grounds to catch fish and other freshwater and marine resources. The budgetary provision for this program is relatively a small component of the organisational budget and accounts for only US\$25,000.00 for a three year period. However, there is provision for expansion of these services to meet the requirements for public health, environmental protection, wastewater management, catchment management and conservation. The major components of this project are:
  - i. Laboratory facilities and chemicals used for testing
  - ii. Catchment management and protection and
  - iii. Water watch program as part of the main monitoring program
- e. The wastewater services monitoring and rehabilitation aims to promote effective wastewater services and environmental management and protection in the urban areas where SIWA is operating. This program is again another major component of the infrastructure upgrading need of SIWA to ensure effective and efficient wastewater services. It is also a major function of SIWA which is very important to maintain as required under health and environmental related regulations in the country. However, at the moment sewerage infrastructure for sewer connection in Honiara accounts for 5% while the rest are septic tank and other latrines. The budgetary provision for this program is only US\$75,000.00 for the next three year period. The major components of the program include:
  - i. sewerage improvements through improvement works for sewer outfalls, pipelines and manholes; and
  - ii. provision of materials and fittings for corrective and preventive programs.
- f. One of the major obstacles facing SIWA is the ability of aging infrastructures to maintain and available resources to meet the demand in the urban centres, Honiara city especially. SIWA is currently proposing major infrastructure and water resources development to meet the growing demand for water supply in Honiara. The project will be funded under Japan Grant Aid Program and it is now at Preliminary Study Stage with Basic Design Study phase expected to commence late 2007 or early 2008. However, SIWA's on-going investment plan through expansion in water supply development is part of its commitment to provide sustainable and reliable water supply services to the urban population. To ensure this happens SIWA plans to expand water supply development projects through expansion works for water supply development works. The provision of this program in the next three years accounts for approximately US\$200,000.00.
- g. Administration, management and capacity building contributes to the overall efficiency of an organisation. SIWA is no exception as the operation and maintenance teams are vital to the execution of SIWA functions and to ensure its success. Operation and maintenance team's salary, logistic support, materials and equipment, and other vital resources

necessary for the operation of SIWA accounts for approximately US\$210,000.00 as the projection for the next three years. This provision includes capacity building and other necessary activities that is vital for the improvement of service deliveries by SIWA.

## ***2. The Regional Water Demand Management Project***

The Water Demand Management Project is a regional project funded under NZAID and implemented by SOPAC in the PIC. The major activities involves procurement of leak detection and dataloggers for measuring flows, leak detection and sectorisation program, waste reduction management option, Water Use Efficiency Plan and capacity building for Solomon Islands Water Authority. The project allocation for Solomon Islands is approximately US\$40,000.00 for two years period.

## ***3. The Kongulai Catchment Risk Assessment Research Study Project***

The Kongulai catchment risk assessment research study project is funded under AusAID and implement by IWC and AWRF. The project runs for three (3) years with objective to carry out risk assessment analysis of the Kongulai catchment for the effective management of the water catchment. The main activities include the review of current situation of the catchment, compilation of relevant information regarding the catchment, conduct workshops with stakeholders in Honiara, i.e. government, NGO and resource owners. The project output aims at better understanding the risks associated with catchment and plan for effective management of the catchment for Honiara town water supply. The allocation for Solomon Islands amounts to approximately US\$174,311.00.

## ***4. The Regional Pacific HYCOS Project***

Pacific HYCOS is a regional project funded under EU-WF and implemented by SOPAC for PICs. The project runs for 2007-2010 providing support to implement a regional water resources management initiative to improve management and protection of Pacific small islands states freshwater resources through the provision of appropriate water resources management systems. The main objective is to attain a common level of ability to assess and monitor the status/trend of their water resources and to provide the water-related information and hazard warnings needed to support national, social and economic developments and environmental management. The focus areas are flood forecasting capability, water resources assessment, water resources database, drought forecasting, groundwater monitoring and assessment, and project management. The benefit would be to enable more informed decision-making on integrated catchment management and planning, leading to progress towards SIDS sustainable development and MDG through the sustainable management of their freshwater resources particularly during increasing frequent climatic extremes. Allocation for Solomon Islands is approximately US\$133,440.00.

