The 3rd World Water Forum
March 16-23,2003 in Kyoto,Shiga and Osaka,Japan

Portfolio of Water Actions

Water in Small Island Countries

Submission form for the Portfolio of Water Actions

SESSION CODE: OTHE – 39	
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DATE: **- 19 March, 2003**	**Session Title: Water in Small Island Countries**
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Pacific and Caribbean Hydrological Cycle Observing System

Sectorial Topic (Note*)	**Water in Small Island Countries**
Actor(s) [Nation (Ministry, Agency)/Organization]	Hydrology Division, World Meteorological Organisation WMO
Partner(s)	South Pacific Applied Geoscience Commission SOPAC Caribbean Institute for Meteorology and Hydrology / Caribbean Environmental Health Institute
Title	**Pacific and Caribbean Hydrological Cycle Observing System (HYCOS)**
Objective	The overall goals of the two projects is that the participating Island countries will: • attain a common level of ability (capacity) to assess and monitor the status and trend of their water resources, and to provide the water-related information and hazard warnings needed to support national social and economic development and environmental management. • have established databases and information archives, maintained to acceptable standards, that form the basis for sustained future data capture and information processing and dissemination. The Projects have three main purposes that contribute to achieving the above goal: 1. To assist the participating countries to establish the human and institutional capacity to assess the status and trend of national water resources and to provide adequate warnings of water-related hazards. 2. To establish basic hydrological monitoring and data capture systems, using technology that balances modernity, economy, robustness, and suitability for Pacific Island circumstances. 3. To establish hydrological databases and information systems that provide users with the information they require, to the standards (including accuracy, timeliness, usability, etc.) they need, and that provide a secure repository of information for the indefinite future.
Contents	**In summary, the main requirements for water-related information that are indicated by the needs analysis are:** • Real-time rainfall and streamflow information for flood forecasting: six countries. • A drought forecasting capability: all countries. • Baseline information on the water resource in waterways having hydropower potential, most of which would be at the micro- or mini-hydro scale: five countries. • Baseline information on surface waters likely to be affected by mining or forestry development, and subsequent monitoring: four countries. • Water resource information, including streams, springs, and aquifers, at a reconnaissance scale, in support of rural water supply projects: all countries. • Baseline and ongoing monitoring information on the quality of groundwater, particularly in the low islands and atolls where aquifers are subject to contamination by human and animal wastes: about ten countries.

Means of Implementation	The Executing Agency will need, during implementation, to: 1. demonstrate to participating country governments, NHSs and other stakeholders the benefits of the Project (which is best done as early as possible); 2. maintain very effective relationships and communication channels with the Project Steering Committee, participating country governments, and stakeholders, especially those involved in public sector institutional strengthening; 3. Update the analysis of NHS needs annually, as a basis for including capacity building in the annual plans; 4. incorporate into the annual plans a regularly updated risk management strategy; 5. carefully monitor during years 1 to 4 the progress of each NHS in establishing and sustaining the desired capabilities, and identify any under-achievement; 6. target capacity building at the areas and participating countries where there is greatest need.
Target Year	2004-2010
Target Area / Place	Small Island Countries in the Caribbean and the Pacific
Expected Outcome(s)	It has six 'output delivery" components, and one "management" component: Component 1: Flood forecasting capability. Objective: To develop a methodology for flood forecasting and implement it in 15 selected critical catchments in the participating countries. *Component 2*: Water resources assessment in major rivers. *Objective:* That participating countries with significant surface water resources have in place a basic network of near-real time hydrological observing stations and the capability to securely archive incoming data. *Component 3*: Water resources databases. *Objective:* That participating countries will have national hydrological databases that are secure and meet agreed data quality standards, and the capability to maintain them and generate information products that meet users' needs. *Component 4*: Drought forecasting. *Objective:* To develop and implement a common approach to drought forecasting in participating countries. *Component 5*: Groundwater monitoring and assessment. *Objective:* To establish in participating countries a basic capability in monitoring and assessment of groundwater resources. *Component 6*: Water quality monitoring and assessment. *Objective:* To establish in participating countries a basic capability in monitoring and assessment of water quality and chemistry. *Component 7*: Project management. *Objective*: To have Project management systems in place and implemented that (1) ensure that contracted outputs are delivered on time, to standard, and within budget; (2) enable the Project to respond promptly to changing requirements; (3) facilitate the participation of stakeholders in Project affairs; (4) provide timely and accurate reporting.
Relevance to the Plan of Implementation of WSSD	Chapter 2: Poverty Eradication: halving by 2015 people without drinking water & sanitation. Chapter 4: Protecting & Managing the Natural Resource Base of Economic and Social Development: in relation to water resources: launching programmes of action, mobilizing financial resources & innovative technologies, develop integrated water resources management & efficiency plans. Chapter 7: Sustainable Development of Small Island Developing States: recognition of special needs for freshwater programmes, capacity building, technology transfer, & risk management including of extreme weather events and climate change.

