

APPENDIX 5

STAR CHAIR'S REPORT TO COUNCIL 2008

Honourable Chair of SOPAC, Excellencies, Distinguished National representatives and Delegation members, representatives of Institutions and Organisations, Director of SOPAC, Director of SPREP, my TAG colleagues, Ladies and Gentlemen.

I. Introduction

Thank you for this opportunity to formally report to this Council on STAR's activities.

Before I begin, though, Honourable Chairman, as Chair of STAR and speaking on behalf of all the scientists, may I thank you our hosts, the Government and people of Tuvalu, for your warmth, welcome and hospitality. Loia Tausi and Faatasi Malologa are the people I have mostly dealt with and I am grateful for their hard work and assistance, but I know that there are many others who have had a busy few weeks, and we thank you all sincerely. Fafetai lasi.

I would also like to respond to the warm words the Honourable Prime Minister, the outgoing Chair of Council and the Director of SOPAC made about STAR this morning. It is a pleasure for all of the STAR scientists to be on Funafuti; this island holds a unique place in respect to the science of atolls. As the Honourable Prime Minister mentioned, Funafuti was the site of the drillholes put down by the 3 Royal Society expeditions between 1896 and 1898 – these were amongst the first detailed scientific investigations of atolls, and certainly the first to physically sample the deep structure of an atoll. And in recent years, of course, Tuvalu has been at the forefront of scientific discussion relating to the effects of global climate change.

My own Pacific research began on this island in 1995 and I've had the good fortune to study three of the topics raised by the Prime Minister – the Royal Society drillholes, the cyclone bank and the issue of lagoon dredging to fill the borrow pits – so it is with considerable pleasure that I am again in Funafuti on scientific matters. There is a very real benefit for scientists from outside the region to have met here. The themes of rising sea levels or fresh water supply, for example, can be debated academically in our own countries but discussing them here gives real focus to the issues that are affecting people's lives on a day-to-day basis.

As usual, STAR is indebted to staff of the SOPAC Secretariat for their cheerful and untiring efforts that make the meeting possible in the usual very short time frame. Vinaka. Thanks too to my colleagues for their presentations, chairing of sessions, support to the Chair, work on PMEGs and, in advance, contributions to the TAG sessions.

And so to STAR - As you all know, STAR is the Science, Technology and Resources Network associated with SOPAC. It is an informal and entirely voluntary grouping of scientists that acts as an interface between the SOPAC Secretariat and its member nations and the international scientific community, and it does this in several ways. At intervals, an international scientific workshop or meeting may be convened by STAR, or held under its auspices, on a theme relevant to the SOPAC region. STAR members also correspond and tender advice in the periods between the annual meetings. And I would like to stress here that STAR scientists are a resource freely available to you at any time, either directly from the relevant scientist or through myself as Chair.

Most obviously, each year a meeting at which scientific papers are presented and discussed, and thematic Working Groups meet, is held prior to this Annual Session of the SOPAC Governing Council. This year, the 25th meeting of STAR was held on October 22nd to 24th here in the Government Buildings.

II. STAR Presentations

As the Minister and the Director of SOPAC explained in their opening addresses this morning, the main theme of this year's STAR meeting was: "Environmental change and oceanic islands – especially with respect to managing water resources and sanitation on atolls".

Perhaps I could expand here on the rationale behind the themes of STAR. The theme is selected each year after discussion between the host nation, the Director of SOPAC and myself. As the theme has the effect of attracting extra scientists working in that particular area, it is an excellent opportunity to ensure that host nations get specialist knowledge in areas that interest them and that we can also bring new developments in science to the attention of the

region. Therefore, the interests of the host nation are paramount.

Presentations on any theme related to Pacific geoscience are welcomed, though, and these expand the breadth, interest and relevance of the meeting. And sometimes it is the unexpected and unsolicited presentations that lead to important new research partnerships.

During the meeting, some 35 scientific papers were presented orally and many others by the posters displaying research results. Abstracts of these are published in SOPAC Miscellaneous Report 672. As is always the case for STAR meetings, the information presented covered a broad range and I recommend the volume of abstracts as a guide to the material covered and as a source of much useful information. This information includes contact details for the presenters, should anyone wish to learn more about a particular item.

