

APPENDIX 6

STAR CHAIR'S REPORT TO COUNCIL 2009

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

I. Introduction

Thank you for this opportunity to formally address this Council on the activities of the Science, Technology and Resources Network (STAR).

Before I begin, Honourable Chairman, speaking as Chair of STAR on behalf of all the scientists, may I thank you our hosts, the Government and people of the Republic of Vanuatu, for your warmth, welcome and hospitality. Director General Russell Nari and Chris Ioan of the Ministry of Lands and Natural Resources are the people I have mostly dealt with and I am grateful for their hard work and assistance, but I know that there are very many others who have had a busy few weeks, and we are very grateful. Thank you tu mas.

As usual, STAR is indebted to staff of the SOPAC Secretariat for their cheerful and untiring efforts that make the meeting possible in the very short time frame. Vinaka. I would especially like to acknowledge the continual support to STAR over the past six years of the Director of SOPAC, Cristelle Pratt. Thanks too to my scientific colleagues for their presentations, chairing of sessions, support to the Chair, work on PMEGs and working groups and, in advance, contributions to the TAG sessions.

And so to STAR. Most of you know STAR well but please let me go over one or two aspects of its activities for those of you new to these meetings. The STAR network 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

this is a major though less visible part of our work. And I would like to stress here that STAR scientists are a resource freely available to you and staff of your national organisations at any time, either directly from the relevant scientist or through me as Chair.

Most obviously of all our work, 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 26th meeting of STAR was held at this venue last week.

II. STAR Presentations

As the Honorable Minister of Lands and the Director of SOPAC mentioned in their opening addresses this morning, the main theme of this year's STAR meeting was: "Exploiting and managing resources to enhance economic development, with special focus on deep-sea minerals, water and renewable energy, and reducing disaster risk".

Perhaps I could expand here on the rationale behind the themes of STAR. The theme has been 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 always 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.

The STAR meeting occupied three days, with one day of concurrent sessions. Approximately 100 persons attended and heard some 70 scientific papers presented orally. About 20 others were given by the posters displaying research results. Abstracts of these are published in SOPAC Miscellaneous Report 700, which is

also included in the final documents CD for the SOPAC 38th Session accompanying this Proceedings volume.

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 meeting began with two sessions devoted to Vanuatu volcanism and tectonics, with a detailed coverage of the Arc Vanuatu Programme, and other papers on Vanuatu geology and resources appeared throughout. In response to the main programme theme, sessions on deepsea minerals and the related issues of maritime boundaries and marine management were held.

Sessions that were particularly timely given recent events included those on tsunami and other hazards. These occupied a full day and a special evening session was also held that was devoted to the recent Samoan tsunami. This included up to the minute data from the scientific investigations currently underway.

A number of papers, especially in the disaster and risk management area, stressed the importance of continuing to collect baseline data of all kinds in the region. These data are essential for improving decision making in relation to managing the risk associated with storm surges, flooding, tsunami, groundwater, and a range of coastal issues. As just one example, inundation modeling can be used to support tsunami mitigation decisions, if adequate data exist. The latter include bathymetry - many PICs have EU swath data to 50 m depth and satellite data can be used for 0-50 m, although SOPAC does not yet have this capability. Lack of topographic information is a critical gap, as most (if not all) PICs lack adequate topography data, and it appears LIDAR is required. Such gaps in information are also inhibiting impact assessments for climate change.

Other sessions covered water resources and energy, coastal and nearshore processes, and various aspects of technology. As was appro-

priate for STAR's 25th birthday meeting, the conference finished with a session entitled "The STAR/SOPAC/TAG legacy", with talks by Professor Chuck Helsley (the inaugural Chair of STAR), Russell Howorth and Gary Greene.

Overall, 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 strength of STAR that allows people researching problems from all sides to come together.

III. Working Groups and Associated Meetings

Apart from hearing presentations by researchers, the STAR Conference allows us to take advantage of the presence of experts in several other ways. Each year we have convened thematic working groups in subdisciplines where we have a critical mass of delegates. These groups, who may not often have an opportunity to meet in person, discuss those aspects of their subjects that are relevant to the region and make recommendations of points that they feel may be of benefit to Council, and this year the Directors of SPC and SPREP, for consideration in future work programmes. This year six working groups met, to discuss aspects of Deepsea Minerals, Energy, Habitats, Ocean Observations, Tsunami and Water. Their full reports with recommendations to Council and supporting arguments are appended to this report (Annex 1) and I will just summarise one or two recommendations from each here.

