

Pacific Island Nations REGIONAL ACTION PLAN

The action plan covers six themes

Theme 1 Water Resources Management

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated Water Resources and Catchment Management

- Key Message 1
- Key Message 2
- Key Message 3

Theme 2 Island Vulnerability

Disaster Preparedness; Dialogue on Climate And Water

- Key Message 1
- Key Message 2

Theme 3 Awareness

Advocacy; Political Will; Community Participation; Environmental Understanding; Gender

- Key Message 1
- Key Message 2
- Key Message 3
- Key Message 4

Theme 4 Technology

Appropriate Technologies; Demand Management and Conservation; Human Resources

- Key Message 1
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Theme 5 Institutional Arrangements

Policy, Planning and Legislation; Institutional Strengthening

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Theme 6 Finance

Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes

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Theme 1

WATER RESOURCES MANAGEMENT

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated Water Resources and Catchment Management

Key Message 1

Strengthen the capacity of small island countries to conduct water resources assessment and monitoring as a key component of sustainable water resources management

SUPPORTING STATEMENTS:

1. Many small island countries have noted significant deficiencies in their national and local capacity to conduct essential water resources assessment and monitoring in their country papers at this meeting and at previous regional and inter-regional meetings over the past decade and more.
2. These deficiencies prevent small island countries from conducting proper planning, development and sustainable management of their limited and vulnerable water resources.
3. Despite this fact, there continues to be no systematic, co-ordinated approach to addressing these deficiencies.
4. Most small island countries do not have adequate baseline data that is readily available for planning and development and lack of reliable hydrological databases.
5. There are similarities between needs which can be addressed at regional, as well as national level, through targeted training and capacity building.
6. Proposals for capacity building and training of technicians in Pacific island countries have been prepared in recent years by regional and international agencies with expertise in hydrology, water resources and water quality (e.g. SOPAC, SPREP, UNESCO, WMO, WHO and UNEP).

Theme 1

WATER RESOURCES MANAGEMENT

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated
Water Resources and Catchment Management

ACTIONS REQUIRED

No	Action	Responsible Parties
1	Implement actions to strengthen national capacity (equipment, training, etc) using the model outlined in the Pacific-HYCOS proposal (WMO, 2000) and recommendations regarding water quality in WHO (2001).	<ul style="list-style-type: none"> • SOPAC with support from international agencies (e.g. WMO, UNESCO, WHO) (co-ordination of regional level effort) • National agencies (implementation and funding) • Donors (funding)
2	Implement hydrological training for technicians in line with the recommendations presented in proposal to meet training needs in SOPAC/WMO/UNESCO (2001).	<ul style="list-style-type: none"> • SOPAC with support from international agencies e.g. WMO, UNESCO) (co-ordination of regional effort) • Donors (funding) • National agencies (implementation and funding)
3	<p>Implement a programme of targeted applied research projects to address knowledge gaps in line with recommendations and priorities presented in ANU/SOPAC/UNESCO (2000) and SOPAC (1999).</p> <p>Projects include the following:</p> <ul style="list-style-type: none"> • Catchment and communities project on a high volcanic island. • Groundwater recharge and estimation of sustainable yield using modelling (further work in initial and other sites). • Groundwater pollution due to sanitation systems (further work in initial and other sites). • Integrated island water resources study. • Groundwater and surface water pollution due to chemicals. • Rainwater catchment study. • Appropriate groundwater extraction systems. • Drought assessment in small island nations. <p>Applied research projects should adopt the following principles:</p> <ul style="list-style-type: none"> • Have regional application • Include training for personnel • Consider technical and social issues • Incorporate community awareness and 	<ul style="list-style-type: none"> • SOPAC, UNESCO in co-operation with other regional agencies (co-ordination of regional effort and assistance with implementation) • Donors (funding) • Regional research institutes (assistance with implementation and training) • National agencies (implementation and funding)

No	Action	Responsible Parties
	participation <ul style="list-style-type: none"> • Involve close liaison with relevant agencies. 	
4	Develop and/or implement minimum standards for conducting island water resources assessment and monitoring.	<ul style="list-style-type: none"> • National agencies (implementation and funding) • SOPAC in co-operation with other agencies (assistance with implementation) • Donors (funding)
5	Support community participation in appropriate water quality testing programmes targeted at environmental education and awareness of communities, using existing and proposed programmes as models (e.g. DGMWR/SOPAC/UNESCO/NIWA, 2002; Live & Learn, 2002; SPREP-IWP, 2002).	<ul style="list-style-type: none"> • Regional and other agencies (e.g. UNESCO, SOPAC, SPREP, WHO) (support and technical assistance) • NGOs (support and training) • Communities (implementation) • Donors (funding)
6	Implement appropriate water quality testing capability and associated training at local, national and regional level.	<ul style="list-style-type: none"> • National and local government agencies (implementation) • Regional agencies (e.g. USP, WHO) (assistance with implementation and training) • Other institutions and individuals. • Donors (funding of components)
7	Strengthen and enhance communication and information exchange between national agencies involved with meteorological, hydrological and water quality data collection programmes (including water supply agencies and health departments) and with users of	<ul style="list-style-type: none"> • National and local governments (policy) • Government agencies (co-ordination, communication and information exchange) • Water Utilities
8	Enhance education and career development opportunities in the water sector, including: <ul style="list-style-type: none"> • Scholarships for advanced training courses, including distance learning. Regional or in-country training workshops on targeted need areas. • Training courses in partnership with tertiary institutions. • Twinning or interchange of professional and technical staff between different islands • Active involvement in appropriate research and implementation projects 	<ul style="list-style-type: none"> • National governments (policy) • Regional and international agencies (e.g. USP, SOPAC, UNESCO) (implementation of components) • Other institutions and individuals. • Donors (funding of components)