Other Information	
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Caribbean-Pacific Joint Programme for Action

Sectorial Topic	**Water in Small Island Countries**
Actor(s) **[Nation (Ministry,** Agency)/Organization]	Vincent Sweeney, Caribbean Environmental Health Institute (CEHI) Alf Simpson, South Pacific Applied Geoscience Commission (SOPAC)
Partner(s)	
Title	**Caribbean-Pacific Joint Programme for Action (JpfA)**
Objective	The outcomes of the Caribbean and Pacific Dialogues on Water and Climate illustrate the similar challenges that SIDS must address in the management of water resources in the face of increasing climate variability. The Dialogue on Water and Climate was initiated with the aim to improve capacity in water resources management to cope with the impacts of increasing variability of the world's climate, by establishing a platform through which policymakers and water resources managers have better access to, and make better use of, information generated by climatologists and meteorologists. The Dialogue in the Caribbean and Pacific highlighted coping and adaptation strategies, which serve as a clear way forward for addressing the issue of water resources in the face of increased climate variability and change. The Synthesis reports from both Dialogues and the on-going Caribbean-Pacific collaboration serve as a foundation for a Joint Programme of Action on Water and Climate for the two regions and a directive for decision-makers.
Contents	The following actions are proposed in the Joint Programme for Action: **A. RESEARCH** (11 Action Elements) • Strengthen the application of climate information and to strengthen the links between meteorological and hydrological services; • Strengthening institutional capacity for data generation; • Develop rainfall and drought prediction schemes based on existing models; • Enable regional support to develop water application of climate information and prediction; • Implement a programme of climate analysis for assessment of extreme weather events; developing minimum standards for risk assessments; • Implement actions to strengthen national capacity (equipment, training, etc.) using the model outlined in the Pacific Hydrological Cycle Observation System (HYCOS) proposal and recommendations regarding water quality; • Implement a programme of targeted applied research projects to address knowledge gaps in line with recommendations and priorities presented;

	• Develop and/or implement minimum standards for conducting island water resources assessment and monitoring; • Implement appropriate water quality testing capability and associated training at local, national and regional level; • 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); • Utilise the research capabilities at regional science institutions; **B. PUBLIC EDUCATION, AWARENESS AND OUTREACH** (4 Action Elements) • Provide high level briefings on the value of hazard assessment and risk management tools; • Support community participation in appropriate water quality testing programmes targeted at environmental education and awareness of communities, using existing and proposed programmes as models; • Recognize the value of informal community groups; • Including the media as a specific institution. **C. EDUCATION AND TRAINING** (2 Action Elements) • Enhance education and career development opportunities in the water sector; • Implement hydrological training for technicians in line with the recommendations presented in a proposal to meet training needs; **D. POLICY AND INSTITUTIONAL DEVELOPMENT** (5 Action Elements) • Build environment to facilitate the emergence of an IWRM framework • Incorporate the community in policy development at the ground level • Build capacity in use of risk management approach to integrated resource management, in EIAs • Develop appropriate policy/legislative instruments • Harmonize legislation, regulations and policy
Means of Implementation	
Target Year	2003-2010
Target Area / Place	Pacific Small Island Countries

