

## Sustainable Water Management in the Pacific Islands

### Theme 3 Awareness

Theme Three, which is entitled ‘Awareness’ covers the complex and broad ranging issues of advocacy, political will, community participation, gender equity, and environmental understanding. The following draft Overview summarises some aspects of these issues, which apply to small island countries in the Pacific. A final draft of the Overview will be developed when input has been received from the Country Delegates and other participants during the Regional Consultation in Fiji at the end of July 2002.

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## 1.0 Introduction

To be human, is to be water. Over half the weight of a human body consists of water. The biological significance of water in human life transcends its importance as an essential resource, and perhaps explains the deep emotional and mythological meanings associated with water (Robinson 1978). On a more functional level, the vital nature of water as a resource can be illustrated by referring to the various purposes to which it is put by humans. Different perceptions of water and its appropriate functions can help explain conflicts, which arise over its allocation and use. Separate and specialised planning and management of water for different uses can increase that conflict and lack of co-operation. For example, “water for municipal and industrial use appears to have a separate value from that used in agriculture, while water which sustains ecosystems or fisheries, is often not valued at all. The move towards integrated water resources management can be interpreted as a call to re-develop shared water values” (Prince of Orange 2002).

To bring about a sustainable water and sanitation sector in small island countries, a three-pronged strategy of advocacy, social mobilisation and communication is advisable. This approach can break down power structures and encourage dialogue between all partners, allowing the voicesless to speak, modifying the influence of those who usually dominant, encouraging group spirit and devolving planning and decision-making down the hierarchy. The increased participation in planning and training can help avoid chaotic duplication of efforts and increase ownership in program goals. Using this three pronged strategy in sanitation, hygiene and water programs can have a significant impact on public health, sustainable development and protection of natural assets.

While the concept of sustainability has been in vogue for some time, there appears to be an absence of a “logical and universally acceptable definition of sustainability” (Hill 1998). The lack of a definitive interpretation has created a situation where the word can be applied to vague environmentally oriented notions of which nearly everyone approves, whilst failing to address the underlying causes of environmental degradation. ‘Sustainable’ when applied to water supply and sanitation should include the protection and maintenance of human health and well being while contributing to the preservation and productivity of biological systems – “measured as biomass per unit area per unit time, over many decades” (Hamblin 1991). For example, it has been observed that “the criteria for a sustainable sewage system is the efficient recycling of nutrients from sewage back to agriculture, the efficient use of physical resources with only limited use of non-renewable resources, and the non-significant impact (no deterioration in ecological productivity or diversity) on the surrounding ecology” (Fane et al. 1999).

Sustainability is also intended to include the socio-cultural acceptance, use, and capacity for maintenance, of appropriate water supply and sanitation systems. Creating sustainable systems will, in many cases, require significant behaviour changes on the part of individuals and communities. Proposals that promise to deliver

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environmentally sustainable management, without altering current behaviour related to resource and energy consumption or environmentally destructive practices, are either dishonest or uninformed.

### **1.1 Advocacy**

The word advocacy has its origins in law and is defined by most dictionaries as the process of ‘speaking on behalf of someone’. It has evolved to include work undertaken by development agencies, civil society groups and individuals to bring about change. This has been described as ‘the process of using information strategically to change policies that affect the lives of disadvantaged people’. Another definition of advocacy could be ‘advocating on behalf of the voiceless’ or ‘assisting the voiceless to develop and use their voice’.

Advocacy in this context encompasses a range of activities, all focusing on a process of change toward an improved quality of life, which is sustainable. This change may be in policies and laws, in the implementation of these policies, or even in people’s awareness of the policies and their own rights. For example, advocacy work could be undertaken to change the policy of a national government to take greater account of communities’ rights to participate in the design and management of their water supply and sanitation services. In another case, such a policy may exist but government agencies and their contractors may not be implementing the policy or may not adhere to standards of implementation agreed, a situation again requiring a process of change through advocacy to ensure enforcement of policies. On the other hand, local communities may not be aware of a change in policy and therefore may not be claiming the rights that they are entitled to, in which case advocacy work could be directed at changing levels of awareness and understanding about existing policy.

This process of change which advocacy aims to bring about can occur at different levels, from the local community level to the national and international levels. Change at one level may be necessary for change at another. For example, it is recognised that influences on national government policies comes both from within the country and from external sources such as international funding bodies. Therefore advocacy work is undertaken at the local, national and international levels in order to achieve change in national policies, practices and programs. A groundswell of change at the local level may lead to a corresponding change in policy at the national level. Change can also occur at different stages in the decision-making process. Therefore advocacy involves addressing the following questions and working for change where required.

- ?? **Who makes the decisions?:** participation of civil society, representation of community.
- ?? **What is decided?:** legislation, policies, budgets, programs, practices.
- ?? **How are decisions made?:** accountability and transparency; participation of local communities to be affected.
- ?? **How are decisions enforced or implemented?:** accountability, awareness raising.

An important aspect of advocacy work is the involvement of communities themselves in advocating for change. This is referred to by some agencies as ‘rooted advocacy’ or ‘people-centred advocacy’.

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Effective advocacy needs to include, not only the promotion of positive water development initiatives ('good practice' advocacy), but also the four following dimensions if it is to begin to address the policies and practices that perpetuate poverty and inequitable access to resources:

- ?? bringing about change in policies and programs (the 'policy dimension'),
- ?? 'strengthening the capacity, organisation and power of civil society and its involvement in decision-making (the 'civil society dimension').
- ?? increasing the legitimacy of civil society's participation and improving the accountability of public institutions (the 'democratic space dimension').
- ?? improving the material situation of the poor and expanding people's self-awareness as citizens with responsibilities and rights (the 'individual gain dimension') (WaterAid 2001).

## **1.2 Social Mobilisation**

Social mobilisation is the process of bringing together all feasible inter-sectoral social allies to raise people's awareness of, and demand for, a particular program or behaviour, to assist in the delivery of services and reinforcement of behaviour, and to strengthen community participation for sustainability and self-reliance.