The Honourable Minister and the Director of SOPAC both discussed the STAR programme in their addresses this morning and I do not need to repeat their comments. But let me very briefly outline the scope of the presentations for you, simply to indicate the variety and relevance.

The opening sessions and some later papers dealt with the issues of water and sanitation, especially on small islands. The topics ranged from the general, covering principles and issues of a regional, even global nature through to specific discussion of problem solving in individual countries. The papers also ranged from the theoretical to the practical, illustrating the point I made earlier of STAR allowing people researching problems from all sides to come together.

As usual, there was a strong offering of papers dealing with the applied aspects of remote sensing and data gathering. This is technology that has a particular in this widespread region and the quality of the results coming from its application here is impressive.

Other sessions dealt with shallow marine and coastal processes, the physical oceans environment, mining and aggregate geology, and resource economics. Embedded within these sessions, and I offer these simply to illustrate the breadth of the presentations, were discussions of negotiations for maritime boundaries, lagoon environmental change as a result of human activities, the potential effects of climate change on sea levels, and the application of modelling to a range of situations.

Unfortunately, expanded conference sessions with associated working groups on deep sea mining and on human resource issues had to be cancelled at the last minute when delegates were unable to attend.

III. Working Groups and Associated Meetings

In addition to the scientific presentations, a number of working groups also met. These working groups offer an important opportunity for STAR delegates to discuss their own areas of interest and expertise with others whom they might only meet occasionally, focus their attention on the locale where we are meeting, and bring to the attention of Council items of particular scientific and technical importance to the region.

This year, working groups met to discuss marine benthic habitats, energy, water and, for the first time at STAR, GIS & Remote Sensing issues. Other planned working groups did not eventuate because of last minute personal circumstances that prevented their convenors attending this meeting, and their discussions have been rescheduled for next year.

I will not report in detail on the working group deliberations here but the full documents with supporting arguments for the conclusions will be appended to this report.

The Habitat Working Group

The Habitats Working Group discussed the regional interest in this theme and the progress in characterising marine benthic habitats that has been made so far.

They recommended the following:

- SOPAC should continue to pursue shallow water marine benthic habitat mapping efforts and coordinate activities with other regional organizations that have biological and fisheries capabilities. This certainly can be pursued if EU funds are appropriated.
- SOPAC is encouraged to participate in the deep-water habitat project headed by Geoscience Australia and assisted by the CPC in the Pacific.
- SOPAC should encourage synergy between deep-water marine benthic habitat mapping and deep-water minerals exploration and strike up a dialog with such industries as Nautilus Minerals.

- It is recommended that STAR considers the topic of deep-sea minerals and habitats as a scientific theme for the STAR meeting to be held next year in Port Vila, Vanuatu.

The Energy Working Group

The Energy Working Group noted that the issue of energy security remains of primary importance across all PICs and hence its discussions centred around sustainable and efficient use of energy, and reducing reliance on imported fossil fuels.

The Group recommended to Council that:

- Because of the importance of having access to Petroleum advisory services, SOPAC should initiate discussions to establishing a petroleum advisory service within the core energy component of its Community Lifelines Programme.
- SOPAC efforts be continued to support the mainstreaming of the energy policies and plans and their interlinking with the national sustainable development strategies and planning in PICs.
- SOPAC's work in promoting and supporting energy efficiency and conservation should be strengthened.
- As there is a lack of appropriate manuals and guidelines on the production of energy from animal waste and other appropriate sources, SOPAC work towards the development of these guidelines suitable for use in PICs.
- SOPAC work with CSIRO and other institutions and agencies to evaluate the appropriateness of other bio-oil sources and opportunities such as algae growth and conversion.
- SOPAC should consider ways in which it could support the PICs in attaining any necessary ISO certifications and should also attain ISO Certifications for relevant parts of its operations.

The Water Working Group

The Water Working Group discussions focussed on the reduction of water-borne diseases, adaptation in the water sector, the need for water resources assessment and monitoring, and the 5th World Water Forum held in Turkey in March of this year.

Their recommendations included that:

- SOPAC provide guidance resources to countries on the design, installation, main-

tenance, operation and appropriateness of water supply and sanitation systems to better inform in-country implementation where required.