Expected Outcome(s)	South-South collaboration Broadening networks Preparation for Barbados +10
Relevance to the Plan of Implementation of WSSD	Chapter 2: Poverty Eradication: halving by 2015 people without drinking water & sanitation. Chapter 4: Protecting & Managing the Natural Resource Base of Economic and Social Development: in relation to water resources: launching programmes of action, mobilizing financial resources & innovative technologies, develop integrated water resources management & efficiency plans. Chapter 7: Sustainable Development of Small Island Developing States: recognition of special needs for freshwater programmes, capacity building, technology transfer, & risk management including of extreme weather events and climate change.
Other Information	The Caribbean and Pacific regions have a history of partnership on environment and sustainable development issues. This ranges from their participation in the Alliance of Small Island States (AOSIS) and the African-Caribbean-Pacific Group of States (ACP) to their collaboration on the United Nations Summits for Small Island Developing States. One of the more groundbreaking of these summits was the United Nations Global Conference on the Sustainable Development of Small Island Developing States (Barbados, 1994). The Conference was able to bring together countries, the donor community, and non-governmental organisations to identify the specific needs of Small Island Developing States (SIDS). It resulted in the adoption of the Programme of Action for the Sustainable Development of Small Island Developing States. The SIDS Programme of Action highlights the importance of both water resources and climate change. The collaboration between the Pacific and Caribbean regions in the DWC builds on both the SIDS Programme of Action and previous collaboration in the areas of water resources and climate change.
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Pacific Regional Action Plan on Sustainable Water Management

Sectorial Topic	**Water in Small Island Countries**
Actor(s) **[Nation (Ministry,** Agency)/Organization]	Jeffry Stubbs, Asian Development Bank (ADB) Alf Simpson, South Pacific Applied Geoscience Commission (SOPAC)
Partner(s)	**Governments** Pacific island countries and territories American Samoa, Cook Islands, Federated States of Micronesia, Fiji Islands, French Polynesia, Guam, Republic of Kiribati, Republic of the Marshall Islands, Republic of Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu **Intergovernmental Organisations** Pacific Islands Forum Secretariat (PIFS), Secretariat of the Pacific Community (SPC), South Pacific Applied Geoscience Commission (SOPAC), South Pacific Regional Environmental Program (SPREP) **Potential Major Groups/NGOs** *Universities and capacity building institutes:* University of the South Pacific (USP), Fiji Institute of Technology (FIT), Fiji School of Medicine (FSM), United Nations University (UNU), Australia National University (ANU), Australian Centre for International Agricultural Research (ACIAR), National Institute for Water and Atmospheric Research New Zealand (NIWA), Bureau of Meteorology Australia (BOM), University of Hawaii, Water and Energy Research Institute of the Western Pacific (WERI) at the University of Guam *NGOs:* FSP (Foundation for the People of the South Pacific), Greenpeace, Live & Learn, World Wildlife Fund South Pacific (WWF) *Associations:* Australia Water Association (AWA), New Zealand Water and Wastewater Association (NZWWA), Pacific Water Association (PWA), American Water Works Association (AWWA) **Possible Donors/Partners** Asian Development Bank (ADB), AusAID, CSC (Commonwealth Science Council), Department for International Development (DFID), Economic and Social Commission for Asia and the Pacific (ESCAP), European Union (EU), Global Environment Facility (GEF), GWP (Global Water Partnership), GPA (Global Programme of Action), International Waters, JICA, NZAID, United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Educational, Scientific and Cultural Organisation (UNESCO), United States Department of the Interior, United States Army Corp of Engineers (USACE), United States Environmental Protection Agency USEPA), United States Geological Survey (USGS), The World Bank, World Health Organisation (WHO), World Meteorological Organisation (WMO), Water

	Supply and Sanitation Collaborative Council (WSSCC)
Title	**Pacific Regional Action Plan on Sustainable Water Management**
Objective	The main objective is to achieve Sustainable Water and Wastewater Management in Pacific Island Countries through: The establishment of a network of persons and organisations that work in the different fields of water resources management and service delivery in the region, but are often unrelated, where they should be integrated. Water partnerships can bring in stakeholders that are important players, which however are not actively involved in water management. A Pacific Regional Consultation on "Water in Small Island Countries" in preparation for the 3rd World Water Forum organized by the Asian Development Bank and SOPAC. The consultation, which is co-sponsored by the 3rd World Water Forum Secretariat, AusAID, the Dialogue on Water and Climate, DFID, NZAID, the Pacific Water Association and the World Bank, aims to help small island country practitioners and regional and international organisations strengthen their policies, institutional arrangements and projects through: • enhancing public awareness of the need for better water and wastewater management; • exchanging views and experiences, and; • developing a shared understanding about policies, institutional frameworks and approaches to sustainable sector development.
Contents	Expected results to be determined by countries on the basis of national water strategies, inputs to the regional consultation as well as the national assessments and stakeholder consultations undertaken for WSSD and the 3rd World Water Forum. The results can include: • Priority actions identified by Pacific Island Countries that will contribute to Sustainable Water Management in the region laid out in a Regional Action Plan and Ministerial Declaration. • Further endorsement of regional proposals that have been developed to address Capacity Building and Awareness through partnerships with regional and international organizations. • Follow up and further commitment provided to the Pacific Wastewater Policy Statement and Framework for Action that has been endorsed by Pacific Island Countries in