Social mobilisation should result from concerted advocacy. When a society is mobilised for a behaviour change, or program, such as improved sanitation and water supply various communities at various levels become active partners in advocacy, communication, training and service delivery. This includes representation from grass roots, inter-ministerial, non-government, utilities, voluntary groups, village organisations, professionals, artists, entertainers, the private sector, schools, and religious bodies. Case Study 1 provides an example of a local society mobilised to address integrated water resource management.

## **1.3 Program Communication**

Program Communication is the process of identifying, segmenting and targeting specific groups/audiences with particular strategies, messages, or training through various mass media, and traditional and non traditional inter-personal channels.

For sustained behavioural change the message must strike a chord in the receiver through appropriate credible channels. Some kind of enlightened self-interest needs to be stimulated, whether the targeted audience are politicians, government personnel, entrepreneurs, farmers, fisherpeople, or householders. Field workers require training in inter-personal and communication skills and the backing of creative support materials to establish productive dialogue with the target audience. To feel moved to change behaviour and attitudes, the target audience needs to be engaged and empowered by the communication process. It has been observed that people remember:

- ?? 20% of the information they hear
- ?? 30% of the information they see
- ?? 40% of the information they hear and see
- ?? 70% of the information that they hear, see, and talk about
- ?? 90% of what they hear, see, talk about, and do (SPACHEE/Ecowoman 2000)

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Passive lectures are least likely to stimulate change, and even messages conveyed in an entertaining media, may be remembered, but may not be acted upon. People need to be inspired to care about what is happening. They need to be aware that something is wrong, they have to believe the information they are receiving, they need to feel it affects their welfare, they should be allowed the space to formulate their own solutions, and most importantly, there has to be something within their power that they can do about it.

## **2.0 Issues, Concerns and Constraints**

There are many inter-related factors that impact on the development of a sustainable water and sanitation sector in small island countries. As this Overview covers eighteen Pacific Island Countries (PICs) with significant differences in physical conditions such as rainfall patterns, geology, vegetation, hydrology, and in socio-economic conditions, the issues raised are general, and will be more relevant to some communities than others.

### **2.1 The need for investment in behaviour change**

In relation to water supply and waste water management, there has been a preoccupation with ‘coverage’ and technical solutions without understanding the need for equal investment in behaviour change. The number of people who theoretically have access to water supply or sanitation systems is not the only measure of success. Water may have been supplied to a community with no indication of improvement in health, or reduction in poverty. Toilets may have been built but are not being used, or are being vandalised. Sewage or waste water may be contained, transported and/or treated but not sufficiently to control pollution, or the system is not adequately maintained. Rainwater tanks may have been provided but gutters and downpipes are not maintained. People have reasons for not using a service provided or misusing a resource. These reasons need to be understood and can cover a broad range of socio-cultural and practical factors, which may be internal to the particular household or the community, or the result of external influence.

For example, it has been suggested that over the last 50 years a small technical elite, in developed countries, has developed “a powerful, appealing, intellectual paradigm of water resource planning” (Winpenny 1994). Water resource management has been equated with the construction of water supply projects and statistical measurements of water flows, and the engineering dilemmas of building water supply structures and their associated costs. However, it was assumed that there were plentiful water resources available, and that governments would absorb “the major portion of costs when water was publicly supplied at rate structures that favoured consumption rather than constraint in use” (United Nations 1976). This approach has been imported into Island communities through donor funded infrastructure programs and has often replaced independent on-site water sources, such as private wells. With centralised supply there has been a loss of the traditional household responsibility and concern for water conservation and protection. This is reflected in the careless use of reticulated water, the failure to report obvious leaks, reluctance to pay water bills,

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illegal connections, the degradation of water reserves and a general disinterest in the condition of the communal resource.

Similarly, the introduction and promotion of excreta management systems and practices such as flush toilets has replaced traditional strategic use of bush areas and the beach, without taking into account local vulnerabilities, such as pollution of groundwater from these technologies. Traditional practices of excreta management, while no longer appropriate in urban and semi-rural developments, did at least recognise the need to separate water supply from point sources of pollution, and this indigenous understanding should have been built upon rather than ignored.

In recent times, there has been some shift away from supply orientated approaches toward an emphasis on understanding and controlling demand. However it will take some effort to reverse the habits and attitudes of the past. This will involve time and patience, and skilled dialogue with and between all stakeholders, so that those affected can identify their own concerns and contribute to the development of solutions.

## **2.2 The need for comprehensive information exchange**

Environmental and health education often focuses on increasing knowledge, assuming that when people receive information, they will stop undesirable behaviour. Information may not be relevant, complete or realistic if it fails to take account of local insights, customs, circumstances and priorities. In PIC communities, it appears that the recognition of environmental problems is directly related to an individual's experiences and her/his pre-occupation with survival. People are often more concerned with the 'social environment' ie family and community responsibilities, alcohol related problems, over-population, and the availability of land and cash-in-hand. So, while many people are concerned with having enough water and its taste, and colour (few people are concerned with pathogenic pollution because they can't see it), only those who own land adjacent to the coast are particularly concerned with erosion or sedimentation. Fishermen are more aware of the decline of certain species of fish than fish consumers and women notice the decline of shellfish because the collection of shellfish is commonly their task (Saito 1997).

Many environment and health related messages are given in the form of lectures or one-way mass media. People are told 'what to do' without opportunity to discuss and identify their own concerns, so do not remember or apply the information. Even if the media is entertaining such as theatre, video or song, there is often a need for exchange of information and direct experience for the message to become relevant. Hence the usefulness of demonstrations, inter-active workshops and community operated pilot projects.

Even if people have access to good quality water, there may be minimal improvement in health, because of poor personal and household hygiene. Hygiene programs are sometimes limited to information and promotion, and fail to include and address the actual risks of transmitting diseases. Pathogenic pathways include the inappropriate management of faeces (especially children's), fluids, flies and food, in the home, in public places, in the bush and on the beach. Effective communication about these

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sensitive issues usually requires ongoing intensive fieldwork to achieve altered behaviour.