- SOPAC continue with efforts in the area of water resources assessment and monitoring, including such things as the collection of sustained water resource monitoring data sets that will assist the development of integrated water resource management approaches and plans.

The GIS & Remote Sensing Working Group

This was the first GIS & Remote Sensing working group to be convened during a STAR meeting. The group discussed the need to better address the transfer of GIS and RS-related information to decision makers, as well as issues such as the availability of new technologies, hardware and software.

They recommended that:

- SOPAC strengthen and advocate the benefits of GIS&RS applications to decision makers in country.
- SOPAC continue to provide GIS&RS technology transfer and technical capacity development, where specific national priorities are established through a needs assessment. To assist in the delivery of capacity development SOPAC should strengthen partnerships with other organisations and agencies that deliver similar technical support.

Programme Monitoring and Evaluation Groups

I should also mention that 2005 saw the introduction of the Programme Monitoring and Evaluation Groups as the result of a STAR initiative. These groups of scientists again met with SOPAC Programme Managers in Suva immediately prior to this STAR meeting. The PMEG Chair, Professor Gary Greene, will report on this process to Council later in the meeting.

IV. Talks to school students

After the conclusion of the scientific presentations, a number of STAR delegates spoke to some 80 students from Nauti Primary School and Fetuvalu High School about science in general and in the Pacific, and about careers in this subject. Students were also given a little "hands-on" experience in small groups. This is an aspect of our work that we all find very

rewarding and it is something that we hope to develop further in the future.

V. STAR Discussion of the Pacific Islands Regional Institutional Review

I would like now to turn to the issues arising from the Pacific Leaders' decision last year to rationalise SOPAC into another organisation.

I discussed this and tabled a paper that included the history of the STAR/SOPAC relationship and the implications for its future from the point of view of the international science community at last year's Annual Session in Nuku'alofa. Other STAR and TAG delegates gave their views, as did many members of Council. I do not need to cover the details of that discussion again, as it is a matter of record.

I would like to repeat, though, that it is not appropriate for STAR to comment on the organisation or governance of SOPAC. That is the province of Council and of the leaders of the region. Our concern is solely with the continuation of the link between our voluntary organisation of international scientists and the efficient delivery of geoscience to the region.

STAR members have spent much time discussing the implications of this both electronically over the past year and in person here. There is considerable concern for the future of STAR, as it is closely linked to SOPAC. As is to be expected from a group such as ours, opinions as to what will happen and what might be the best course forward vary.

My opinion, which I believe is shared by many STAR scientists, is that, whilst it is theoretically possible for a group such as STAR to continue independently, its persistence in the absence of the focus provided by SOPAC is extremely unlikely. There are many pressures on scientists' time and many other specialist groups within which to pursue our professional interests. Without the interaction with in-island scientists and the ability of its members to contribute their expertise to the region in their own way that the current arrangement provides, STAR as a unit will disappear when SOPAC disappears.

Having said that, we have a strong desire to maintain and grow the organisation into the future if at all possible, once a new framework for Pacific geoscience has developed within the region. Planning for next year's STAR meeting is already underway and we are formulating mechanisms to try to stop or at least slow the current disengagement of our scientists. If a successor group to STAR is to be successful, to

my mind 2010 will be a crucial year. Presumably after this a new organisational framework will be in place. Should the governing body of any new institution wish to reinstate something akin to our present relationship, and providing that it is one with which we can work, we hope that the key components for a successor to STAR might still be available.

With this in mind, the STAR group presents the following comment to Council for its consideration.

Resolution from STAR Business Meeting, 22nd October 2008:

- STAR appreciates the value placed on it by member nations during discussion at the 36th Annual Session in Nuku'alofa, and hopes that the network can continue to contribute to the delivery of scientific services in the region into the future.
- However, STAR realizes that a new relationship will need to be formed and that an interim period of uncertainty will follow the 2009 meeting.
- As STAR is a purely volunteer organization, it is crucial that both a desire and a forum be maintained that encourage participation through this period.
- Therefore, to maintain the momentum of STAR or its successor, STAR suggests that member nations consider supporting a regional scientific meeting to take the place of the STAR conference during 2010.