Theme 1

WATER RESOURCES MANAGEMENT

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated Water Resources and Catchment Management

Key Message 2

Implement strategies to utilise appropriate methods and technologies for water supply and sanitation systems and approaches for rural and peri-urban communities in small islands

SUPPORTING STATEMENTS:

1. Climate and water resources conditions vary considerably between and even within islands depending on location, size, geology, topography and other factors.
2. Water supply for local communities (and tourism in some island countries) is the most important water use, although some islands have sufficient water resources for other uses (e.g. industry, mining, irrigated agriculture and hydropower).
3. Approaches to provision of water supply vary according to availability and sustainability of water resources.
4. Human factors such as population density, land use and measures used for sanitation, wastewater and solid waste disposal have a large impact on the availability of water, the microbiological and chemical quality of water supplies and downstream impacts on the near-shore and marine environment.
5. Operational and maintenance factors, and social and environmental acceptability, are particularly important in the selection of appropriate solutions for water supply and sanitation.
6. Raw water quality is most important for rural populations, as, in most cases, water treatment is not affordable.

Theme 1

WATER RESOURCES MANAGEMENT

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated
Water Resources and Catchment Management

ACTIONS REQUIRED

No	Action	Responsible Parties
1	Conduct effective water resources planning and implement sustainable water resources development by: <ul style="list-style-type: none"> • Utilising naturally occurring resources before more expensive solutions are adopted. • Accounting for technical, economic, social and environmental factors. • Recognising the importance of conjunctive use schemes. • Developing & implementing 'drought strategies' in long-term plans including the use of drought indices. 	<ul style="list-style-type: none"> • National and local government agencies • Regional agencies as required (technical support) • NGOs (assistance) • Donors (funding)
2	Update and disseminate relevant information on appropriate water supply and sanitation technologies and methods from regional and international agencies (e.g. guidelines, standards)	<ul style="list-style-type: none"> • Regional and international agencies (support and technical assistance) • NGOs • Donors (funding)
3	Support rainwater harvesting programmes by: <ul style="list-style-type: none"> • Implementing at household level through financial incentives and building regulations • developing design guidelines using available rainfall data. • improving water quality through 'first-flush' devices. • supporting community-based projects in poorer communities. • investigating appropriate materials (e.g. water quality tests on polythene tanks) 	<ul style="list-style-type: none"> • National and local government agencies • Regional agencies (technical support) • NGOs • Private sector • Donors (funding)
4	Implement pilot projects for: <ul style="list-style-type: none"> • enhanced groundwater recharge from surface water streams. • use of scavenger wells and infiltration gallery for pumping in small low-lying island situations. • use of simple solar distillation and treatment systems. 	<ul style="list-style-type: none"> • National and local government agencies • Regional agencies (technical support) • NGOs • Communities • Donors (funding)
5	Incorporate the use of renewable energy sources for pumping into water supply planning and development processes.	<ul style="list-style-type: none"> • National and local government agencies • Regional agencies (technical support) • NGOs • Communities
6	Conduct further research into desalination technologies	<ul style="list-style-type: none"> • National government agencies

No	Action	Responsible Parties
	particularly in relation to operation and maintenance costs.	<ul style="list-style-type: none"> • Private desalination companies • Research institutes • Donors (funding)
7	Implement demand management and water conservation measures including: <ul style="list-style-type: none"> • training in simple methods of leak detection • community awareness and education 	<ul style="list-style-type: none"> • National and local government agencies • Regional agencies (technical support) • NGOs • Communities • Donors (funding)
8	Develop and implement national guidelines for water quality, particularly drinking water quality.	<ul style="list-style-type: none"> • National and local government agencies (implementation) • Regional and international agencies (e.g. WHO) (assistance with implementation) • Donors (funding of components)
9	Implement minimum standards for water quality monitoring, surveillance and mitigation measures.	<ul style="list-style-type: none"> • National and local government agencies (implementation) • Regional and international agencies (e.g. WHO) (assistance with implementation) • Donors (funding of components)
10	Implement sanitation systems which aim to prevent pollution of water resources including <ul style="list-style-type: none"> • further pilot projects in different island environments to determine appropriate low –cost, on-site sanitation technologies (eg compost toilets, gravel bed hydroponics or constructed wetlands). • further applied research to establish guidelines for ‘safe distances’ (buffer zones) for existing sanitation options in different island environments (e.g. septic tanks, pit toilets) • increase government, donor and community awareness of poor sanitation impacts on water resources and public health. 	<ul style="list-style-type: none"> • National and local government agencies (implementation) • Regional and international agencies (assistance with implementation) • Research institutions • Communities • NGOs • Donors (funding of components)
11	Expand community awareness programmes on health issues and support community participation in the water supply and sanitation sector (e.g. WHO Healthy Islands Programme).	<ul style="list-style-type: none"> • National and local government agencies (implementation) • Regional and international agencies (e.g. WHO) (assistance with implementation) • Communities • NGOs • Donors (funding of components)