Education relating to public health and environmental protection from external promoters can be insignificant. People tend to adopt or discard practices for which they get approval or disapproval from important others (respected relatives, peers, opinion leaders, informal leaders, friends). People need to understand/experience why the new behaviour has more benefits than the old one (easier life, obvious improvement in health, increased or protected income generation, more status, approval from respected persons).

Surveys undertaken in PICs indicate that only a small percentage of people fully understand or are interested in the adverse affects of their behaviour on their natural assets (A-N-D 2000). There does not appear to be a sense of urgency, perhaps because communities are no longer solely dependent on natural resources for their survival. Some communities do not appreciate the direct and indirect cost (time, inconvenience, anxiety about sick children) which they have already been 'paying' because of environmental degradation. For example: having to boil water because it is contaminated; tolerating skin irritations from excessively chlorinated water; suffering from various illnesses related to inappropriate sewage and solid waste disposal; and needing to travel greater distances in order to catch an inadequate amount of fish (Saito 1997; Saitala and Paelate 1996; Pers. comm. Fonua 1999).

Although there is an ongoing effort to promote conservation and protection of water resources and other natural assets in PIC communities, the well-funded and powerful commercial promotion of consumerism often conflicts with the conservation message. Successfully persuading people to purchase and consume as much as possible is perceived by many economic analysts as the sign of a healthy economy (Roseland 1999). These two trends of persuasion are on a constant collision course, and have been for many decades in developed countries. There is increasing pressure on young families in PICs especially in the urban areas with exposure to media advertising, and the proliferation of supermarkets. The use of packaging and manufactured goods has greatly increased in recent years, generating vast quantities of non-biodegradable waste that is often discarded in rivers, bays, and on beaches, or is burnt in household and municipal dumps thus leaching pollutants into groundwater (Raj 2000).

### **2.3 Capacity and control are required for behaviour change**

Even if people have changed their attitudes and become convinced that different activities are desirable, they may lack the possibility or opportunity to change their behaviour. They may have insufficient time, skills, flexibility or viable alternatives. For example, cane farmers in Fiji whose farming and clearing methods cause turbidity and sedimentation in surface waters may be unaware of other possible techniques, or may be unmotivated to change because they are on rented land. They require information/ assistance with alternative practices. People may have become aware of the groundwater pollution and threat to public health caused by inappropriate disposal of solid and hazardous waste, but there may be no obvious or convenient options available for safe disposal.

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Changes in behaviour can be limited by issues of autonomy, such as who in the household or community controls the facilities, equipment and supplies. Specific strategies are required to assess whether women and men have different needs, priorities and resources and to involve both in generally accepted solutions. Inclusion of young people in decision-making and problem solving also contributes to the sustainability of programs to conserve natural assets and improve quality of life.

Government personnel who have been inspired by training, which they have received in-country or overseas, can become demoralised if there are no resources available, or if initiative is not encouraged. In some cases, Government Departments do not have sufficient money even to pay for petrol for transport to fieldwork, or there is institutional resistance to any change in procedures. This lack of opportunity to use newly acquired skills can also contribute to 'brain drain' to more interesting and better-paid jobs in developed countries.

#### **2.4 Cultural and structural barriers to information exchange**

As the issues around water and sanitation are so complex and diverse and touch on many practical and personal aspects of people's lives, experience and skill is required to engage stakeholders in identifying their concerns and working toward sustainable solutions. "Message carriers" require capacity building. Field workers need training in inter-personal and communication skills, backed up by relevant support materials and media, in order to become effective communicators on water, sanitation, hygiene, and environment issues. Traditional channels of communication and decision-making, and respect for local taboos, needs to be understood and integrated with non-traditional methods.

Government personnel who have been trained in specific skills or participated in workshops, conferences, or monitoring programs require strong incentives to pass on information to their colleagues. This sharing of information is resisted for a number of cultural and institutional reasons. As one public servant commented:

People here don't poke their nose into other peoples business...and it happens in the office too, we don't usually know what other sections of the Division are doing. When the head of the Division or others go to a conference, nobody knows where they have gone or what happened when they came back. There is no exchange of information (Pers. comm. Kamauti 1999).

There are often no clear roles or functions for the various agencies regarding the management of water and waste water, nor a single agency or committee designated to co-ordinate their projects and activities. For example, the Ministry of Health may deal with supervision, the Utilities Board may be responsible for maintenance of infrastructure, and the Ministry of Lands and Survey may control land use. It is often difficult to get personnel from the various agencies to communicate about inter-related problems and solutions, much less co-operate (Pers. comm. Helu 1999). Inter-sector and inter-department communications need structural facilitation (eg between water resource management, water and sanitation service providers, health and environment, and agriculture agencies).

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The lack of co-ordination among government and non-government organisations can also result in donor funded programs being conducted with one agency without awareness of related programs being funded with some other relevant agency. This can lead to duplication of efforts, wasting of resources, and unsustainability of water and sanitation programs (Raj 2000). Donor agencies could assist by maintaining accessible networks/database to avoid duplication of projects and activities. Regional organisations also need to share information about related activities, and combine resources to address inter-related challenges. On all levels, reluctance to co-operate and share information is partially related to ‘protection of turf’ and competition for limited funds. Somehow this needs to be overcome so that the organisations themselves remain viable, while the overall purpose for their existence is efficiently achieved.

## **2.5 Stakeholders need to be involved in decision making and management**

The recently acknowledged requirement to involve stakeholders in decision-making and management is based on decades of failures in programs that have been conducted ‘from the top down’. The ‘Integrated Water Resource Management Approach’ which is now being advocated requires that decision-making processes be devolved to the lowest appropriate level capable of handling such tasks, such local government and community-based institutions.

An inclusive process can be time consuming, difficult and expensive, and there is no fixed format on how it should be done, or to what degree. However, there are some obvious inequities which require attention. For example 90% of PIC population use on-site sanitation systems therefore they should be represented at Water & Sanitation fora and policy making events. Usually delegates only represent the 10% of the population who use reticulated systems, and these delegates are usually men, even though women are often responsible for water and sanitation management in the home.