Deepsea Minerals Working Group

The main issue for discussion was the SOPAC EU/EDF Project and how the project was to be implemented. A regional workshop will be convened to launch the project and the implementation of project tasks will follow.

- A longer term regional program for the management of marine minerals in the Pacific Islands region should be devised starting with the DSM Project and including coastal and terrestrial minerals.
- A strategic plan for the overall management of offshore mineral resources in the region should be developed and be considered during the upcoming review of the SOPAC strategic plan.
- A marine minerals stakeholder network

should be established in the region. Following this, an ad hoc STAR Advisory Group that can be consulted on a regular basis should be set up.

- A regional mineral database should be established within SOPAC and regularly backed up elsewhere to ensure the safety of the data/information.

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 recommends to Council that:

- In respect to the RIF and the transfer of Energy to SPC the following aspects need to be managed:
 - Ensure the critical core staff positions are retained and funded so as to ensure that the current corporate knowledge is retained;
 - Encourage the engagement of members from the STAR network and associates to provide technical and advisory support to the Energy Sector; and
 - Resource assessments implemented may have a geophysical/geological component as well as a technical/economic component and therefore there is the need to ensure that the capacity for this component is retained.
- Petroleum data, information and advisory services in the region should continue to be strengthened.
- Biomass, geothermal, wave and ocean energy should be considered as a future potential source of energy.

Habitats Working Group

The focus was primarily on what type of marine habitat related activities the SOPAC work program should reflect within the new administrative structure of SPC. The group was briefed on the purpose of the Habitats Working Group and notified on the GeoHab meeting to take place in Wellington, New Zealand May 3-7, 2009, which will bring together geologists and biologists interested in marine benthic habitat characterization and mapping. It recommended that:

- SOPAC should continue to pursue shallow water marine benthic habitat mapping efforts and coordinate activities with other regional organizations and internally within SPC that have biological and fisheries capabilities.

Ocean Observations Working Group

The Working Group concluded that:

1. Ocean observations in the South Pacific region are actively implemented by various institutions, and the group recognized relevant information including observed data are being utilized for the benefit of the region. The group recommended that ocean observation activities be strengthened and include more active participation of scientists from the region.
2. The group understands the planned reformulation of SOPAC's administrative structure and recommends that SPREP should maintain the favourable tradition of supporting and operating ocean observations in the region established jointly with SOPAC.
3. An important mechanism to bring this about is the continued development of, and increase, the responsibilities of the Pacific Island-GOOS (PI-GOOS) coordinator and providing the coordinator with adequate support to conduct their work programme. The PI-GOOS coordinator should provide the leadership in the region for implementing and operating ocean observing systems that provide data freely and openly for the public good.
4. SPREP should develop a programme providing integrated ocean products to users in the region; products that likely could not be developed by individual nations. These products would be of use to both the private sector to use resources in a sustainable manner and establish ocean industries, and to regulatory and enforcement agencies within the nation to manage resources and to control and eliminate the illegal exploitation of resources.

Tsunami Working Group

The Tsunami Working Group presents the following recommendations for Council endorsement:

- Encourage and support the conduct of hazard risk assessments to identify the most vulnerable communities for tsunami.

- Urgently encourage and support countries to immediately develop effective and practical tsunami response and evacuation plans, based on the existing and best available science, and to practice them in preparation for the next tsunami.
- Organize and assist countries to develop tsunami warning and response capacities through training, twinning, and other means of skills building.
- Facilitate a coordinated approach for Post-Tsunami Science Surveys that are conducted immediately after destructive tsunamis. These findings will benefit countries in recovery and tsunami mitigation.

Water Working Group

The Water Working Group recognised the importance of water resources management for sustainable development and for disaster risk reduction and climate adaptation, together with the link between this land resources management.

They also recognised the impact of improved water supply, sanitation and hygiene to the reduction of the regional disease burden; and the need for the development of a Regional Indicator Framework for integrated water resource management, including the required capacity building to support decision making at a national and regional levels.