	October 2001 which sets out a framework of guiding principles and policies to guide future development and co-operation towards improved, effective and efficient management of wastewater.
Means of Implementation	Pacific Type II Partnership Initiative on Water
Target Year	2003-2010
Target Area / Place	Pacific Small Island Countries
Expected Outcome(s)	Increased capacity in Pacific Island Countries to deliver sustainable management of water and wastewater as a means to contributing to poverty alleviation. Sustainability has to be achieved in the technical, institutional, financial, environmental and social-cultural areas.
Relevance to the Plan of Implementation of WSSD	Chapter 2: Poverty Eradication: halving by 2015 people without drinking water & sanitation. Chapter 4: Protecting & Managing the Natural Resource Base of Economic and Social Development: in relation to water resources: launching programmes of action, mobilizing financial resources & innovative technologies, develop integrated water resources management & efficiency plans. Chapter 7: Sustainable Development of Small Island Developing States: recognition of special needs for freshwater programmes, capacity building, technology transfer, & risk management including of extreme weather events and climate change.
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Water Quality Monitoring and Capacity Building Programme

Sectorial Topic (Note*)	Water in Small Island Countries
Actor(s) [Nation (Ministry, Agency)/Organization]	SOPAC
Partner(s)	World Health Organisation (WHO), Western Pacific Regional Office, Suva, Fiji Institute of Applied Sciences. University of the South Pacific (USP), Suva, Fiji
Title	**Water Quality Monitoring and Capacity Building Programme**
Objective	Creating sustainable national capacity in Pacific Island Countries (PICs) for monitoring water quality, assessing the water quality data and the risk of water-related diseases occurring. This should enable the relevant agencies involved to take actions to safeguard and improve the health of Pacific Island peoples.
Contents	Recent regional consultations (WHO Regional Workshop on Drinking Water Quality and Safety 2001; Sustainable Water Management in the Pacific Workshop 2002) have addressed several ongoing concerns in ability of PICs to accurately assess their water quality such as the following: a. Lack of trained personnel to carry out water quality monitoring in many nations. b. Lack of necessary equipment and reagents to conduct all the necessary basic water quality monitoring tests. c. No quality control and assurance procedures in place to ensure the data being gathered are of good quality. This is a concern, as management decisions based on incorrect data can do more harm than good. d. Water quality data gathered are not properly assessed or evaluated, and it is not sufficiently connected to a realistic and meaningful water quality monitoring program. e. Insufficient guidelines or legislation to regulate any problems related to water quality. f. No organised support network for training and advice for laboratories in the Pacific. The project will focus specifically on improving capacity of PICs to monitor their drinking water quality as this is the area which is most critical in regard to protecting human health. However it is believed that this capacity-building for drinking water will also enable capacity-building in other areas of environmental monitoring (e.g. coastal water quality).
Means of Implementation	The proposed programme will focus on the following key activities: 1. **Review existing water quality monitoring capacity** of the various PICs (American Samoa, Cook Islands, Federated States of Micronesia, Fiji, Guam, Kiribati, Niue, Nauru, Marshall Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu)