Training programs are usually focused on government or utility personnel. Training in the implementation of water and sanitation technology should include the users of on-site water and sanitation systems. These major stakeholders require demonstrated instruction so that they know why and how to properly locate, build, and maintain septic tanks, toilet cisterns, pit latrines, private wells, raintanks, and composting toilets.

One of the difficulties of stakeholder participation in decision-making and management is that ‘communities’ are differentiated and do not have one voice, therefore time and patience is needed to use traditional and non-traditional methods of communication, conflict resolution and decision making. Donors may have to adjust funding mechanisms to these time frames.

While government institutions, (or the private sector) may be responsible for planning and operating centralised water and sanitation facilities, a pre-requisite is the acquisition of suitable land. In PICs most land is customary owned, (or Crown owned as in Tonga) and land use decisions are often community-based. This may lead to difficulty and expense acquiring land for any public utilities such as reticulated water or sewerage systems, or water reserves, as governments may not be in a position to

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make the necessary land use decisions or afford compensation (Jones 1995; SPREP:SKM-Kiribati 2000; Dever 2000; ADB 2000; Jones 2001). Customary lands are diverse in their tenures and cultural past. Problems encountered by government and private developers include protracted negotiations for land leasing and acquisition, unresolved land disputes and demand for ad hoc increases in rent by indigenous landowners (White et al. 1999; ADB 2000). Therefore thorough strategic consultation and assessment prior to acquisition of land is highly desirable and maintaining community 'ownership' of these facilities could replace conflict with empowerment.

A further reason for stakeholder involvement is that communities need to understand and accept what a service costs to operate. If reticulated water or sewerage, or municipal waste management, is highly subsidised it is unlikely to be sustainable in the long-term. Strategies need to be developed with stakeholders that can be sustained at the local level, and create the necessary skills and capacity for local production and procurement. User-pays is a good incentive to conserve water but resistance to payment will continue if there is no sense of common ownership and responsibility for water resources.

Even with services that are considered essential, such as reticulated water, householders in PICs often do not pay their utility bills, despite the low charges and threat of disconnection if payment is not received (Crocker 1996). Any funding of centralised water and sewerage services in PICs will have to take into account the likely inability of some low-income families to make regular cash contributions (SWA 1997; Raj 2000). This indicates an economic imperative to develop low cost options for improved sanitation and community responsibility for water and waste management, in order to reduce pollution loadings.

It is expedient to build on the traditional sense of self reliance. Partnerships between government and civil society to manage water resources is the most feasible strategy in a limited economic base, and customary land tenure conditions.

## **2.6 Political will required to support water management depends on many factors**

It is increasingly apparent that local governments cannot tackle urban and peri-urban environmental problems alone. Coping with problems in densely populated areas in PICs will require that responsibilities be shared and actions taken by a host of actors, including national governments, local governments, non-government organizations (NGOs), community-based organisations (CBOs) the private sector, international donors, and other external support agencies. A high priority should be placed on strengthening the institutional capacity of local administrators to develop and maintain these partnerships – to create the necessary political will to move toward sustainable strategies.

Respected politicians can be useful advocates, but as tenure is short, senior public servants are also an important focus for awareness raising and incentives for conservation and sustainable management. While water supply development can be popular with politicians in PICs, sanitation is often encumbered with taboo and avoidance. Water supply can drain a community's resources leaving little funds to

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attend to appropriate, treatment, disposal or use of waste water. When calculating the economic cost and effort required in undertaking pollution control, it is also necessary to include the costs of doing nothing. These calculations involve community as well as government.

Various reports cite 'waste' from domestic sources as the dominant contributor to pollution in PICs (Convard 1993; UNEP 2000). The serious threats to the environment and consequent affect on livelihood have been identified. Similarly, studies show that one of the most significant health costs globally is due to the impact of infectious disease. The context of greatest importance in the spread and control of infectious disease is the household environment, which is where the majority of susceptible people (especially small children) spend most of their time (DFID 1998; Pers. comm. Biran 2002). Children are the most vulnerable to poor water quality, inadequate sanitation and solid waste disposal, and poor hygiene, but they do not have a political voice.

Diarrhoea is a common infectious condition in many PIC communities (Dahal 1994; Saitala and Paelate 1996; ADB 1996; SWA 1997; ADB 2000; Beatty 2001; Pers. comm. Fonua 1999, Karawaiti 1999, Tim 1996). Diarrhoea is not a disease in itself but a debilitating symptom of diseases caused by viruses, bacteria and parasites. As such, addressing the problem lacks the focus of a single organism disease such as AIDS or Tuberculosis. However similar interventions are required to address the prevention of diarrhoea, irrespective of the organism, and these interventions mainly focus on improving the household and communal living environment.

Health officials in PICs report that many children in their communities under five years of age have diarrhoeal diseases, and it is a leading cause of death in the population (Pers. comm. Fonua 1999; Dahal 1994; Saitala and Paelate 1996; ADB 2000; Beatty 2001). There are also studies throughout the region which demonstrate water supplies are contaminated, which is considered to be one of the main causes of enteric illness and many other infectious diseases (Brodie et al. 1984; Lau and Mink 1987; Detay 1989; Miller et al 1991; Crennan et al. 1999; Anderson et al. 1999; TSP undated). Apart from the human suffering involved, these preventable diseases have an indirect as well as a direct impact, which can be estimated in monetary terms. Politicians and decision-makers need to be made aware of the real costs of mismanagement of water.

Tourism is often used as an incentive to address local water and sanitation needs, but the industry can create stressful demands on limited water services and a burden on fragile ecologies, eg, golf courses, swimming pools, effluent discharge, high water use for laundry and bathrooms. It is necessary to engender a desire to preserve and enhance the island environment for the Islanders, not just for the tourists.

While political support is necessary to initiate and maintain appropriate water management, political interference can result in technology choices that are not sustainable, and lead to inappropriate bi-lateral aid programs. This type of interference from vested interests happens in many countries but in the fragile ecology and limited resources of PICs, the outcomes can have long term disastrous effects that impact on the most vulnerable in society.