Theme 1

WATER RESOURCES MANAGEMENT

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated Water Resources and Catchment Management

Key Message 3

Implement strategies to improve the management of water resources, and surface and groundwater catchments (watersheds) for the benefit of all sectors including local communities, development interests and the environment

SUPPORTING STATEMENTS:

1. There is a need for a wider view (holistic approach) to water resources management in many countries to ensure social, environmental as well as technical and economic factors are taken into account (Integrated Water Resources Management, IWRM).
2. Many small islands have very limited and vulnerable water resources and there is a need to conserve these resources and protect them from contamination.
3. There are demonstrated examples in Pacific small island countries that participatory approaches to catchment (watershed) management are more effective and sustainable than regulatory approaches, particularly in the context of customary land ownership and use, which is prevalent in most Pacific small island countries

Theme 1

WATER RESOURCES MANAGEMENT

Water Resources Assessment and Monitoring, Rural Water Supply and Sanitation, Integrated
Water Resources and Catchment Management

ACTIONS REQUIRED

No	Action	Responsible Parties
1	Implement IWRM principles and practices in small island countries through: <ul style="list-style-type: none"> • co-ordination between all relevant agencies. • long-term planning and commitment for the implementation of IWRM. • appropriate support and training from relevant regional and international agencies. 	<ul style="list-style-type: none"> • National and local governments • Water Utilities • Power utilities (where hydropower is utilised) • Local communities • NGOs • Regional agencies (e.g. SOPAC, SPREP) • International agencies (e.g. GWP, UNESCO) • Donor agencies (funding in initial stages)
2	Draft, enact and apply appropriate national water resources legislation and plans for the rational allocation, use and protection of water resources.	<ul style="list-style-type: none"> • National governments • Regional agencies (technical support)

No	Action	Responsible Parties
3	<p>Implement catchment management practices as follows:</p> <ul style="list-style-type: none"> • Endorse participatory approaches in water resources management within catchments • Establish water catchment management committees with representatives from key stakeholders • Develop catchment management plans for the rational allocation, use and protection of water resources. This may include the establishment of catchment management, protection and buffer zones. • Apply best management practices to minimise impacts from activities such as logging, cultivation and mining. • Implement community education & awareness programmes for water resources protection and water conservation, as an integral part of health promotion and sustainable water resources and environmental management. • Identify water pollution sources and undertake preventative and corrective steps, including financial penalties for environmental and water resources degradation. • Conduct environmental impact assessments as an integral part of planning for development projects to ensure environmental values and objectives are properly considered. 	<ul style="list-style-type: none"> • National and local governments • Private sector • Local communities • NGOs • Donor agencies (funding in initial stages)

Theme 2

ISLAND VULNERABILITY

(Disaster Preparedness; Dialogue on Climate And Water)

Key Message 1

There is a need for capacity development to enhance the application of climate information to cope with climate variability and change

SUPPORTING STATEMENTS:

1. There has been growing recognition of the importance of climate variability and the impact of extreme climatic events and the need for climate forecasting to respond to these events.
2. Significant progress has been made in the development and dissemination of climate information and prediction in the Region based, in part, on observations of the coupled atmospheric/ocean system (e.g. GOOS).
3. WMO/CLIPS (Climate Information and Prediction Services) Programme has established a framework of CLIPS focal points within National Meteorological/Hydrological Services.
4. A Pacific Climate Information and Prediction System has been proposed and endorsed at the Regional ENSO workshop (SOPAC, 1999).
5. Pacific Island Countries have recognised the significance of drought as a major hazard that needs to be planned for and that climate prediction allows a much more effective response.

Theme 2

ISLAND VULNERABILITY

(Disaster Preparedness; Dialogue on Climate And Water)

ACTIONS REQUIRED

No	Action	Responsible Party
1	Enable WMO CLIPS/HYCOS with regional partners to develop and enhance the application of climate information and to strengthen links between meteorological and hydrological services by: <ul style="list-style-type: none"> • Working with existing climate information services in the region, • Formalising efforts to build climate information and forecasting capacity, • Ongoing development of analysis, forecasting and application tools, • Including participation by end users (e.g. water providers, hazard managers, health officials, agriculture and public). 	WMO, National Meteorological Services, Regional Organisations, NIWA, BOM, PEAC, NOAA, donor agencies and other partners
2	Develop rainfall and drought prediction schemes for Pacific Island Countries by: <ul style="list-style-type: none"> • Adaptation of existing models to Pacific Island countries, • Future development of drought monitoring and prediction methods. 	BOM, PEAC, donor agencies
3	Enable regional support to develop water applications of Climate Information and Prediction through: <ul style="list-style-type: none"> • Training • applied research • technology transfer 	SOPAC, donor agencies

Theme 2

ISLAND VULNERABILITY

(Disaster Preparedness; Dialogue on Climate And Water)

Key Message 2

Change the paradigm for dealing with Island Vulnerability from disaster response to hazard assessment and risk management, particularly in Integrated Water Resource Management

SUPPORTING STATEMENTS:

1. A shift is taking place in disaster management generally from a disaster response approach to hazard assessment and risk management.
2. Most disaster management has not addressed the risk of droughts and few governments have attempted to manage the risk of droughts in the Pacific Islands.
3. Climate change may result in more climate variability and the risk of extreme weather and climate events may increase. SPREP's current work on climate and PICAPP have provided a framework for assessing the potential impacts of climate variability and change.
4. Population growth and development are going to increase the vulnerability of island societies to droughts and other climate and extreme weather events.
5. The Disaster Management Unit at SOPAC has made strides in the development of CHARM. It provides an approach to shifting the approach to vulnerability to hazard assessment and risk management.
6. WMO, SPREP, SOPAC, ADB and other regional and international organisation can contribute a shift to hazard assessment and risk management.
7. There are similarities between needs which can be addressed at regional, as well as national level, through targeted training and capacity building.