## ***5. The Regional IWRM Project***

IWRM ACP-EU WF funded regional project provide support for a region-wide initiative to support participating countries to develop sustainable national IWRM policies and water efficiency strategies. The main objectives are to enable participating countries to have national IWRM policies and water efficiency strategies and to promote and enhance the involvement of regional, national and local stakeholder groups in the sustainable management of their water resources, through the application and involvement of IWRM approaches, using a regional resource centre to strengthen and support national and catchment scale stakeholder partnerships and help them develop formal and endorsed IWRM policies and water efficiency plans using multi-stakeholder participatory consultations. Activities include i) setting up of the regional IWRM resource centre; ii) identification and promotion of best practice water

partnership development; iii) public and political awareness raising of the benefits of IWRM; iv) support and strengthening of interim water partnership initiatives to develop IWRM policies and strategies; v) development and promotion of best practice integrated water governance policies and strategies; and vi) capacity building. Allocation for Solomon Islands is approximately US\$50,000.00.

## ***6. Pacific Program for Water Governance***

The European Union (EU) has made funding available for the Pacific Region under its Programme for Water Governance (PfWG). The project was implemented by SOPAC with initially three (3) PICs, Fiji, Solomon Islands and Kiribati. Solomon Islands was selected as one of the 3 countries, representing a country in its developing stage of water governance. The overall objective is to mainstream the principles of good water governance into day-to-day applications through pilot projects so as to assist in achieving sustainable water resource management and provision of water services within selected Pacific countries. The Solomon Islands project was concluded at the end of 2006, however on-going activities is being supported by the Solomon Islands Government through its recurrent budgetary provision. The EU funded component for Solomon Islands was approximately US\$57,636.00.

## ***7. Solomon Islands Government - Water Resources Program***

The Solomon Islands Water Governance Project was concluded at the end of 2006 but on-going activities are being supported by the Solomon Islands Government through its recurrent budgetary provision. The main aim is to pursue key issues identified by the water governance project which was seen as very important for effective water governance in the country. These activities include conducting awareness and consultations in country to gather comments for the drafting of the water resources legislation and policy. This would ensure the final water resources legislation and policy are being prepared through wide-sector participation in the country. The on-going activities also include the necessary preparation for drafting of the water resources bill to be tabled in Parliament tentatively in 2008 and the formulation of water sector policy. The total budget allocated for the task is approximately US\$40,000.00 for two (2) years.

Solomon Islands Government will also provide support for provisions of the IWRM demonstration project management during the implementation of the project. These include; office facilities, utilities, communication, steering committee sitting allowances, provision of vehicle, fuel and maintenance and other logistic and technical support that the government may provide from time to time.

Such government support is in line with the proposed GEF IWRM Demonstration project in Solomon Islands to ensure the project is implemented in an integrated and multi-sectoral approach through stakeholder participation. There will be government departments and institutions that will be involved in the overall implementation of the project objectives to ensure the expected deliverables are achieved. The total amount allocated for this is approximately US\$68,410.00.

In addition to the above co-finance contributions the Ministry of Mines, Energy and Rural Electrification and other government organizations, e.g. SIWA, have expertise in the various fields relevant to the objectives of the IWRM demonstration project which could offer as technical assistance during the implementation of the project.

Table 4.0 – List of co-finance activities and contributions (IWRM demo budget based on this value)

Activities	Contribution (US\$)	
	In-kind	Cash
Regional Pacific HYCOS Project	\$ -	\$ 133,440.00
Regional Water Demand Management Project	\$ -	\$ 40,000.00
Regional IWRM ACP-EUWF Project	\$ 50,000	
Pacific Program for Water Governance	\$ 57,636.00 -	
Solomon Islands Government - Water resources	\$ -	\$ 108,410.00
IWC Kongulai Catchment Risk Assessment Research	\$ 174,311.00	\$ -
SIWA Program to improve water supply and wastewater services in the urban centres of Solomon Islands	\$ -	\$ 1,380,000.00
<b>Total</b>	<b>\$ 174,311.00</b>	<b>\$ 1,769,486.00</b>