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Where conservation legislation does exist, enforcement can be weak in PIC communities where many people are related and/ or interference in the private domain is not welcomed. Hence the need for self-regulation at the community-based level. Donor agencies, lending institutions and investors can stimulate dialogue on policies for sustainable resource management and set constructive funding conditions and this can be a powerful incentive. However the most effective political will often comes from the communities themselves. The essential role of NGOs in advocacy, mobilisation and communication, requires recognition and support.

### **3.0 Activities in advocacy, mobilisation and communication**

There have been many activities undertaken in PICs to develop and support a sustainable water and sanitation sector. Examples are provided in this section. It is important to learn from the successes and failures of those processes, although approaches that have ‘worked’ in one context may not necessarily work in another. Some of these initiatives are covered in detail in the Case Studies to be presented at the Regional Meeting, and are highlighted below.

#### **3.1 Environmental understanding and information exchange**

Environmental understanding and program communication is increasingly becoming a significant component of bi-lateral aid programs, NGO and Regional Organisation activity, and Government unit agenda. Some examples are provided here.

##### TEMPP in Tonga

The Tonga Environmental Planning and Management Strengthening Project (TEMPP) undertaken between 1997 and 2001, and funded by AusAID, was primarily a national capacity building program covering a wide range of environmental concerns, including the protection of water bodies from pollution. Capacity building was provided in Strategic Management Planning, Environmental Planning, Environmental Management, Information and Community Participation, and Project Management (Dever 1999). NGOs were supported to be involved in advocacy, mobilisation and program communication, focusing on such concerns as lagoon restoration, control of pollution from domestic pigs, and women's development issues (Marsh 2001). ‘Message carriers’ undertook media and environmental management training, and an indirect outcome of TEMPP is discussed in **Case Study 3 “Village Mobilisation for Catchment Management”**, where a ‘message carrier’, inspired by her training, independently worked with her Village Committees to minimise waste, protect the lagoon foreshore, and enhance civic pride (Pers. comm. Vi 2002).

##### SAPHE in Kiribati

In 2000 the Sanitation, Public Health, and Environment Improvement Project (SAPHE) began in South Tarawa, funded through an ADB loan. SAPHE aims to improve the development potential of Kiribati and the health and well-being of its people through a sustained program of improvement in water supply, sanitation, solid ‘waste’ disposal, and environment conservation.

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The ADB is also providing two technical assistance grants, for the Management and Financial Advisory Services for Restructuring the Public Utilities Board and for Community Development and Participation Initiatives (CDPI). The community education component of the CDPI is known as the South Tarawa Community Education and Awareness Project which is implemented by FSP-Kiribati, in co-operation with the Kiribati Housing Corporation (KHC).

The CDPI addresses community water supply such as wells and rainwater tanks, environmental sanitation and public health, and this is linked to the pre-existing Kiribati Environmental Education Program (KEEP) conducted by FSP-Kiribati. Activities include community consultation, designing materials for use in education and awareness and consultation activities, trailing compost toilet (CT) designs and conducting CT construction workshops, and strengthening the capacity of project staff and counterparts from relevant agencies and organisations in community development and participation skills. The CDPI mainly focuses on the communities in South Tarawa that will not be serviced by the reticulated water and sewerage systems ie 70% of the population. **Case Study 4** covers the “**Community Development and Participation Initiatives**”

#### KEEP in Kiribati

The Kiribati Environmental Education Programme (KEEP) which began in 1996, and which is now linked to SAPHE-CDPI activities, is implemented by FSP-Kiribati in co-operation with the Environment Unit of the Kiribati Ministry of Environment and Social Development (MESD).

The overarching goal of KEEP is to improve the environmental management of the people of South Tarawa. It is intended that the overall goal of KEEP will be realised by the following objectives:

- ?? Increasing public knowledge and understanding about behaviours that are helpful or harmful to the environment.
- ?? Increasing the range and frequency of environmentally friendly behaviours of the general public and specific interest groups (KEEP 2001).

#### Ecovan in Fiji,

The EcoVan operated by the Department of Environment in Fiji and its agency, the Education and Awareness Unit (EAU), is a mobile multi-media environmental education facility. Activities include participation in Environment Awareness campaigns conducted by other organisations. For example, the Ecovan is extensively used in the National Tidy Towns Competition, National Environment Campaign, International Ozone Day, World Water Day, Clean up Days, University Open Day, National Harbour Week and National Food Day Celebrations. The exhibitions display material provided by different organisations which highlights their environmental activities and includes video shows, and 'hands on' activities.

#### EQPB in Palau

The Environmental Quality and Protection Board (EQPB) under the Office of Environmental Response and Coordination Office of the President in Palau has initiated a number of community-based environmental management programs. The

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EQPB is the environmental regulatory and enforcement agency in Palau with a current staffing of 22 personnel. The EQPB is mandated under the Environmental Quality Protection Act of Palau to provide environmental education (EE) to the general public on the protection and conservation of natural resources, public health and the environment. The EE division of EQPB focuses on school curriculum education in addition to outreach programs in the Palauan community

#### Live & Learn Environmental Education

Live and Learn is non-profit organisation, which understands that it is the young generation who have to face the challenges and long term threats to the environment including urbanisation, outbreak of disease and decline in biodiversity. The approach focuses on developing analytical skills for people to identify their own concerns and builds on local knowledge and perceptions. Live and Learn works with the Curriculum Development Unit/ Fiji Teachers Association in the Green Schools Program which recognises that teachers provide a vital role in creating a sustainable environment through education (Nielsen and Rabici 2000)

*River Care* is one of Live and Learn's programs and this will challenge communities to discuss, debate and ask the hard questions about the links between the river environment and poverty, health and equality. *River Care* aims to:

- ?? Develop an effective water quality-monitoring network throughout individual target countries which specifically aims to promote health conditions.
- ?? Identify pollution 'hot spots' and create public action to improve river and health conditions.
- ?? Initiate a learning process that links critical thinking to direct action in protecting and improving rivers in the South Pacific, and reduce hardship and poverty.