Perhaps I might just comment briefly on this. Such a meeting, if the nations of the region see merit in the concept, could be held under the auspices of STAR in order to maintain our continuity but be opened to a wider range of science in preparation for the development of the new organisation.

VI. Concluding Remarks

Although I began with some brief thanks to those who have helped and hosted us, I would not be doing them justice or properly representing my colleagues were I to leave it at that.

Since we arrived last Tuesday and were welcomed first by the Reverend Dr Kitiona Tausi and the Honourable Secretary for Foreign Affairs and Labour Mr Enele Sopaga, we have been treated as privileged and honoured guests.

We have all enjoyed many experiences, not least the superb food, and I know that none of us will forget the entertainment provided by the groups from the various islands. If I may be

permitted to use a highly technical scientific phrase, we were blown away by it all! And it is with much anticipation that we await the rest of the week.

From all of us in STAR, Honourable Chair, I would be most grateful if you could convey our thanks and deep appreciation to all in Government and in the community who have made us so welcome.

May I finish my address by offering our congratulations to you as incoming Chair of SOPAC and volunteering the services of STAR if we may be of any assistance during the coming years.

That concludes my address. Thank you all for your time.

John Collen, Chair, Science Technology and Resources Network (STAR)

Funafuti, Tuvalu, 28 October 2008

MINUTES OF STAR WORKING GROUPS

1. Habitats Working Group

The Habitats Working Group met in Fongafale, Funafuti Atoll, Tuvalu October 24, 2008 and discussed the need and interest to characterized marine benthic habitats in the SOPAC region. Considerable interest was given to the pending EU funding that would go to undertaking pilot habitat mapping projects.

The recommendations of last years Habitat Working Group meeting were reviewed and it was reported that a major effort by SOPAC to move ahead with habitat mapping was accomplished with the production of a pilot habitat map of Aitutaki lagoon in the Cook Islands. This mapping exercise indicated that SOPAC has the capacity to characterize marine benthic habitats.

SOPAC is partnering with SPREP and SPC to undertake habitat mapping in shallow waters and have jointly written a proposal for supporting funds from the EU. The intent of the proposed work would be used for siting of aquaculture facilities and fisheries monitoring. If funded, pilot habitat mapping projects would take place in four different countries and would include chemical and physical oceanographic data that can be used to more completely characterize habitats.

The working group suggested that the PI-GOOS monitoring buoy data in and around the Pacific be considered for inclusion in SOPAC's habitat mapping exercises.

Although SOPAC has matured in the collection of habitat data it is still in the learning phase. It is cooperating with several universities and NOAA in formulating its mapping strategy.

Tuvalu representatives expressed interest in habitat mapping projects that could address source and impact of materials that could be extracted for new land development and for siting cultured pearl farming facilities. They also requested that SOPAC consider identifying data gaps within the Funafuti lagoon and assist in measuring nitrates, especially around heavily populated areas where septic tank leakage may be occurring. In addition, the country is considering installing mooring buoys for yachts to tie to, instead of anchoring, to prevent sea-floor disturbances. Assistance is being sought to locate sites that are promising for placing such buoys and certainly SOPAC's capabilities to map the shallow sea floor would be useful in this effort.

In regards to deep-water habitats it was reported that Peter Harris of Geoscience Australia was heading an effort, to be partially funded by UNEP, to map the gross seafloor habitats of the world. The effort in the Pacific is going to be assisted by the Circum-Pacific Council for Energy and Mineral Resources and it is logical to consider having SOPAC as a participant as well. This effort could be complimentary to SOPAC's possible involvement in future deep-sea minerals investigations.

Recommendations:

SOPAC should continue to pursue shallow water marine benthic habitat mapping efforts and coordinate activities with other regional organizations that have biological and fisheries capabilities. This certainly can be pursued if EU funds are appropriated.

SOPAC is encouraged to participate in the deep-water habitat project headed by Geoscience Australia and assisted by the CPC in the Pacific.

SOPAC should encourage synergy between deep-water marine benthic habitat mapping and deep-water minerals exploration and strike up a dialog with such industries as Nautilus.

It is recommended that STAR considers the topic of deep-sea minerals and habitats as its next scientific theme for the STAR meeting to be held next year in Port Vila, Vanuatu.