## ANNEX A:BUDGET DETAILS

### A.1. DETAILED BUDGET

BUDGET ITEMS	DESCRIPTION OF EXPENDITURES	GEF (US\$)	OTHER (US\$)				TOTAL (US\$)
			In-Kind	Funds	Donor		
					In-kind	Cash	
Project Coordination and Management							
Project Manager	Salary, accommodation & other entitlements	\$ 35,000.00					\$ 35,000.00
Project Assistant	Salary, accommodation & other entitlements	\$ 15,000.00					\$ 15,000.00
Office Space	Rental			\$ 15,960.00		Gov't	\$ 15,960.00
Communication	telephone, fax, e-mail etc			\$ 7,980.00		Gov't	\$ 7,980.00
Stakeholder Meetings	Quarterly meeting			\$ 10,000.00		Gov't	\$ 10,000.00
Utilities	Electricity, Water, etc			\$ 11,970.00		Gov't	\$ 11,970.00
Sub-total		\$ 50,000.00	\$ -	\$ 45,910.00			\$ 95,910.00
Materials and Equipment							
Office equipment	Computers, softwares, office equipment and backup services	\$ 25,000.00	\$ -	\$ 25,000.00		HYCOS	\$ 50,000.00
Hydrological equipment	Water level, rain-gauge, flow and pressure loggers	\$ 20,000.00	\$ -	\$ 25,000.00		HYCOS	\$ 45,000.00
Hydrogeological equipment	Groundwater sensors, drilling logging	\$ 40,000.00					\$ 40,000.00

Managing Honiara city water supply and reducing pollution through IWRM approaches

Water quality instrument	Water quality equipments, analysis, etc	\$ 12,500.00		\$ 25,000.00		SIWA	\$ 37,500.00
Vehicle	4-Wheel Drive	\$ 10,500.00		\$ 10,000.00		Gov't	\$ 20,500.00
Vehicle maintenance	Fuel and Servicing			\$ 12,500.00		Gov't	\$ 12,500.00
Sub-total		\$108,000.00	\$ -	\$ 97,500.00			\$ 205,500.00
<b>Field Surveys and Activities</b>							
Water resources and natural ecosystem survey	Hydrogeological survey	\$ 25,000.00	\$ -	\$ 50,000.00		SIWA, HYCOS	\$ 75,000.00
	Kongulai catchment studies	\$ 30,000.00	\$ -	\$ 75,000.00		SIWA, HYCOS	\$ 105,000.00
	Water balance study	\$ 15,000.00	\$ -	\$ 58,440.00		SIWA, HYCOS	\$ 73,440.00
	Natural resource and ecosystem survey	\$ 20,000.00		\$ 10,000.00		SIWA	\$ 30,000.00
Review of land-based associated pollution threats	Agricultural practices	\$ 12,000.00					\$ 12,000.00
	Land use practices	\$ 12,000.00					\$ 12,000.00
	Industrial development	\$ 12,000.00					\$ 12,000.00
	Honiara waste disposal	\$ 12,000.00		\$ 10,000.00		SIWA	\$ 22,000.00
	Sewerage disposal	\$ 12,000.00		\$ 10,000.00		SIWA	\$ 22,000.00
Water Safety Plan	Review WSP for Honiara City	\$ 12,000.00	\$ -	\$ 85,000.00		SIWA, IWRM	\$ 97,000.00
	Develop WSP for Honiara and Solomon Islands	\$ 20,000.00	\$ -	\$ 130,000.00		SIWA, IWRM	\$ 150,000.00
Water Demand Management							
	Wastage and leakage detection	\$ 30,000.00	\$ -	\$		SIWA,	\$

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	survey			220,000.00		WDM	250,000.00
	Develop Water Use Efficiency Plan for Honiara	\$ 10,000.00	\$ -	\$ 160,000.00		SIWA, WDM	\$ 170,000.00
	Design and planning consultations for Preliminary Plan	\$ 15,000.00	\$ 50,000.00	\$ 45,000.00	IWC	SIGWRP, SIWA	\$ 110,000.00
	Adoption of Protected Zones	\$ 10,000.00		\$ 60,000.00		SIWA	\$ 70,000.00
Designation of Protected Zones	Adoption of Honiara watershed/aquifer management plan	\$ 15,000.00		\$ 165,000.00		SIGWRP, SIWA	\$ 180,000.00
Sub-total		\$262,000.00	\$ 50,000.00	\$1,078,440.00			\$1,390,440.00
<b>Management Plan, Policy and Legislation Review</b>							
Policy and Legislative review	Study and recommendations	\$ 20,000.00	\$ 50,000.00	\$ 115,000.00	IWC	SIGWRP, SIWA, IWRM, PFWG	\$ 185,000.00
Monitoring and Compliance Mechanisms	Study and recommendations	\$ 20,000.00		\$ 220,000.00		SIWA	\$ 240,000.00
Sub-total		\$ 40,000.00	\$ 50,000.00	\$ 335,000.00			\$ 425,000.00
<b>Reporting and Awareness</b>							
Reports and Guidelines	Various reports to government	\$ 15,000.00	\$ 50,000.00	\$ 60,000.00	IWC	SIWA, IWRM	\$ 125,000.00
Awareness and Education	Target groups, policy makers and public	\$ 40,000.00	\$ 24,311.00	\$ 152,636.00	IWC	SIGWRP, SIWA, WDM, PFWG	\$ 216,947.00
Sub-total		\$ 55,000.00	\$ 74,311.00	\$ 212,636.00			\$ 341,947.00