#### Ecowoman/SPACHEE

Ecowomen is a collective of Pacific women engaged in science and technology, which aims to strengthen linkages between professionals in science and technology and their urban and rural counterparts in communities. The collective's stated objectives are to:

- ?? advance equity and empowerment;
- ?? foster respect for traditional knowledge;
- ?? facilitate access to education and skills;
- ?? promote concern for and care of the environment for present and future generations; and
- ?? lighten the load for women.

Ecowoman was established as an long-term initiative of the South Pacific Action Committee for Human Ecology and Environment (SPACHEE) initially supported by the South Pacific Peoples Foundation of Canada (SPPF). SPACHEE provides a central point for expert knowledge on environmental issues and has worked to raise government and popular awareness of environmental topics. This has included projects in urban and peri-urban settlements on developing gardening and yard cleaning services, the production and sale of compost, and improving sanitation.

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Participatory environmental workshops are conducted enhancing livelihood and quality of life for women (OFANews 2001; OFANews 2000; Ecowoman 1998; Pers. comm. Lechte 2002).

#### SOPAC Water and Sanitation Unit

SOPAC is involved in varied communication programs such as producing the Water Education and Awareness Kit. The kit was developed in collaboration with SPREP and it contains a series of fact sheets with corresponding activities that deal with a wide range of water issues eg. water resources, water conservation and pollution, wastewater and sanitation. The kit is suitable for several different age groups and is used as a tool in schools.

SOPAC have also taken the lead role for World Water Day (WWD) activities in the Pacific region. WWD, a UN initiative is an annual event and celebrated globally on the 22nd of March with a different lead global agency each year and different themes. Past themes have included Water for the 21st Century (2000), Water and Health (2001) and Water for Development (2002). SOPAC's WWD campaign activities for the region in the past have included development and dissemination of publication material, and regional school competitions.

In 2002, SOPAC collaborated with Live and Learn Environmental Education to include the WWD message and other water issues in the school curricula and to conduct teacher training workshops using the material developed for WWD 2002. This "training the trainers" was considered a more sustainable approach.

Collaboration has also been undertaken with the National Centre for Health Promotion (NCHP) which is the Awareness section of the Ministry of Health in Fiji. SOPAC is represented on their Environmental Health Advisory Committee, which is concerned with promotion of Health Awareness in rural communities. The main goal of the committee was to improve the health status of rural communities in regard to preventable diseases that are associated with water and sanitation. SOPAC's main involvement was to provide support in the development of publication material namely, posters, leaflets and fact sheets with clear messages.

#### SIDAPP in the Solomon Islands

SIDAPP/Peoples First Network in the Solomon Islands seeks to improve connectivity through e-mail system while dramatically reducing the costs of communication, making it affordable and sustainable over time for low-income users. Particular attention is being given to gender equity and democratic governance. The network can be used to promote eco-friendly business, disaster prevention and mitigation, and sustainable resource management.

### **3.2 Institutional strengthening of Water Utilities**

The programs to institutional strengthen water utilities, which have been conducted in a number of PICs, have included activities to improve relations with the public, and to promote understanding of resource vulnerability and demand management. An example of this trend was demonstrated in the involvement of the Tonga Water Board in a groundwater pollution study/composting toilet trial, which was monitored by

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government personnel, householders (mainly women) and students and teachers. This program is covered in **CASE STUDY 2 “Community involvement in groundwater protection”**

There have also been education programs aimed at encouraging the public to report leaks thus inviting ‘ownership’ of the resource, and weekly radio programs and occasional TV specials on the water cycle and conservation. Improved metering and billing systems has increased the public’s awareness of consumption in Samoa and Tonga, but not necessarily the willingness to pay.

### **3.3 Increased attention to household-centred water supply and sanitation**

Some attention is being given to on-site household-centred water supply and sanitation systems, which increases ownership and supports self reliance. This approach also provides direct experience of benefits of sustainable practices and provides local opportunity to innovate. Examples include the following:

- ?? rainwater harvesting programs in Tuvalu ,Tonga, FSM, and Kiribati;
- ?? improved maintenance of private wells in Tonga;
- ?? dry sanitation trials in Tonga, Kiribati, Palau, FSM, Tuvalu, Fiji;
- ?? the proposed community-based pilot projects through the International Waters Program (Crennan and Berry 2002); and
- ?? the large scale ADB Water and Sanitation project in PNG includes an on-site sanitation component designed with the intention of collaborating with communities and local-level government institutions at all phases of project planning and implementation. The Low-Cost Sanitation-Community Awareness and Health Education (LCS-CAHE) component of the project will be implemented to provide affordable options for on-site sanitation, and a community awareness and health education program for low-income households (ADB 2000; ADB 2001).

### **3.4 Inter-related resource management**

Initiatives that foster integrated and participatory catchment management can enhance the capabilities of people to manage their lives and resources. The management of sustainable water and sanitation systems cannot be addressed in isolation. It is important to understand and demonstrate that outputs of one system are inputs to other systems, and that actions taken now have unpredictable effects for decades to come. There are a number of programs that reflect this multi-disciplinary, cross-sector approach to conserving natural assets and enhancing quality of life.

#### Women in Business, Samoa

Women in Business (WIB) is a non-government organisation which encourages and trains women in business ventures. It has a close working relationship with Ecowoman in Fiji (Refer to Section.3.1). The Foundation is currently focusing on the development of organic farming. Women in Business Foundation have assisted five villages to gain organic status for their products from the National Association of Sustainable Agriculture, Australia Ltd. Five other villages have achieved conversion status for organic products.

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There are significant potential implications of organic certification in PICs as follows:

- ?? allows villages to compete in the niche world market for organic products produced without artificial fertiliser, chemically synthesised weedicides, pesticides, fungicides, fumigants or growth promotants;
- ?? organic farming requires organic fertiliser including compost and mulch from biodegradable material, so an opportunity is created to separate organic material from the waste stream and recycle or reprocess it in bulk for organic farms. Heavy mulching also reduces the need for water consumption, and reduces run-off and potential sedimentation of water ways;
- ?? organic farming avoids the environmental and public health impacts associated with the use of agricultural chemicals, and mineral fertilisers, which contribute to pollution of freshwater catchments and the marine environment (Convard 1993). Many manufactured fertilisers provide only one or two elements in a water soluble form, making them prone to leaching into waterways, especially if incorrectly applied. Nutrients held in organic soil improvers are released slowly thereby greatly reducing potential for leaching; and
- ?? in addition to conserving carbon and nutrients, organic fertilisers also avoid the high input of non-renewable energy required to produce chemical, mineral or non-organic fertilisers.