Participants: Herve Damlamian (SOPAC), Gary Greene (MLML/Tombolo), Jens Kruger (SOPAC), Siouala Malua (Aquaculture Office,

Tuvalu Fisheries), Joe Murphy (Environmental Officer, U.S. Embassy, Suva), Tupulaga Poulasi (Fisheries Officer, Tuvalu Fisheries), Stephen Sagar (Geoscience Australia), Akuila Tawake (SOPAC) Sam (Cook Island Farmer).

2. Energy Working Group

The following participated in the Energy Working Group convened on the 23rd October: Mr Molipi Tausi (TV) – Chair, Prof. Stewart Burn (CSIRO), Mr Donn Tolia (SB), Mr Chris Ion (VU), Mr Keu Mataroa (CK), Mr Rupeni Mario, Mr Paul Fairbairn (SOPAC)

Based on a draft agenda the following issues were discussed and recommendations made by the group for the Chair of STAR to commend to the SOPAC Governing Council during its 37th Session in Funafuti, Tuvalu, for inclusion in the SOPAC Work Programme for 2009.

The Chair made reference to the relevant sections of the 2007 Chairs report noting that the substantive progress had been made towards the planning for the 2009 Energy Officials and Energy Ministers Meeting. The Meetings to be held in the Republic of Tonga from the 20-24th April 2009. Work in establishing a separate committee to consider the inter-linkages between “Energy, Water and Climate Variability” had been limited although preliminary work had been addressed through a more informal approach and further limited by human capacity.

For 2008 it was noted that the issue of energy security still remains of primary importance across all PICs. Hence all the topics discussed and following recommendations therefore focus around guiding activities towards the more sustainable and efficient use of energy, and at the same time considering other alternate options that would contribute towards reducing PICs reliance on imported fossil fuels.

Petroleum

Noted the progress made in the development of a draft Memorandum of Understanding for the “Pacific Petroleum Project” - an MoU between the Governments of Forum Island Countries on the Pacific Petroleum Project (addressing the issue of bulk purchasing). The MoU to be presented to the Forum Economic Ministers and the Pacific Islands Energy Minister for consideration and signing.

Noted the departure of the Petroleum Adviser from the Forum Secretariats. In acknowledging the importance of having access to Petroleum

advisory services recommended that SOPAC should take the initiative to commence discussions with the view to establishing a petroleum advisory service within the core energy component of the Community Lifelines Programme at SOPAC.

Energy Policy and Work Plans

Noting that most PICs now have National energy policies and work programmes the implementation of these now becomes the challenge. It is recommended that SOPAC efforts be continue to support the mainstreaming of the energy policies and plans and their interlinking with the national sustainable development strategies and planning in PICs.

Energy Efficiency and Conservation

Acknowledged the work of SOPAC in promoting and supporting energy efficiency and conservation and recommended that support in this area be strengthened. Activities to include, energy efficiency programmes, energy auditing, capacity building and education programmes.

Noted the presentation at STAR by the General Manager of the Tuvalu Energy Corporation (TEC) where energy efficiency activities had lead to significant savings in fossil fuels that as a comparator had far exceed those savings attributed to the 40 kW of grid connected solar photovoltaic installation.

Biogas/Digesters

Recommended that as there appeared to be an opportunity to produce energy from animal waste and other appropriate sources and that there was a lack of appropriate manuals and guidelines for the development and management that SOPAC work towards the development of these guidelines suitable for use in PICs.

Alternate/Substitute Fuels

Noting the current work being progressed in the use of coconut oil as a biofuel it was recommended that SOPAC work with CSIRO and other institutions and agencies to consider the appropriateness of other bio-oil sources and opportunities such as algae growth and conversion.

ISO Certification

Noting the need for some PICs to have ISO Certification (currently required in Tuvalu for

the Aviation Sector) that SOPAC should consider ways in which it could support the PICs in attaining the necessary ISO certification. It was considered that SOPAC should also attain ISO Certifications for relevant parts of its operations.

Energy/ Water/ Wastewater

Noted the nexus between energy / water / wastewater and the looming need to address these in an integrated manner. (Note that this also link to the issues of energy / water and climate variability raised in 2007).