They recommend to Council that, whilst transferring its service delivery from SOPAC to SPC, all avenues are explored to ensure the recognition of water and sanitation by decision makers and that adequate resources are being mobilised to guarantee the ongoing regional support in water and sanitation for Pacific island communities.

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

On Thursday and Friday of last week, a number of STAR delegates spoke to students at five schools in Port Vila about aspects of geoscience and about careers in this subject. This is an aspect of our work that we all find very rewarding and is something that we've attempted at a number of meetings.

The schools were Central Secondary School, Malopa College, Pango School (all English language), Ifira Bilingual School, and Montmartre Lycee (French-speaking).

V. STAR Business Meeting (Annex 2)

May I turn now to the STAR Business Meeting and the future of STAR. I have conveyed to the previous two Council meetings our concern that the link between our voluntary organisation of international scientists and the delivery of geoscience to the region might be jeopardised by changes to the governance of SOPAC. Since the RIF process began, our members have spent much time discussing its implications both electronically and in person at annual meetings. There has been considerable concern for the future of STAR and, as can be expected from a group such as ours, opinions as to the best course forward vary considerably.

I presented a summary of the process to date and of the involvement of STAR representatives during the past year to the Business Meeting. I also conveyed some sense of the comments I had received from members who were not able to attend.

Given the issues regarding RIF and the future of SOPAC, I was initially not prepared to stand for re-election as the Chair of STAR and there were no other nominations. However, at a supplementary Business Meeting convened later in the week, Mr Mike Batty of SPC presented a statement on behalf of the Director of SPC that offered an unequivocal commitment to our group. Because of that, the many other representations I received, and a resolution of the meeting, all of which I will discuss later under Agenda Item 10.3.4, I reluctantly agreed to put my name forward. The Business Meeting then elected myself as Chair and Chris Ioan as Vice-Chair for the year to come.

It would be dishonest of me not to state here that I retain considerable personal reservations

about the appropriateness of our decisions at the Business Meeting. However, the Meeting empowered me to convene a transitional committee which will be available to work with the SPC and SOPAC secretariats at least during the coming year and we are committed with that to trying to find a way forward.

VI. Achievements of STAR

As last week's meeting marked 25 years of STAR and as our relationship with SOPAC will change, or at least be subject to major re-evaluation, I feel that this is an appropriate moment to review STAR's past and ongoing activities. With your indulgence, I'll briefly outline what I consider to have been especially significant, in no particular order of importance.

1. Throughout its history, STAR has tendered general scientific advice to SOPAC and its staff, both at these meetings through TAG and at other times of year.

It has also given help and advice to member nations on any issue at any time. Anyone has been able to contact past chairs or me and, if we've been unable to help ourselves, we've usually been able to pass the question on to people in the network who can. Although these queries are mostly quick and straightforward for us to deal with, they can save a great deal of time for the people who initiate them. They include questions on appropriate methodology or instrumentation, on the acquisition of literature, where to go for specialist expertise, and so on. Often the quick provision of an analysis or data or advice based on our own work can save a great deal of time for staff in a member nation.

2. Contacts made through STAR at its meetings and other activities have led to joint research projects between STAR scientists and between STAR scientists and researchers in the region. I noticed two or three such starting to take shape last week, and I have a couple of my own in mind too. Sometimes these initiatives simply add to our overall knowledge of Pacific science but sometimes they are of particular relevance to current issues in the region and may lead to new insights on specific problems. Areas that come to mind are the tsunami workshops, the habitat mapping efforts and a whole range of coastal processes applications.

Others are the volcanic hazards work in the Solomon Islands, Vanuatu and Fiji; the legal advice on RIF given by Matt Segal of K & L Gates, Seattle this afternoon; the provision of ships from JAMSTEC for scientific surveys following the Sissano tsunami that Kazu Kitazawa arranged; the development of Pacific GOOS by Bill Erb of IOC; the deployment of ARGO floats in the region; the involvement of myself and students in sedimentological and geochemical studies in the Suva region; and the co-supervision of students at USP by STAR members. And there are many other examples.