Women in Business are also involved in promoting the use of composting toilets in villages with very low rainfall, and close proximity to lakes and sensitive water bodies.

#### Waibulabula/Coral Gardens, Fiji

Community-based activities are being undertaken in Cuvu, South Western Viti Levu in Fiji, a coastal district consisting of 8 villages with a population of approximately 2500-3000. Two inter-related projects are being conducted at Tikina Cuvu as a collaboration between the community, a five star tourist resort, government departments and NGOs, and co-ordinated by the Foundation for the Peoples of the South Pacific (FSP-Fiji). The program address the issue of land-based pollutants and their impact on marine and freshwater environments, and adopt a 'grass roots' rather than a 'top down approach' to environmental sanitation and resource management. A significant feature of the project is the process itself, which seeks to empower communities to better understand, and solve their own problems and enhance their livelihood.

The program provides the communities and the resort with simple technologies for treating wastes naturally before they get into the marine or stream environment, while at the same time providing useful products. Waibulabula (Living Waters) ecological treatment systems include native wetland plant species and trees that absorb and use waste, resulting in a cleaner environment and increased local resources. **CASE STUDY 1** will explore "**Waibulabula/Coral Gardens**" and the lessons it has to offer.

### **3.5 Advocacy and leverage for stakeholders**

Non-Government and Regional Organisations play an important role in providing advocacy and leverage in a variety of macro and micro contexts. For example, by conducting multi-stakeholder consultations to feed into policy development for

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sustainable development including water issues. The FSM Alliance of Non Government Organisations (FANGO) was requested by the Pacific Concerns Resource Centre to help organise national multi-stakeholder consultation in the Federated States of Micronesia as part of the Rio+10 review process. The consultation involved key government, NGOs, private sector and civil society organisations. A similar process took place in Palau directed by the Palau Conservation Society and the Office of Environmental Response and Co-ordination, funded by the Earth Council in Fiji. In Tonga, the agency responsible for co-ordinating the involvement of civil society organisations in the consultation was the Tonga Trust, working in collaboration with the Department of Environment.

During 2001, SOPAC, SPREP, and the Pacific Water Association conducted government consultation through a series of fora to assist with development of a Framework for Action for Waste Water in the Pacific. In 2002, the World Wildlife Fund is undertaking consultation to provide input from civil society organisations to the regional consultation on sustainable water management, in preparation for the World Water Forum.

### **3.6 Regional Organisations support applied research and training**

In addition to advocacy work, Regional Organisations support applied research and training. For example, from 1996-1998, UNESCO and SOPAC provided funds and assistance to conduct a groundwater pollution study, which included a community survey of water and sanitation practice and attitudes. The project aims were to establish more comprehensive evidence of the rate and direction of flow of groundwater, the degree of groundwater pollution in the village context, and where pollution was coming from. The overarching question was whether or not there is a safe distance in a village context for the siting of wells and sanitation facilities in relation to each other. This aimed to review the standard criteria that had been imported to the Pacific that 30m was a safe distance between a water supply source such as a well and a source of pollution such as a toilet. That standard had been based on European soils and groundwater characteristics, and had not been adapted to local conditions since its introduction to the Pacific in the 1960s (Dillon 1997). The process involved the collaboration of government personnel from the Ministry of Lands Survey and Natural Resources, Ministry of Health and the Tonga Water Board and involved school children in the monitoring process. **CASE STUDY 2**

UNESCO and SOPAC also supported a groundwater re-charge study in Kiribati, in which a similar process of counterpart responsibility for ongoing conduct of research was incorporated into training of government personnel (White et al.1999). Both these studies stressed the integration of technical and social science in wise water management.

### **3.7 Intersector co-operation**

In recent times, there has been some evidence of emerging intersector co-operation and communication in water management. For example in the Waibulabula/ Coral Gardens program discussed in **CASE STUDY 1**, Government departments, NGOs, CBOs, and the private sector are co-operating in practical programs to find sustainable solutions to conflicting resource requirements.

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As previously mentioned, the various sectors are being brought together through national consultations and regional workshops, and through strengthening of focal departments for environmental management, for example the Department of Environment in Tonga, and the Office of Environmental Response and Co-ordination in Palau.

#### **4.0 Future needs and activities**

Some areas have been identified where more focus and creative activity is desirable. However, the National Papers and dialogue with Country Delegates and other representatives of PICs at the Regional Consultation will clarify and prioritise what is required and what strategic actions need to be taken.

- ?? **Water source and catchment conservation gains recognition but requires further work.** Comprehensive collection and integration of local knowledge is needed, with attention to customary laws and traditional norms for governing resource access, use, and management. The impact of certain polluting activities (eg inappropriate sanitation and waste disposal) and links with poverty, and chronic illness especially in children, needs to be practically demonstrated. Viable non-polluting alternatives require promotion and innovation
- ?? **The framework to allow management at the lowest appropriate level is often not available.** Clear legal frameworks are needed to enshrine rights and responsibilities. While community-based approaches are currently accepted as desirable, the necessary capacity to support them does not generally exist at the higher levels (district, regional and catchment).
- ?? **Capacity building is promoted but not at all levels and its effectiveness is not monitored.** Too little emphasis is placed on providing an enabling institutional environment for individuals to whom new tasks and responsibilities are given. This means trained people often cannot fully apply what they have learned, and they become bored and apathetic. Local authorities require more support to be able to properly cope with their changing roles and responsibilities eg Town Councils, Village Committees. Farmers, loggers and business people should be targeted to encourage engagement in sustainable resource management
- ?? **Stakeholder involvement is growing but is still too limited and too narrow in focus.** Communities can remain uninterested in taking part because of lack of ownership or control over decisions, lack of real power to make allocation and use decisions, and poorly developed frameworks by which the views of large diffuse communities can be represented at stakeholder fora. National and regional level fora sometimes use community involvement in a purely consultative or “window dressing” role, leading to disillusionment and withdrawal of collaboration. In addition, even where involvement is more meaningful, decision-making processes frequently lack the transparency to engender trust, or skills to handle conflict.