3. GIS & Remote Sensing Working Group

Participants: Wolf Forstreuter, Faatasi Malologa, Kilifi O'Brien, Paul Fairbairn, Steven Sagar, Etuate Cocker, Joseph Murphy, Litea Biukoto

The first GIS & Remote Sensing working group was convened on 24 October 2008 in Funafuti due to the increased interest in GIS & RS at STAR.

Key issues raised were the need to address the better transfer of GIS and RS related information to decision makers. The Group further agreed that technology transfer and technical capacity development is still required following the completion of the SOPAC EU "Reducing Vulnerability" Project in December 2008. The Group noted the current human and financial constraints to effectively respond to national requests.

The WG discussed a number of related GIS&RS matters which included:

- The availability of new data such as
 - o New RADAR data for mapping 1:10,000 for rapid disaster assessments e.g. flooding
- The availability of new techniques/methods such as
 - o Techniques to replace beach profiles through digital elevation models with sub-metre contour lines
 - o Techniques for raster data GIS analysis for water catchment monitoring
 - o Techniques for extracting shallow water bathymetry from satellite imagery particularly for inundation modelling
 - o Techniques for nearshore habitat mapping using satellite imagery
 - o Techniques for modelling impacts of development in a lagoon

- o Techniques in image data pre-processing.
- The availability of new hardware and software
- The need to address specific GIS&RS needs relevant to the Pacific such as
 - o Reference image points which need to be established in all Pacific Islands to improve image data accuracy delivered by vendors

The GIS&RS WG recommended the following:

1. The need to improve transfer of GIS&RS related information to decision makers through SOPAC strengthening and advocating the benefits of GIS&RS applications incountry. In addition, it was agreed that national networks needed to be strengthened where the formation of GIS&RS user groups was considered to be a suitable mechanism.
2. That SOPAC continue to provide GIS&RS technology transfer and technical capacity development, where specific national priorities are established through a needs assessment. To assist in the delivery of capacity development SOPAC should strengthen partnerships with other organisations and agencies that deliver similar technical support.

4. Water Working Group

The following participated in the Water Working Group convened on 23rd October 2008.

Mr Keu Mataroa (CI) – Chair, Loia Tausi (TV), Sione Halatuituia (TO), Kifle Kahsai (USP), Stewart Burn (CSIRO), Doug Ramsay (NIWA), Rhonda Robinson, (SOPAC Water), Peter Sinclair (SOPAC Water), Malakai Finau (FJ), Donn Tolia (SI), Chris Ioan, (VA), Annie Homasi (TV), Paul Fairbairn (SOPAC).

On the basis of a draft agenda provided by SOPAC, the following issues were discussed and recommendations made by the STAR Water Working group for the Chair of STAR to commend to the SOPAC Governing Council during its 37th Session in Funafuti, Tuvalu.

The Chair together with the group reviewed progress made on recommendations from the Energy and Water Working Group 2007, which included:

- Recommendation to re-establish the Pacific Water Association (PWA) in Apia, Samoa including reactivation of its membership coupled with a constitutional review

The Pacific Water Association held its 7th Annual General Meeting (AGM) from 9-11 September in Apia, Samoa. In conjunction with the PWA AGM, the 3rd Pacific Partnership Initiative on Sustainable Water Management Steering Committee was also held as well as a sanitation session to commemorate the International and Pacific Year of Sanitation. The Sanitation session also allowed for the opportunity to review progress against the Pacific Wastewater Policy Statement and Framework for Action.

CSIRO also held their Delphi Workshop in conjunction with the PWA AGM, resulting in a future collaborative effort between CSIRO and PWA in furthering several water and sanitation concepts of which there is some focus on small scale wastewater treatment and local engagement.

The PWA in their broad discussions at their AGM suggested that they would continue to focus support on the Pacific regional water utilities and their leak detection programmes with some development towards using community based water management groups which are currently being used in Samoa.

SOPAC would continue to support the PWA in their endeavours, with specific plans around collaboration in the area of Water Demand Management for which SOPAC are currently implementing a programme in the region funded through NZAID and for which SOPAC are currently recruiting.

- Support the concept of community based interventions

There has been significant effort by SOPAC and partners on developing resource material to support efforts of community workers on the ground. These most recently include the community toolkit for water safety and the community mobilisation guidelines for IWRM.