	2. **Provide in-country training and resource materials** for the analysis of the basic water quality parameters recommended by WHO: (e.g. residual chlorine, conductivity, turbidity, total and faecal coliforms, pH, nitrate), quality assurance procedures and interpretation of the data gathered. Specifically, in-country involvement will be with the local Water Utility or government department responsible for water quality monitoring. 3. **Supply basic equipment and reagents (where not available) to PICs** to enable the analysis of the basic water quality parameters listed above. The purchasing of equipment is seen as integral to human resources capacity building but any equipment supplied must be simple to use and maintain, particularly given the isolation from technical support for most PICs. High-tech equipment will not be supplied as simple test kits are sufficient for the basic analyses of drinking water. 4. **Collect health statistics** related to water quality (e.g. diarrhoea, typhoid incidence) from the Ministry of Health (MOH) or appropriate agencies in each country. 5. **Distribute public awareness material** to MOHs related to water quality and health (e.g. how to treat water to make it safe to drink, sanitation advice). Distribute simple water testing kits for community-based monitoring and train public health officers on their use. 6. **Conduct a regional evaluation and training workshop** in Fiji at the beginning of the second year for key personnel involved in water quality monitoring in the various PICs. Further training will be given in water analysis, data interpretation and actions to take when samples exceed health guidelines. Data already gathered will be evaluated. Training on the use of a water quality database computer programme will be provided during the workshop. Countries will then be asked to make use of this database. 7. **Measure selected representative samples for heavy metals and pesticides.** There is very little knowledge of these substances in drinking water in most PICs, yet certain water supplies have been identified as being at risk from contamination from industrial or agricultural activities. There is little or no in-country capacity to currently measure water for these substances so samples will be sent out of country for analysis. 8. **Create linkages and a network between laboratories** in the region, with the implementing agencies as the facilitators of this network. Link the participating countries and data gathered to the United Nations Global Environmental Monitoring (GEMS) network that provides global water quality data management, and additional training in water quality monitoring. 9. **Collate data into a single internet-accessed database and write report summarising the water quality data collected**
Target Year	2003-2006
Target Area / Place	Pacific Island Countries listed above

Expected Outcome(s)	1. An improvement of the capacity of the small Pacific Island Countries to monitor their water quality brought about by the training of local personnel and the supply of necessary equipment. 2. Better decision making by relevant agencies and increased public awareness in regard to water quality problems in the region leading to a lowering of the incidences of water-related diseases. 3. Greater knowledge of the water quality in the region and the identification of problem areas requiring further surveillance. 4. Water quality monitoring and public awareness resources developed that are specific to the region's needs. 5. A regional laboratory or laboratories designated, providing accurate and continuing assistance to member countries with their water quality monitoring. 6. Network of water quality monitoring personnel and agencies created and linking countries in the region. 7. Global de-semination of Pacific Island data and information related to water.
Relevance to the Plan of Implementation of WSSD	Chapter 2: Poverty Eradication: halving by 2015 people without drinking water & sanitation. Chapter 4: Protecting & Managing the Natural Resource Base of Economic and Social Development: in relation to water resources: launching programmes of action, mobilizing financial resources & innovative technologies, develop integrated water resources management & efficiency plans. Chapter 7: Sustainable Development of Small Island Developing States: recognition of special needs for freshwater programmes, capacity building, technology transfer, & risk management including of extreme weather events and climate change.
Other Information	IAS-USP operates a laboratory that has been monitoring water quality for over 20 years in the Pacific. Techniques presently used are appropriate to the region and sustainable to the needs of local counterpart staff. The laboratory is currently in the latter stages of preparing to be internationally accredited SOPAC is a non-governmental regional organisation which provides technical advice and support to PICs on water supply, quality and sanitation issues. They have regular travel to and contact with the various PICs. WHO is an international organisation, which provides assistance in water quality monitoring in terms of mitigating health risk. WHO also has water quality guidelines and standards that are universally accepted.
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Regional Water Demand Management Programme

Sectorial Topic (Note*)	Water in Small Island Countries
Actor(s) [Nation (Ministry, Agency)/Organization]	Pacific Water Association PWA
Partner(s)	SOPAC, ADB, ASPA
Title	**Regional Water Demand Management Programme**
Objective	Reduced unaccounted-for water Provide equipment and training package to selected island nations in the Pacific region in order to reduce Unaccounted For Water (UFW) and leakage levels in their reticulation/distribution systems. The island nations receiving the equipment and training will be able to not only reduce leakage, but bring it down to an economically sustainable level which can be maintained and managed.
Contents	The Pacific regional consultation resulted in identifying several key elements or programs that would truly make a difference in developing a sustainable water utility to Pacific Islanders. These are as follows: Key Message: 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: 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, utilising not only specialized equipment throughout the region, but also 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. Actions Required: 1. Review existing water and wastewater technologies and infrastructure and recommend strategies for improvement nationally and to be shared, regionally. Resolving the high unaccounted for water within the regional utilities will reduce the need for additional water resources development. 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 utilising regional partnership to share skills, experiences and expertise. 3. Reduce water losses through reduction programmes including leak detection practices, meter and billing data collection and analysis and installation of water saving devices. 4. Use of water saving devices to reduce wastage. 5. Share skills and techniques between utilities in and outside the region. Key Message: Reduce costs through improved operational efficiency, using benchmarking, development of water loss reduction education programmes and improved work practices. Actions Required: 1. Reduce water losses through water loss reduction programmes.