3. The STAR Conference has been our most visible activity but it is more than just another scientific meeting. It is a place for researchers to showcase their ideas, of course, and over the past 25 years we estimate more than 1500 individual papers have been presented. The conference allows SOPAC staff to show their achievements to the world. It facilitates the interactions that I've just alluded to and, importantly, nurtures young scientists from within the region. For them, presenting their work in this supportive environment to an audience that includes many people they already know is a first step towards presentations at major scientific meetings. These are a vital part of professional development but can be daunting for all of us, and especially so for beginners.
4. In opening our meeting, the distinguished National Representative for Vanuatu commented that policies are not driven by science in many areas in the Pacific. One important and possibly unique feature occasioned by the back-to-back nature of STAR and Council meetings has been the opportunity for scientists, decision-makers and administrators to meet informally and exchange views. Scientists who remain for the Council meeting participate as members of TAG, and some Council members attend many of the STAR sessions. This interaction became reduced when the growth of STAR required it to be separated out to run before the Council Meeting, rather than interleaved with it (and incidentally this is one reason why the PMEGs were introduced), but remained an important point of contact and a source of objective comment for Council. In fact, a number of Council members around this very table have been valued members of STAR for

many years and many have presented papers at our meetings, including the one just concluded. It is obvious that the better informed Council members are about scientific activities in the region, the greater the wisdom of your decisions.

5. STAR has been active in promoting the professional development and contribution to international science of SOPAC staff. I have mentioned in past addresses to Council the importance I place on SOPAC staff publishing in scientific journals those parts of their work that are not confidential. This is such an important tissue that I make no apologies for raising it again here. The reasons are several. Obviously, it benefits both this organisation and the individuals themselves if the excellent and innovative work that many of the latter do comes to the attention of the wider scientific community.

As well, though, SOPAC is a geoscience organisation. As such and in common with the other technical organisations in the region, it should of course be expected to use scientific methodology in its work. Equally important in science, though, is that the results of research be subject to ongoing scrutiny by other scientists. The emphasis that scientists place on peer-reviewed publications is because this is the main way that we ensure research quality is maintained. Anonymous peer review can at times be a brutal process but it is an essential one for science.

As an applied science organisation, SOPAC relies on basic scientific theories and approaches developed elsewhere. STAR acts as the link to this basic research, and I discussed in my address to Council last year the importance of the contact between applied scientists and those who have the opportunity and training to explore unusual findings. However, there is also an obligation for SOPAC to add to the store of scientific knowledge by publishing whatever is appropriate and thus making available to the international scientific community some of the excellent new research results that its staff collect. For example, a presentation by a SOPAC scientist at our meeting last week was contrary to conventional wisdom in one area of vital concern to us all but (and this is its importance) actually provided in support of its thesis the empirical data that is otherwise almost lacking in the debate. Once works such as these are reviewed and published, they have international availability and legitimacy, and a

quite different status to that of an in-house report. Publication also, of course, provides quality control.

Where does STAR come into this? A number of us have been trying to progress this for some years by assisting SOPAC staff with preparing manuscripts for international journals. There is often a diffidence to commit to this process because of inexperience or insecurity, and STAR can help with that; there is also, though, the need for the employing organisation to make time and resources available for this aspect of professional development.

6. Finally, I have already mentioned the talks to schools and community groups in the countries we visit, and this is an area of our activities we would like to expand. Hopefully we are able to interest some students in pursuing a career in science and we are always available as a resource to teachers and career advisors. I know that some STAR members have personally guided students from the region through their careers in universities elsewhere in the world.

I am very appreciative of all the kind and supportive words spoken about STAR this morning but I would not like to give the impression that that the traffic is all one way! STAR scientists gain a tremendous amount from their relationships with the Pacific Islands community in terms of logistic support and advice, and shared access to this magnificent natural laboratory. Most importantly, there are the intangibles of friendship and collegiality, the warmth of cultural exchanges and the heightened insights into our own research that come from discussing it in the settings where it is to be applied. Even should STAR not continue, we hope that many of the relationships will endure.

VII. Concluding Remarks

Although I began with some brief thanks to those who have helped and hosted us, let me add that since we arrived last Tuesday and were welcomed first by Pastor Philip Wiwirau and Mr Russell Nari, we have been treated as privileged guests.