Theme 2

ISLAND VULNERABILITY

(Disaster Preparedness; Dialogue on Climate And Water)

ACTIONS REQUIRED

No	Action	Responsible Parties
1	Implement actions to strengthen national capacity to use hazard assessment and risk management using CHARM and other vulnerability assessment and risk management tools.	<ul style="list-style-type: none"> • SOPAC with support from international agencies. Donors (funding) • National agencies (implementation and funding)
2	Provide high-level briefings for political leaders from the region on the value of CHARM as a tool for planning and decision-making.	<ul style="list-style-type: none"> • SOPAC with support from international agencies e.g. WMO, UNESCO) (co-ordination of regional effort) • Donors (funding) • National agencies (implementation and funding)
3	<p>Implement a programme of climate analysis for regional countries that can assess the risk of climate-related extreme event, particularly droughts and floods, and tropical cyclones..</p> <p>Projects include the following:</p> <p>Climate analysis should adopt the following principles:</p> <ul style="list-style-type: none"> • Have regional application • Include training for personnel • Consider technical and social issues • Incorporate community awareness and participation • Involve close liaison with relevant agencies 	<ul style="list-style-type: none"> • SOPAC, WMO in co-operation with BOM, NIWA, PEAC other agencies (co-ordination of regional effort and assistance with implementation) • Donors (funding) • Regional research institutes (assistance with implementation and training) • National agencies (implementation and funding)
4	Develop and/or implement minimum standards for conducting island risk and vulnerability assessments and development of drought mitigation and response plans.	<ul style="list-style-type: none"> • National agencies (implementation and funding) • SOPAC in co-operation with other agencies (assistance with implementation) • Donors (funding)
5	Build on the climate analysis and forecasting capacity provided by Fiji Met Service, the Pacific ENSO Applications Center, the Australia Bureau of Meteorology, and the National Institute for Water and Atmospheric Research to develop risk reduction strategies through the use of climate forecasting in conjunction with risk management.	<ul style="list-style-type: none"> • FMS, PEAC, BOM, NIWA with SOPAC • National agencies • Donors

Theme 3

AWARENESS

(Advocacy; Political Will; Community Participation; Environmental Understanding; Gender)

Key Message 1

A high quality participatory framework should be adopted at the National level to allow for open participation of communities in sustainable water and wastewater management

ACTIONS REQUIRED

Action	Responsibility
1.1 Establish a water education fund accessible to government agencies, and civil society groups to ensure effective community participation in sustainable water management.	Regional organisations National Government NGOs Donor Agencies Private sector including industries and tourism sector
1.2 Request donors and governments to adjust funding mechanisms to ensure sustainable implementation of water management programmes.	Regional Organisations National Governments Donor Agencies NGOs
1.3 Ensure quality community participation that leads to community ownership and sustainability	Communities National Governments NGOs Regional Organisations Private sector including industries and tourism sector
1.4 Improve water and sanitation conditions of squatter settlements and rural dwellers through the participatory framework	Governments NGOs National Governments Local Government

Theme 3 AWARENESS

(Advocacy; Political Will; Community Participation; Environmental Understanding; Gender)

Key Message 2

Access to, and availability of information on sustainable water and wastewater management should be provided to all levels of society

ACTIONS REQUIRED

Action	Responsibility
<p>2.1 Develop a toolbox to support water education for all levels of society including politicians, government personnel, civil society and private sector.</p> <p>Tool Box to include:</p> <p>2.1.1 Fund and establish the Sanitation Park</p> <p>2.1.2 Create an in-country and regional database that provides information on research process and outcomes, aid programmes, NGO and CBO activities, private sector contribution, government agenda and resources</p> <p>2.1.3 Support the use of local theatre groups and media</p> <p>2.1.4 Mobile training programmes for householders and tradespeople for building and maintenance of appropriate on-site water and sanitation systems.</p>	<p>Regional Organisations National Governments Donor Agencies NGOs CBOs Schools and regional institutions</p>
<p>2.2 Strengthen the capacity of community based organisations, Non governmental organisations (NGO's) and government departments to disseminate information on sustainable water management.</p>	<p>Regional Organisations National Governments Donor Agencies NGOs Private sector including industries and tourism sector Churches and schools</p>
<p>2.3 Strengthen the capacity of trainees and dialogue builders.</p>	<p>Regional Organisations National Governments NGOs Schools and regional institutions</p>

Theme 3 AWARENESS

(Advocacy; Political Will; Community Participation; Environmental Understanding; Gender)

Key Message 3

Water and sanitation education should be mainstreamed into the formal education system