	2. Use of water-saving devices to reduce wastage by customers. 3. Benchmarking to reduce costs, electricity, staff numbers and salaries.
Means of Implementation	As important as having state of the art equipment, thorough and detailed training is critically important. The utility personnel using the equipment must be able to know what the equipment can do, how it works, and the theory behind the operation. On site training under operational conditions would be the ideal situation as the technicians being trained would be able to apply their training in real situations on their home grounds. The training would consist of classroom theory to familiarize the selected technicians with the equipment, and follow with hands on training combined with a leak detection survey. This would not only enable an immediate benefit to the utility, but give the technicians' confidence in the equipment and their ability to conduct leakage reduction surveys themselves. Training should take up to about 16 weeks to complete on all sites selected
Target Year	2003-2008
Target Area / Place	Small Island Countries in the Pacific
Expected Outcome(s)	The advantages for the Island States are fairly extensive, and are listed as follows: 1) Reduced water losses - leakage is lost revenue. By reducing the amount of water lost to leakage, revenue increases will follow, power and treatment costs will be lowered as a result of more efficient delivery, and existing assets can be stretched, possibly deferring the need to construct new treatment plants, wells, reservoirs, or system renewals. With equipment to constantly monitor leakage levels and localize leaks and illegal connections, leakage can be reduced to optimum levels and be maintained within sustainable levels. 2) Standardization of equipment - as all locations will have the same equipment from the same manufacturer, should any piece of equipment need repairs or servicing, equipment from another location could be used by other operators with no re-training necessary. 3) Maximization of human resources - the proposed equipment is state of the art and not at all labor intensive. Socrates and noise loggers can be deployed by one man and downloaded when required to obtain information on leakage levels and locations of areas of leakage. They operate on their own and allow technicians to perform other work as necessary. Ground microphones require only one trained operator per unit, and correlators require at most a two-man crew. Therefore, a fully independent leak control team could consist of only 2 -4 people. 4) Benchmarking - each utility would be able to set leakage reduction targets to achieve an economic level of leakage over a 5 year period. In addition, each utility would be able to compare their reduction programs and successes with each other at the PWA AGM's each year. If properly implemented this could set a standard for developing nations everywhere. 5) Common training - as a certified, factory trained technician and trainer, I am able provide the same level of training to all utilities in real circumstances on site, combining the training with the first leak detection/leak control survey. All technicians would receive a certificate showing competency on the relevant equipment. 6) Sustainability - as a result of each utility's own efforts, economic levels of leakage could be reached and maintained through a leakage control program the utility would be able to employ with its own equipment and personnel. The reliance on outside contractors would be reduced to only follow up visits to conduct recurrent training. 7) Inter-dependence - while Pacific Island utilities would probably not be able to fully achieve total independence from outside experts, they would, by working together with the advantage of standardization throughout the region and utilizing the Regional Centres for assistance when necessary, achieve a large degree of inter-dependence. 8) Justification for renewal - after a utility conducts a leak detection survey, makes necessary repairs, and re-quantifies leakage levels, these levels should be lowered, in some cases significantly. However, should the gains in leakage reduction not be able to be maintained despite