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

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

John Collen

*Chair, Science Technology and Resources Network
Port Vila, Vanuatu, 26th October 2009*

Annex 1

MINUTES OF STAR WORKING GROUPS

Deepsea Minerals Working Group Report

Date: Thursday 22nd October 2009

Time: 7.55am

Venue: Le Lagon Resort, Port Vila Vanuatu.

The meeting was chaired by Akuila Tawake of SOPAC and in attendance were Alfred Simpson and Dr Samantha Smith (Nautilus Minerals), Yannick Beaudoin (UNEP/Grid-Arendal), Arthur Webb and Bhaskar Rao (SOPAC), Marion Henry (FSM), Bernard Pelletier (IRD), Lawrence Anton (PNG), Mack Kaminaga (RMI), and Maria Matavewa and Luna Wong (Mineral Resources Department, Fiji).

Akuila Tawake welcomed all to the meeting and stated that the meeting was to be conducted in a flexible manner. The main issue for discussion was the SOPAC EU/EDF Project and how the project was to be implemented. Funds (4.7 M Euro) have been approved and the signing of the contribution agreement by SOPAC and the EU will most likely take place in early 2010. A regional workshop will be convened to launch the project and the implementation of project tasks will follow.

On the questions of how the project was to be structured institutionally, given that SOPAC was to be a division of the Secretariat of the Pacific Community (SPC), and how does this project fit in with SOPAC's strategic plan, the following discussion took place.

The project will be managed and implemented by the Oceans and Islands Programme of SOPAC and is a natural prolongation of the SOPAC-JICA/MMAJ project which would revive the mineral exploration in the offshore areas of Pacific Island Countries (PICs).

The planned 2010 inaugural regional workshop will be held where the project will be launched and representatives of member countries and other key stakeholders will be invited to attend and collectively determine the priority areas of

project implementation based on the needs of each country.

This project was conceived following the requests received from Tonga/Cook Islands/Nauru to consider deep sea minerals (DSM) as a potential exploitable resource hence SOPAC's expertise was sought for appropriate advice and also to assist in developing appropriate legislative instruments for member countries. Subsequently, SOPAC prepared and submitted a DSM project proposal to the European Union (EU) and secured the 4.7 million Euro.

All stakeholders will be invited to a regional workshop where they will discuss relevant issues pertaining to the management of marine minerals in the region and collectively devise a way forward for the project. Member countries have various degree of progress in addressing issues relating to DSM and Papua New Guinea (PNG) is taking a lead role. Fiji has learnt a lot from the PNG experience through an official visit of high ranking government officials to Port Moresby in early 2009.

Since deep sea mining is a global new industry, any regional or national framework should be an evolving document to ensure appropriate changes are made as and when required. Any regional or national initiative, whether in policy and legislation development or environmental management must be done for the overall management of the ocean and its' resources. Group members have agreed that key stakeholders of the marine minerals industry should meet again, preferably in early 2010 during the proposed regional workshop for the DSM Project to develop a strategic plan for the overall management of offshore mineral resources in the region. This should be considered during the upcoming review of the SOPAC strategic plan. Additionally, stakeholder consultations and collaboration will be ongoing at regional and national levels in order to collectively address the needs of member countries.

It was revealed that a number of countries in the region have realised the potential of their seabed mineral resources and are working with SOPAC and other agencies to formulate and finalise their offshore minerals policy. However, the private sector should be part of this process taking into consideration exploration and mining issues that a mining company is often confronted with. It was suggested that a longer term program, preferably a 10-year program, for the management of marine minerals in the region be devised, and promoted to donors for funding. The DSM Project is an excellent starting point and the potential areas

beyond this project should be considered. This initiative should also encompass coastal and terrestrial minerals (i.e. industrial and metalliferous minerals).

The core part of the project will be supported by individual countries and implementing partners hence the suggestion that member of the DSM Working Group should establish a stakeholder network of the industry in the region. This would result in the establishment of an ad hoc Star Advisory Group whom we can consult on a regular basis. This DSM network should formalise its partnership with STAR and should continue to operate should STAR fail to emerge after SOPAC is being realigned to SPC in January 2010.