ACTIONS REQUIRED

Action	Responsibility
3.1 Government adopt water education as part of the curriculum	Education Ministries Donor Agencies NGOs CBOs Education Ministries and regional Institutions Politicians
3.2 Strengthen the capacity of curriculum developers and teacher trainers to provide water education.	Education Ministries and regional institutions Donor Agencies NGOs CBOs

Theme 3 AWARENESS

(Advocacy; Political Will; Community Participation; Environmental Understanding; Gender)

Key Message 4

Improve communication and coordination of all stakeholders in sustainable water and wastewater including government, civil society and the private sector

ACTIONS REQUIRED

Action	Responsibility
4.1 Define roles and responsibilities of government, civil society groups, private sector and communities in the sustainable management of water.	Regional Organisations National Governments Donor Agencies NGOs Private Sectors including industries and tourism sector Politicians Schools and regional institutions
4.2 Share information between project/programme stakeholders.	Regional Organisations National Governments Donor Agencies NGOs CBO's Private sector including industries including tourism sector Politicians Schools and regional institutions
4.3 Improve awareness of policy and legislation through education and community based learning	Regional Organisations National Governments Donor Agencies NGOs Politicians CBOs Schools and regional institutions

Theme 4 TECHNOLOGY

(Appropriate Technologies; Demand Management and Conservation; Human Resources)

Key Message 1

Appropriate institutions, infrastructure and information will support sustainable water and wastewater management

Clearly defined responsibilities for all stakeholder organisations in water and wastewater management can prevent fragmented and uncoordinated plans and actions and improve linkages to other sectors. A specific national agency responsible for water and wastewater management can be considered to enhance performance. Strengthened institutional capacities and the collection and dissemination of data and information will support appropriate technology selection, increase system performance, increase the understanding of subsequent environmental and public health impacts, and demonstrate the need for water conservation and natural disaster preparedness.

SUPPORTING STATEMENTS:

1. Governments will review and specify roles of, and facilitate coordination between existing agencies, and where appropriate, create specific responsible agencies for water and wastewater management.
2. Governments will incorporate water and wastewater planning and long term sustainable management into National Urban and Rural development plans and schemes.
3. Governments will ensure that water and wastewater technologies and related infrastructure are appropriate to meet national and local priorities and needs, within the constraints of available finance and other resources, while recognizing the need for protection of human health and the environment.
4. Governments, service providers, institutions and regional organisations will collaborate **in partnership** throughout the region to improve timely access to and sharing of available data and research on appropriate water and wastewater technologies and the dissemination and implementation of wise practice guidelines.
5. Water and wastewater reduction (water demand management and conservation, zero discharge toilets) and reuse strategies will be developed and adopted by governments without compromising public health.
6. Governments and regional organisations will co-operate to develop and sustain regional and national water and wastewater quality monitoring programmes and the use of this information (e.g. benchmarking) to improve water and wastewater management and environmental protection.
7. Governments, regional organisations and other stakeholders will cooperate to develop integrated water and wastewater management plans to effectively address the impacts of contingencies, emergencies and disasters.

Theme 4 TECHNOLOGY

(Appropriate Technologies; Demand Management and Conservation; Human Resources)

ACTIONS REQUIRED

Actions	Responsibility
<p>1. Identify:</p> <ul style="list-style-type: none"> • The key agencies /stakeholders involved with the management of water and wastewater, and environmental health • Their roles and responsibilities • Activities they undertake in water, wastewater, and environmental health • Lead agencies for specific national activities. 	<p>Governments <u>NGO's</u></p>
<p>2. Establish regional mechanisms and guidelines for maintenance of data collection, on water and wastewater management (capacity, standards, regulations, and monitoring) and environmental health impacts.</p>	<p>Governments Regional organisations UN and donor agencies NGO's</p>
<p>3. Develop national guidelines (to be shared in partnership within the region) on wise practice approaches to assessing and managing water and wastewater system requirements that incorporate sound environmental health principles.</p>	<p>Governments Regional organisations</p>
<p>4. Review existing water and wastewater technologies and infrastructure and recommend strategies for improvement both nationally, and to be shared regionally. Resolving the high unaccounted for water within the regional utilities will reduce the need for additional water resource development</p>	<p>Governments Service providers NGOs Regional organisations UN and donor agencies</p>
<p>5. Develop a national monitoring capacity, building on existing and new resources, to provide initial baseline data, and long-term quality assurance utilizing hydro-geological and hydrologic data collection and analysis.</p>	<p>Governments NGOs Regional organisations</p>
<p>6. Promote awareness of links between and means of integration of, water and wastewater management plans to effectively address contingencies, emergencies, and disasters.</p>	<p>Governments NGOs Regional organisations</p>

Theme 4 TECHNOLOGY

(Appropriate Technologies; Demand Management and Conservation; Human Resources)

Key Message 2

Utility collaboration and regional partnership to reduce unaccounted for water will significantly improve the sustainability of utilities and reduce the need for developing new water resources

SUPPORTING STATEMENTS:

1. A regional Demand Side Management programme for the utilities to work in partnership will be institutionalised and implemented through the regional utility organisation. Self-help training will be provided, and shared, to sustain the leak detection effort to reduce unaccounted for water, utilizing not only specialized equipment throughout the region, but accounting, and meter data analysis. Reducing the amount of unaccounted for water (Demand Side Management) is the highest priority action item for the utilities throughout the Pacific Island countries.