	proven efforts to locate and repair leaks, and evidence that these efforts have not worked, then justification for seeking aid funding to renew the water system can be made by proven, hard data. 9) Provable results - with Socrates able to measure accurate leakage levels in a zone, both before leak detection surveys and after repairs, the aid agency will be able to have tangible results as to how effectively their aid money is used, at least on this project. In the past, other organizations have tried to address the leak detection problem. The World Health Organization (WHO) contracted a consultant from Great Britain to demonstrate the leak detection process in the Cook Islands. The consultant was on island for several weeks, provided an excellent service, and then completed his contract and removed his equipment when he returned to Great Britain. SOPAC also has a set of equipment and over the last year, had one employee travel to several islands to demonstrate the leak detection process and again when she left island the equipment went with her. This has not provided the sustainability that we are endeavoring to create amongst our Pacific Water Association members. In order to insure that the equipment is effectively employed, we have set up a process to make sure that the equipment provided under this proposal, will be used productively. Two (2) steps have been created to insure that the equipment is used productively. It is not considered sustainable if the equipment is sitting around unused: 1) Provide an in-depth training program on site for every utility receiving the equipment. It would be necessary to co-ordinate with the managers of each recipient utility to ensure the right personnel are proposed for training. The PWA has identified one of our Allied members, who specialize in this work, to provide the training and who would make absolutely sure that all designated operators were able to effectively perform those tasks necessary to conduct leak detection and leak control exercises. We estimate that this could take up to 4 months 2) Quarterly reports would be required from each utility specifying among other things what was being done, how many leaks were being found and repaired and how leakage levels were falling. This could be reported to PWA as coordinator of the project, and forwarded to the trainer as overall project manager to review the information and provide feedback and support. It is also proposed that in years 3 and 5 re-training or follow up visits could be made to ensure all was well with operator use. It goes without saying that the PWA would be responsible to along with our Allied member to provide whatever technical assistance was required and when needed.
Relevance to the Plan of Implementation of WSSD	Chapter 2: Poverty Eradication: halving by 2015 people without drinking water & sanitation. Chapter 4: Protecting & Managing the Natural Resource Base of Economic and Social Development: in relation to water resources: launching programmes of action, mobilizing financial resources & innovative technologies, develop integrated water resources management & efficiency plans. Chapter 7: Sustainable Development of Small Island Developing States: recognition of special needs for freshwater programmes, capacity building, technology transfer, & risk management including of extreme weather events and climate change.
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Programme for Water Governance

Sectorial Topic (Note*)	Water in Small Island Countries
Actor(s) [Nation (Ministry, Agency)/Organization]	European Union
Partner(s)	SOPAC, CEHI
Title	**Programme for Water Governance (PfWG)**
Objective	Based on the rationale and the assessment of water governance needs, programme objectives are proposed for the Pacific region. The programme goals of the PfWG for the Pacific region are: • **to provide support for pilot project initiatives in water governance in a range of PICs so as to indicate how to introduce IWRM and good governance principles can advance gains in water sector management;** • **to provide examples of how to move forward with water governance for small island countries at different levels of governance development.**
Contents	The scale of PfWG funding available for 2003-2004 suggests a seed programme in which some short-term strategic interventions are possible. The PfWG needs to be coordinated at regional level, with the majority of the effort directed to pilot project activities in selected countries which advance or build on existing initiatives and intentions. The major focus of the PfWG proposal is on activities in selected PIC's which will act as 'Best Practice' examples in countries selected for in various stages in water governance development.
Means of Implementation	Therefore the approach to programme design using regional activities and stages of development will be: 1. adopt a programme rationale and selection criteria for IWRM/governance issues and country selection; 2. identify countries and governance issues for targeting during PfWG, and develop in-principle TOR for implementing the pilot projects as part of the funding proposal; 3. Conduct a regional review/discussion and obtain regional support; 4. with the PICs in question, refine the terms or reference and design the pilot intervention project; 5. develop regional and country awareness of water governance issues, concerns and 'good' Water Governance principles and how they can be applied in the Pacific social and cultural context.
Target Year	2003-2004

The 3rd World Water Forum
March 16-23,2003 in Kyoto,Shiga and Osaka,Japan

Target Area / Place	Small Island Countries in the Caribbean and the Pacific
Expected Outcome(s)	The PfWG 2003-2004 is considered to be capable of supporting: • an initial regional phase to set up the programme, involving regional consultation, dissemination of programme objectives, confirmation of country selection and clarification of country programmes, and education and awareness; • a main phase, involving the design and initial implementation of the pilot projects in the three selected countries; • inter-regional coordination and networking with the Caribbean region, to exchange experiences and discuss further development of water government initiatives; • concluding phase of the agreed pilot projects including reporting of country pilot project outcomes, milestones achieved, discussion of lessons learned and potential for wider application, and consideration of further water governance inputs.
Relevance to the Plan of Implementation of WSSD	Chapter 2: Poverty Eradication: halving by 2015 people without drinking water & sanitation. Chapter 4: Protecting & Managing the Natural Resource Base of Economic and Social Development: in relation to water resources: launching programmes of action, mobilizing financial resources & innovative technologies, develop integrated water resources management & efficiency plans. Chapter 7: Sustainable Development of Small Island Developing States: recognition of special needs for freshwater programmes, capacity building, technology transfer, & risk management including of extreme weather events and climate change.
Other Information	
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