With ongoing activities in the region in terms of policy and legislation development and mineral exploration, SOPAC has identified priority countries (e.g. PNG, Cook Islands, Tonga and Fiji) and areas that the project will need to focus on. It was also suggested that instead of just looking at these priority countries, assistance should also be available to other member countries, e.g. the Federated States of Micronesia have received expressions of interests from private companies wanting to explore for cobalt rich crust within its EEZ.

The region has a lot to learn from PNG given their wealth of experience in land-based mining and the methods of mining waste disposal. Additionally, land-based exploration should not be written off as Nauru and Banaba are re-evaluating their phosphate project.

Database would have to be compiled and backed up (Vanuatu's experience of asking for data to repopulate their database which were lost in the 2007 fire). The collection of existing data and information is crucial hence a gap analysis should be carried out to determine the priority areas for future studies that will be an excellent component of the project deliverables. Most of these activities will be clarified and strategized during the inaugural regional workshop for the DSM Project.

As a potential partner in the implementation of the DSM Project, UNEP / Grid-Arendal revealed that they have a lot of experience in similar thematic areas such as database development and the production of assessment reports for Gas Hydrates for example. The details were covered in the presentation given by Yannick Beaudoin and they are happy to collaborate with SOPAC under this project.

An update was given by Nautilus on their current work programme in countries where they have been issued with exploration licences. The countries are Papua New Guinea, Tonga and the Solomon Islands and their research vessel is currently on an exploration expedition in the PNG and Solomon Islands waters. This is the first time that they will be exploring in the Solomon Islands. Lessons learnt from Nautilus' experience in PNG should not be ignored but used to ensure effective project task deliveries.

Recommendations

- A longer term regional program for the management of marine minerals in the Pacific Islands region should be devised starting with the DSM Project. This initiative should also encompass coastal and terrestrial minerals (i.e. industrial and metalliferous minerals).
- A strategic plan for the overall management of offshore mineral resources in the region should be developed and be considered during the upcoming review of the SOPAC strategic plan.
- A marine minerals stakeholder network should be established in the region. Following this, an ad hoc STAR Advisory Group that can be consulted on a regular basis should be set up.
- A regional mineral database should be establish within SOPAC and regularly backed up elsewhere to ensure the safety of the data/information.

Energy Working Group Report

The following participated in the Energy Working Group convened on the 22nd October 2009, Le Lagon, Port Vila, Vanuatu. Mr Charles (Chuck) Helsley (US) – Chair (Elect), Mrs Maria Matawewa (FJ), Mr Rupeni Mario, Mr Shakil Kumar & 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 38th Session in Port Vila, Vanuatu, for inclusion in the SOPAC Work Programme for 2010.

The SOPAC Secretariat provided copies of the 2008 recommendations and Communiqué from the Pacific Energy Ministers Meeting (Tonga, April 2009).

The Chair made reference to the relevant sections of the 2008 Chairs report noting that the substantive progress had been made in addressing many of these issues in particular the convening of the 2009 Energy Officials and Pacific Energy Ministers Meeting in the Republic of Tonga from the 20-24th April 2009. Where the Communiqué from the Pacific Energy Ministers Meeting provided five (5) recommendations with specific focal areas highlighted for addressing in 2009/2010 energy work programmes. A copy of the “key priority action areas” identified by the Pacific Energy Ministers is attached for reference. For 2009 it was noted that the issue of energy security still remains of primary importance across all PICs. Hence the topics discussed and following recommendations 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.

Regional Institutional Framework (RIF)

Noted in implementing the outcomes of the RIF this would result in the transfer of the SOPAC Energy Sector into the newly formed Economic Development Division (EDD) within SPC (Economics, Energy, Transport, Infrastructure and Communications). Three specific issues were highlighted as of concern and need to be addressed in respect to the imminent transfer in early 2010.

1. Ensure the critical core staff positions as identified in the SOPAC paper prepared to elaborate the transfer implementation arrangements to SPC are maintained so as to enable the primary services to be provided to PICs in the future and without disruption or diminution. The preservation of relevant cooperate knowledge is also retained.
2. In assessing new and emerging technologies as well as promoting and developing more traditional energy sources that options remain open and are further explored that encourage the engagement of members from the STAR network and associates to provide technical and advisory support to the Energy Sector of the EDD.
3. Resource assessments implemented through the energy sector may have a geophysical/geological component as well as a technical/economic component. Therefore for the geophysical/geological aspects energy programmes/projects there

is the need to ensure that the capacity for this component is retained. It is assumed that this most ideally be achieved through ensuring that appropriate mechanisms are in place that allowed these services to be access from the Geoscience Division within SPC. (Note the Geoscience Division being formerly SOPAC before the integration (the RIF) into SPC as a new division).