Theme 4 TECHNOLOGY

(Appropriate Technologies; Demand Management and Conservation; Human Resources)

ACTIONS REQUIRED

Actions	Responsibility
1. Review existing water and wastewater technologies and infrastructure and recommend strategies for improvement both nationally, and to be shared regionally. Resolving the high unaccounted for water within the regional utilities will reduce the need for additional water resource development	Governments Service providers NGOs Regional organisations UN and donor agencies
2. Develop island specific training programmes, regional training needs and pilot projects (Leak Detection, and resolving unaccounted for water is the highest priority identified by the utilities), identify resources for delivery (e.g. staffing, equipment etc.), secure funding and implement them utilizing regional partnership to share skills, experiences and expertise.	Governments Service providers Regional organisations Co-operating agencies NGOs
3. Reduce water losses through water loss reduction programmes including leak detection practices, meter and billing data collection and analysis and installation of water saving devices.	Service providers
4. Use of water-saving devices to reduce wastage	Customers
5. Share skills and techniques between utilities in and outside the region	Service providers Regional organisations Co-operating agencies

Theme 4 TECHNOLOGY

(Appropriate Technologies; Demand Management and Conservation; Human Resources)

Key Message 3

Island specific regional training programmes should be developed, resulting in sustainable levels of skilled and knowledgeable people and communities within the water and wastewater sector

Appropriately trained and experienced urban and rural water and wastewater professionals are needed to develop projects and operate facilities, at both the technical, managerial and community participation levels. Increased training enables communities and individuals to take responsibility for operating and maintaining their systems.

SUPPORTING STATEMENTS:

1. Governments, regional and international organisations will cooperate to develop and implement effective human resource development programmes for water and wastewater management and related personnel (including planners, management and enforcement professional) with particular attention to up-skilling the local workforce.
2. Governments, local institutions, regional and international organisations will work in partnership together to share and develop regional and national training courses in support of human resource development programmes.
3. Governments, regional organisations and NGOs will promote and facilitate the development and training of communities and individuals to strengthen and assist their participation in water and wastewater management.
4. Governments, regional organisations, donors, the private sector and NGOs will work together to secure funding to support the sustainability of human resource development policies and training programmes.

Theme 4 TECHNOLOGY

(Appropriate Technologies; Demand Management and Conservation; Human Resources)

ACTIONS REQUIRED

Actions	Responsibility
1. Review the need for increased capacity and management training in human resources development and planning.	Governments Service providers Regional organisations Co-operating agencies International counterparts
2. Carry out training needs analysis (TNA) for workforce and community groups to identify gaps in existing training, including communities and individuals. This should include reviews of current programmes to determine who needs training, the type of training required, and resources needed.	Governments Service providers Regional organisations Co-operating agencies International counterparts
3. Identify funding sources for training programme development and share the resources between utilities wherever cost effective and appropriate.	Governments Service providers Regional organisations Co-operating agencies
4. Develop island specific training programmes, regional training needs and pilot projects (Leak Detection, and resolving unaccounted for water is the highest priority identified by the utilities), identify resources for delivery (e.g. staffing, equipment etc.), secure funding and implement them utilizing regional partnership to share skills, experiences and expertise.	Governments Service providers Regional organisations Co-operating agencies NGOs
5. Evaluate performance of human resource development planning based on improved water and wastewater management.	Governments Service providers Regional organisations Co-operating agencies International counterparts
6. Periodically go back to Actions 1 and 2 to assure sustainability.	Governments Service providers Regional organisations Co-operating agencies International counterparts

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

Key Message 1

Work together through a comprehensive consultative process, encompassing good governance, to develop a shared National vision for managing water resources in a sustainable manner

SUPPORTING STATEMENTS:

1. Governments should develop a National Vision for Sustainable Water Resource Management.
2. Governments should include all parts of the water resource and service delivery sector in the National Vision for Sustainable Water Resource Management – including water, wastewater, sanitation and drainage – and give particular regard to cultural and/or traditional rights and practices.
3. Governments should develop their respective National Vision for Sustainable Water Resource Management through a process of full inclusion and consultation with all stakeholders. That process should be confirmed with stakeholders before the formal development stage commences.

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

ACTIONS REQUIRED

Actions	Responsibility
1. Identify a lead agency for initiating the process of developing a National Vision.	Government
2. Prepare a draft consultation strategy for the development of a National Vision.	Governments
3. Establish a process for inclusion and consultation with stakeholders	Governments
4. Seek agreement from stakeholders on the consultation process	Governments Stakeholders
5. Develop a National Vision for Sustainable Water Resource Management.	Government departments Service providers Stakeholders
6. Develop a programme for the community promotion, education and awareness of the National Vision.	Government departments Service providers Stakeholders

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

Key Message 2

Develop national instruments including National visions, policies, plans and legislation appropriate to each island country taking into account the particular social, economic, environmental and cultural needs of the citizens of each country

SUPPORTING STATEMENTS:

1. Governments should develop sustainable water resource management policies, law, plans and regulations that are consistent with the National Vision for Sustainable Water Resource Management, international and national laws, regulations, technical standards, and obligations.
2. Governments, regional organisations and other stakeholders should cooperate to develop integrated sustainable water resource management plans and other instruments.
3. Governments should develop and implement appropriate water – and associated - regulatory frameworks, compliance and enforcement requirements that benefit the specific cultures, customs, economies and environment of the people of the Pacific.
4. Governments and regional organisations, the private sector and NGOs / CSOs should actively co-operate to ensure that sustainable water resource management policies and plans are integrated into the national development policies and plans and other cross-sectoral initiatives.