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?? **Efficient water use is gaining attention but requires much more emphasis.**

Water use efficiency (and demand management) is gaining attention, particularly where water is seen as a scarce resource or tariff structure makes waste expensive. However inefficient water use is frequently linked to an exclusively individual or local focus, which ignores the cumulative effect of 'small' losses; people concentrate solely on their own tap, standpipe or leaking cistern and see only a small 'insignificant' leak. As a result poor behavioural practices continue unchallenged.

?? **Creating a gender balance is more than enhancing women's involvement**

A narrow view of 'gender' operates. It is often understood to mean 'women's issues' and the focus has been primarily on the role of women, with minimal attention to the roles of men and women separately. Other important and inter-related aspects of community dynamics such as wealth, age, class, are often not accommodated in program strategies. Education, training and capacity building to create gender equity is necessary at all levels. Involvement of women in projects should avoid overburdening them with further responsibility. Gender issues must be integrated into all stages of program cycles, beginning from project identification, through design, implementation and evaluation.

In assessing gender needs in project identification the following questions can be asked

1. What needs and opportunities exist for increasing women and men's productivity or production
2. How will these affect women and men's labour time, workload
3. What needs and opportunities exist for increasing women and men's equal access to and control of resources. Will this involve structural or operational changes?
4. What needs and opportunities exist for increasing women and men's access to and control of resources?
5. How do these needs and opportunities relate to the country's other general and sectoral development needs and opportunities?
6. Have both men and women been directly consulted in identifying such needs and opportunities?

Gender analysis should also be applied to policy changes such as public sector reform. Programs to 'institutionally strengthen' water utilities have often involved job losses, particularly for clerical staff when computerised billing is introduced. Many of these retrenched clerical staff have been women. In Pacific communities where one cash earner may be supporting many family members, this can have a significant domino effect and benefits and costs to the community of this retrenchment should be anticipated. In this case the following questions could be explored

- ?? What options for alternative earning will be available for people who lose their jobs, and will those options be equally available for women and men? What alternative cash earning activities might women and men be forced to undertake in low employment contexts?
- ?? Will public servants who keep their jobs be under increased pressure to provide financial support for unemployed relatives?
- ?? Will there be any programs to keep track of laid off workers and their families?

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- ?? How will the government monitor and value changes to the quality of life, health, stress and family violence experienced by retrenched workers and those who keep their jobs
- ?? If retrenched clerical workers return to rural subsistence, how will this impact government commitments to promote economic growth and development and to support economic empowerment for women? (South Pacific Forum Secretariat 2002).
- ?? **The facilitation of information exchange needs creative strategy and support.** Sector personnel should be provided with incentives and institutional facilitation to share information with colleagues and personnel from other relevant departments and organisations, and not just during donor funded programs. There is also a need for a centralised accessible information management system and clearinghouse database on research process and outcomes, aid programs, NGO and CBO activities, private sector contribution, government agenda and resources. Many programs are duplicated, and a lack of ready information on work already undertaken, constrains development planning, policy and decision making efforts.
- ?? **Government personnel /departments should be seen to practice what they preach,** and set a good example on conservation and sustainable resource management issues. This could include establishing a policy for government offices and services that recycled products will be preferred when it is possible to use them, and waste paper will be segregating and recycled. Water efficient systems and appropriate sanitation technology should be used in office facilities and government accommodation (especially in new buildings), and personnel should demonstrate exemplary water use at work and at home.

## 5.0 Recommended Programs and Activities

The following suggested programs could further the development of a sustainable water and sanitation sector. Other suggestions will be included in the final draft after consultation at the Regional Meeting.

**Sanitation Park** Creating awareness of sustainable waste water or sanitation technologies through demonstration/information exchange which allows the community to select what system is appropriate for their needs and limitations.

**Promotion of local e-mail services**, such as the People First Network in the Solomon Islands, to create a network of e-mail stations located in remote islands. The stations can use a simple, robust and well-proven technology, consisting of a short-wave radio (already ubiquitous and well-known in the South Pacific), a low-end computer, and solar energy. The system can be used to promote eco-friendly business, disaster prevention and mitigation, sustainable resource management, and involve churches and CBOs in information exchange programs. Training should be provided to women, men and youth in the use of the system.

**Mobile training programs** for householders and tradespeople for building and maintenance of appropriate on-site water and sanitation systems.

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### **Integrated Pacific EcoHome**

Rather than addressing single issues in a pilot project, it could be useful to consider as many inputs and outputs of a demonstration household compound, as is feasible. The program could possibly be conducted at a church leader's home, after thorough consultation with the family and the congregation.

This could include some or all of the following inter-related systems:

- ?? properly maintained rainwater tanks and gutters
- ?? properly maintained and protected well (if applicable)
- ?? convenient system for separating household waste, including hazardous residues
- ?? compost enclosure for organic household waste and pig manure
- ?? a composting toilet with drainage trench into food trees, and/or into
- ?? a simple greywater recycling system feeding into
- ?? demonstration organic food garden using household compost
- ?? and nursery garden to produce seeds and seedlings that are adapted to local conditions (and possibly sold to the public) with
- ?? pig pen constructed to contain run-off and filtration, and maximise convenient, hygienic use of manure and effluent for gardens.

### **Centralised information service**

An adequately funded program which establishes in-country and regional database providing information on research process and outcomes, aid programs, NGO and CBO activities, private sector contribution, government agenda and resources. Easily accessible information is required on interrelated subjects such as bio-diversity, climate change, coastal management, sanitation and solid waste management, water and air quality, and links to the agencies engaged in this work. This service is provided to some extent by organisations such as SOPAC and SPREP through personnel assistance and access to their website reports. However a designated, well advertised, comprehensive regional system is required, supported by a formalised service in each country which allows hard copy and/or telephone, and electronic access to information on local activities.

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