- SOPAC to convene a sub-committee to develop a methodology that considers the inter-relationships between energy, water and climate variability for PIC's

The nexus between water/energy/wastewater and the looming need to address these in an integrated manner was noted.

Issues identified for discussion at Water Working Group Meeting STAR 2008

1) Reducing water-borne diseases

The annual incidence of diarrhoeal diseases in the Pacific, nearly matches the numbers of its inhabitants with 6.7 million cases of acute

diarrhoea each year, responsible for the annual death of 2.8 thousand people, most of them, children less than 5 years old (WHO, 2008). Not surprisingly, recent country statistics on access to improved sanitation and improved drinking-water reveal that on average, approximately only half of the total population of the Pacific island countries are served with any form of improved drinking-water or sanitation.

Recommendations

- Identified a need to consider a combined approach to water supply and sanitation interventions in-country given the strong impact water supply has on sanitation.
- Supported the need for a coordinated approach in seeking donor funding for water and sanitation initiatives nationally and regionally and noted the efforts of the Pacific Partnership Initiative on Sustainable Water Management as a vehicle to provide this coordination.
- Recommended that SOPAC provide guidance resources to countries on the design, installation, maintenance, operation and appropriateness of water supply and sanitation systems to better inform in-country implementation where required.
- Identified a need for on-going assessment of the performance of community level water and wastewater systems, to guide future implementation.

2) Adaptation in the water sector

The Pacific is facing an increased risk of natural disasters such as floods, droughts, windstorms, landslides, storm-surges, waterborne diseases and epidemics such as dengue and typhoid. It is becoming evident that water-related disasters will be the focus for attention in Pacific island countries when they are preparing to adapt to a changing climate.

Recommendations

- Noted integrated water resources management (IWRM) as an intelligent approach to climate adaptation and acknowledged the work of the Pacific IWRM Programme as a mechanism of allowing for considered efforts in this regard as well as enabling government support for this.
- Noted the need for attention to also be placed on Water Resources Assessment and Monitoring, within an IWRM framework and acknowledged the Pacific Hycos Programme in allowing for this.
- Noted the need for a focus on gathering and providing information which will assist

in understanding the impacts of climate variability and climate change on water resources for longer term national planning and guidance on proposed climate adaptation initiatives.

3) Need for Water Resources Assessment and Monitoring

Water resources monitoring and assessment in the Pacific is currently very poor and has deteriorated in the last 15 years. The sustainability of hydrological observing networks is being threatened by lack of basic equipment and technical support available from government departments such as adequate vehicles to visit remote sites and trained personnel to carry out the work. Pacific HYCOS is providing an injection of funds for equipment and support in training; however it is limited in both time and funds. Concerns are expressed on sustaining this investment and engaging real commitment from government to invest in basic information needs for water management.

Discussion occurred on the use of desktop models and Bayesian model approaches as suggested by CSIRO to identify potential resources and use of the results from climate change models to assess the impact on the resource, identify resources which would be at most risk and targeted monitoring of these areas.

Discussion over whether this was the most appropriate use of SOPAC resources in consideration to country needs. An alternate view was that it would be more an appropriate use of SOPAC resources to focus on assisting countries in monitoring of established and water supplies and assist with resources to assess potential resources. Results from climate change models then applied to these known and assessed resources.

Discussion over a need to generate support within Government for monitoring of resources. To date most of the focus has been on the assessment of resource potential, with little funding or resources on monitoring of the existing resources

Recommendations

- Recommended that SOPAC, continue with efforts in the area of water resources assessment and monitoring including such things as the collection of sustained water resource monitoring data sets that will assist the development of integrated water resource management approaches and plans.
- Noted the urgent need to support countries to monitor existing resources and to assist in generating support through awareness raising for water resources assessment and monitoring within PIC's.
- Identified the need for maintaining monitoring networks through creating products and information based on data that is relevant to government and various other stakeholders.

4) 5th World Water Forum, March 2008, Turkey

A brief background was provided by SOPAC on the World Water Forum Process particularly efforts towards the 5th World water Forum .

Recommendations

- Noted that working group members would review and provide comments to SOPAC on the Pacific Position Paper to be presented at the 5th World Water Forum to be held in March 2008 in Turkey.