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

ACTIONS REQUIRED

Actions	Responsibility
1. Establish a process for, and review current laws, policies, plans and other relevant strategies for consistency with the National Vision for Sustainable Water Resource Management.	Governments Stakeholders
2. Identify gaps in existing national instruments for national planning, water resource, land use planning, and development, and align with the National Vision.	Government
3. Education and awareness on policies and regulations across all sectors with special focus on decision makers.	Governments Service providers Regional organisations Local government NGOs / CSOs
4. Establish appropriate guidelines and systems for reporting on service delivery, and enforcement of regulations.	Governments

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

Key Message 3

Promote and establish appropriate institutional arrangements resourced sufficiently to enable effective management of water resources and the provision of appropriate water services

SUPPORTING STATEMENTS:

1. Governments, at all levels, regional organisations and NGOs / SCOs should develop such institutional arrangements as are complementary and necessary to effectively manage water resources sustainably, including through public/private partnerships.
2. Governments should review existing water agencies and other interested parties, involved in sustainable water resource management with a view to facilitating more effective coordination between them.
3. Service providers should take into account traditional knowledge and practices complemented by new approaches to sustainable water resource management.

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

ACTIONS REQUIRED

Actions	Responsibility
1. Develop such institutional arrangements as are complementary and necessary to effectively manage, and where the National Vision is in place implement, water resources in a sustainable manner.	Governments Regional organisations NGOs / SCOs
2. Review existing water agencies and other interested parties involved in sustainable water resource management with a view to facilitating more effective coordination between them.	Governments

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

Key Message 4

Recognise and share the water resource management knowledge and skills of all stakeholders at a National and regional level in the process of developing and implementing the National Vision

SUPPORTING STATEMENTS:

1. Governments, regional organisations and NGOs / CSOs should co-operate to promote and develop education and awareness of sustainable water resource management issues, including their public health, economic, environmental, social and cultural implications.
2. Governments, service providers and NGOs / CSOs should, in partnership with community agencies, agree their respective knowledge, skills and responsibilities, and use this in the development and implementation of culturally appropriate strategies and activities for the implementation of sustainable water resource management programmes.
3. Governments, service providers and NGOs / CSOs should ensure rural and urban communities have opportunities for active participation in the choice, development and implementation of sustainable water resource management projects, and the on-going operation and maintenance of facilities.
4. Where consistent with health and safety guidelines, planning of water facilities should ensure access for all, with special regard to women, the disadvantaged, the disabled, those in rural and remote communities, and the poor.
5. Governments, service providers, institutions and regional organisations should collaborate throughout, and beyond, the region to improve timely access to and sharing of available data and research on sustainable water resource management and the dissemination and implementation of good practice guidelines.

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

ACTIONS REQUIRED

ACTIONS	Responsibility
1. Develop and implement national and local public awareness and education campaigns with respect to sustainable water resource management.	Governments Regional organisations Local government Community
2. Regional water resource professionals should be used, wherever practicable, to assist with capacity building.	Governments Regional organisations
3. Local theatre groups and media should be used in raising awareness programmes.	Governments Local government Regional organisations Community
4. Establish processes by which key stakeholders can determine their respective roles and responsibilities for sustainable water resource management within the community.	Governments Service providers NGOs / CSOs Community / Women
5. Create a task force that has representation of all stakeholders that will facilitate the development and implementation of culturally appropriate strategies and activities for sustainable water resource management programmes. The taskforce should have representation that will include women, the disabled and disadvantaged.	All key stakeholders
6. Include public awareness components in the budgeting of all development programmes.	Governments Donors
7. Promote the use of community consultative committees in water sector development programmes.	Governments Community Service providers
8. Perform gender assessment studies in sustainable water resource management, and where appropriate stress the need for gender issues to be included into project planning.	Governments Regional organisations
9. Conduct research into the traditional practices and determine whether or not these can be adapted to suit the present situation and new development programmes.	Governments Regional organisations NGOs / CSOs

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

Key Message 5

National and regional leadership in water resource management should be recognised and encouraged

SUPPORTING STATEMENTS:

1. Governments, regional and international organisations should work together to develop and implement effective leadership development programmes in the area of sustainable water resource management.
2. Governments, local institutions, regional and international organisations should work together in the development of regional and national training courses in support of broader sustainable water resource management development programmes.
3. Governments, regional organisations and NGOs / CSOs should promote and facilitate the development and training of communities and individuals to strengthen and assist their participation in the area of sustainable **water resource management**.