<b>TOTAL</b>	<b>\$515,000.00</b>	<b>\$174,311.00</b>	<b>\$1,769,486.00</b>			<b>\$2,458,797.00</b>
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## A.2. BUDGET SUMMARY

BUDGET LINE	GEF (US\$)	OTHER (US\$)		TOTAL (US\$)
		In-Kind	Funds	
Project Coordination and Management	\$ 50,000.00	\$ -	\$ 45,910.00	\$ 95,910.00
Materials and Equipment	\$ 108,000.00	\$ -	\$ 97,500.00	\$ 205,500.00
Field Surveys and Activities	\$ 262,000.00	\$ 50,000.00	\$ 1,078,440.00	\$ 1,390,440.00
Management Plan, Policy and Legislation Review	\$ 40,000.00	\$ 50,000.00	\$ 335,000.00	\$ 425,000.00
Reporting and Awareness	\$ 55,000.00	\$ 74,311.00	\$ 212,636.00	\$ 341,947.00
<b>TOTAL</b>	<b>\$ 515,000.00</b>	<b>\$ 174,311.00</b>	<b>\$ 1,769,486.00</b>	<b>\$ 2,458,797.00</b>

# ANNEX B: WORKPLAN

EXPECTED OUTPUT	ACTIVITY (corresponding indicators)	Yea 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1. Project Management Unit	1.1 Project Management and Staff Contracted																				
	1.2 Project Office facilities established																				
	1.3 Procurement of Project Materials and Equipment																				
	1.4 Project Steering Committee meetings																				
	1.5 Reporting to HWRSC/SOPAC																				
2. Water resources assessment and natural ecosystem surveys	2.1 Hydrogeological survey of selected Honiara water supply zones																				
	2.2 Natural resource and ecosystem functions survey																				
	2.3 Water balance studies																				
	2.4 Kongulai catchment studies																				
	2.5 Reporting																				
3. Review of Land-based Activities Associated Pollution Threats	3.1 Agricultural practices																				
	3.2 Land use practices																				
	3.3 Industrial development																				
	3.4 Solid waste disposal																				
	3.5 Sewerage disposal																				
	3.6 Reporting																				
4. Development Strategies for Water Use Efficiency and Water Safety Plan	4.1 Survey of losses and wastage in selected water supply distributions zones																				
	4.2 Identification and adoption of options for recovery and reduction to water losses in systems																				
	4.3 Incorporate study recommendations into Management Strategies																				
	4.4 Adoption of Water Use Efficiency and Water Safety Plans for Honiara																				

EXPECTED OUTPUT	ACTIVITY (corresponding indicators)	Yea 1				Year 2				Year 3				Year 4				Year 5			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
5. Designation of Selected Protection Zones	5.1 Stakeholder consultations, design and planning, preliminary management plan																				
	5.2 Designation of Honiara Water Supply Protection Zones																				
	5.3 Adoption Honiara Protected Zone Management Plan																				
	5.4 Management and Compliance Monitoring																				
6. Development of Policy and Legislation Review	6.1 Policy reforms, amended legislation and incentives for changes to solid and wastewater disposals																				
	6.2 Devise Monitoring and Compliance Mechanisms for new reforms and legislation, including incentive mechanisms																				
	6.3 Adoption of Management Strategies by the Government and relevant Authorities																				
7. Reporting, Awareness and Capacity Building	7.1 Building awareness for integrated Honiara water resources management and protection																				
	7.2 Training and education for effective IWRM																				
	7.3 Adoption of mechanism for replication of management approach to other areas in the country and regional																				
	7.4 Transfer of best practices in water resource management, protection and conservation																				