Theme 5

INSTITUTIONAL ARRANGEMENTS

(Policy, Planning and Legislation; Institutional Strengthening)

ACTIONS REQUIRED

Actions	Responsibility
1. Review and identify the need for increased capacity and management training in human resources development and planning in the water resource sector – particularly in the area of leadership [customary, professional, civil and political]	Governments Service providers Regional organisations Co-operating agencies International counterparts NGOs / CSOs
2. Provide training opportunities in the practice of good governance with respect to water resource management.	Governments Service providers Regional organisations
3. Identify funding sources for training programme development.	Governments Service providers Regional organisations Co-operating agencies
4. Develop and provided country-specific and regional training programmes, pilot projects, and guidelines in sustainable water resource management.	Governments Service providers Regional organisations Co-operating agencies NGOs / CSOs
5. Review opportunities for regional partnerships in sustainable resource management leadership training.	Governments Service providers Regional organisations Co-operating agencies International counterparts NGOs / CSOs

Theme 6

FINANCE

(Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes)

Key Message 1

Create a better and sustainable environment for investment by both the public and private sector, by developing and implementing National, sector and strategic plans that identify the economic, environmental and social costs of different services and develop pricing policies, which ensure the proper allocation of resources for the water sector

SUPPORTING STATEMENTS:

1. Governments, regional organisations, donors, the private sector and NGOs / SCOs should co-operate to develop innovative approaches to existing funding structures and establish mechanisms to improve cost-recovery.
2. Where appropriate, governments, regional organisations and NGOs / SCOs should cooperate to attract the private sector to invest in sustainable water resource management through private / public partnership and other mechanisms.
3. Governments, donors and regional organisations should co-operate to develop appropriate service delivery and funding mechanisms to equitably address the sustainable water resource management needs of all in both the urban and rural community.

Theme 6 FINANCE

(Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes)

ACTIONS REQUIRED

Actions	Responsibility
1. Improve regulatory oversight and sector governance	Government
2. Develop sector master plans to identify funding and cost recovery requirements and benefits in terms of improved health and poverty alleviation objectives	Government
3. Investigate possible conjunctive use of water from other infrastructure projects (such as hydro dams etc)	Utility/Govt
4. Consider separate potable water and salt/grey water systems for different treatment uses	Utility/Client
5. Adopt polluter pays principles	Government
6. Identify potential benefits of partnerships in service provision such as joint ventures	Government
7. Assess potential for contracting out particular functions to local groups such as leak detection, billing, aspects of equipment maintenance, etc	Utility/Govt
8. Improve bankability of enterprise to investors & donors	Utility/Govt
9. Improve demand management	Utility/Govt
10. Develop tariff policies and structures to generate revenues to meet financial and cost recovery policies	Utility/Govt
11. Policy for transparent, sustainable, targeted subsidies	Government

Theme 6 FINANCE

(Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes)

Key Message 2

Establish financially viable enterprises for water and sanitation that result in improved performance by developing appropriate financial and cost recovery policies, tariffs, billing and collection systems, financial and operating systems

ACTIONS REQUIRED

Actions	Responsibility
1. Develop business plans, financial plans, and financially sustainable cost recovery strategies	Utility/Govt
1. Improve billing and collection procedures and legislate disconnection policies	Utility/Govt
2. Develop tariff structures to achieve adequate cost recovery (but protects affordability)	Utility/Govt
3. Establish sound asset management procedures and funding, including proper operation and management practices	Utility
4. Information sharing and capacity building for sustainable sector finance	Utility
5. Consider potential cost-savings through multifunction authorities	Government
6. Align tariff increases to service improvements	Utility
7. Allow water utility to keep tariff revenues	Government
8. Increase consultation and public awareness to support need for cost recovery and hence tariffs or tariff increases	Utility
9. Report in transparent manner including costs and tariffs to all stakeholders including consumers	Utility

Theme 6 FINANCE

(Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes)

Key Message 3

Reduce costs through improved operational efficiency, using benchmarking, development of water loss reduction programmes and improved work practices.

ACTIONS REQUIRED

Actions	Responsibility
1. Reduce water losses through water loss reduction programmes	Utility/Client
2. Use of water-saving devices to reduce wastage (by customers)	Utility/Client
3. Benchmarking to reduce costs, electricity, staff numbers and salaries	Utility/Regional
4. Report in transparent manner including costs and tariffs to all stakeholders	Utility/Govt
5. Information sharing and capacity building	Utility/Regional

Theme 6 FINANCE

(Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes)

Key Message 4

Ensure access for the poor to water and sanitation services by developing pro poor policies that include tariffs with lifeline blocks and transparent and targeted subsidies

ACTIONS REQUIRED

Actions	Responsibility
1. Clear framework for participation by poor	Local Govt/Govt
2. Use Trust funds for community water supply and sanitation	Local Govt/Govt
3. Affordable cost recovery policies, tariffs with life line blocks to ensure services supplied at affordable prices.	Utility/Government
4. Policy for transparent, sustainable, targeted subsidies	Govt

Theme 6 FINANCE

(Costs And Tariffs, Alternative Models; Role of Donor Organisations and Financing Institutes)

Key Message 5

Achieve sustainable rural water and sanitation services at a community level through developing strategies that incorporate mechanisms for appropriate financing and capacity building

ACTIONS REQUIRED

Actions	Responsibility
1. Formulate policy for financing rural water supply and sanitation	Government
2. Formulate strategy to increase funding for rural water supply and sanitation	Local Govt/Govt
3. Strengthen capacity of water committees/community groups for self-sufficient operation and maintenance of community managed water supply and sanitation facilities	Local Govt/Govt
4. Formulate policy for financing rural water supply and sanitation	Local Govt/Govt
5. Consider Trust funds and community savings schemes as sources for community and rural water supply	Local Govt/Govt