Petroleum Advisory Services

Noted that the responsibility for the management and provision of petroleum data and information during 2009 was transferred from the Pacific Islands Forum Secretariat to SOPAC mid 2009 where the petroleum datasets are currently being re-established and updated along with developing linkages with PICs. SOPAC has continued to contribute to progressing the “Pacific Petroleum Project” (relating to the bulk procurement of petroleum products for the Pacific region). It was noted that currently there were only four (4) signatories to the MoU between the Governments of Forum Island Countries on the Pacific Petroleum Project and it was recommended that the other PICs should also be encouraged to sign on to the MoU. Further it was suggested that there needed to be clearer information available on the issue of bulk purchase of petroleum products for the region and what that mechanism might look like and what it really means aside from potential financial benefits. SOPAC to pursue these matters with the Pacific Islands Forum Secretariat as the CROP Agency responsible for the initiative.

Petroleum Database

Noted that there was an interest in revisiting the earlier assessment of petroleum resources and potential within the Pacific region where this comprehensive data and information is retained within the Petroleum Database. This reassessment being triggered in light of the continuing reliance on fossil fuels, increasing /volatility in costs and security of supply, and noting that renewable energy may not be able to meet all PIC needs and requirements. A digital transcript of all the petroleum data and information held in the Petroleum Database is available at SOPAC where in addition each country holds a copy of their respective petroleum datasets and information extracted from the Petroleum Database.

Noted that specialist technical assistance and financial support would be required to assist

PICs with the reassessment of their petroleum resources and potential.

Biomass/CDM – Forestry

Noted that amongst earlier (2008) energy sources or potential identified that biomass was not specifically listed, however biomass had been assessed in a number of PICs through an earlier SOPAC resources assessment project. It was therefore recommended that biomass again be considered as a future potential source of energy and linked specifically to the forestry sector and opportunities to benefit from carbon credits through the Clean Development Mechanism (CDM).

Geothermal

Noted the renewed interest in the region (FJ / VU) in assessing geothermal where there is the need as for a decade ago that potential sites within the region need to be the subject of drilling so as to be able to quantify the resource.

Wave/Ocean Energy

Noted that there would appear to be opportunities to consider and promote wave and ocean technologies especially where these offered the opportunity to contribute to other sectors such as providing a potential source of potable water. The future development and adoption of wave and ocean technologies at this time being predominantly dependant on the availability of commercially proven technologies, with acceptable financial and economic parameters.

Renewable Energy/Economics

Noted that in the promotion of renewable energy and within the economic and financial assessment provision should be made for the costs associate with the manufacture of the renewable energy technology equipment. Primarily the energy resources required for the manufacture and development processes will be from non-renewable energy resources that are now considered to be finite in resource and quantity.

Energy Efficiency and Conservation

Noted the potential benefits from aggressive energy efficiency and conservation programmes and that these should be promoted.

Extract from the Pacific Energy Ministers Communiqué – Tonga, April 2009.

Key priority action areas:

1. Ministers in noting the progress in the implementation of the Regional Institutional Framework (RIF) and the implications on energy recommended and agreed to the following:
 - a) that regional and donor coordination delivery of energy services to Pacific island countries be strengthened and delivered through one energy agency and through one programme contributing to the development of a stronger energy sector and improved service to member countries; and
 - b) in this context it was noted that there was a need to ensure that energy policy and climate change policy remained separate where environmental aspects are managed by SPREP and energy sector activities by SPC so as to ensure that the socio-economic aspects of energy were adequately addressed.
2. Ministers underlined the need to strengthen human capacity development initiatives to support national and regional energy programmes including gender mainstreaming; and further noted on going need to focus on development of apprentice schemes for power utilities and alternative energy technologies.
3. Ministers expressed the need to review and as appropriate strengthen national capacity in energy data and information gathering and collation, management, dissemination and, analysis on economics, social and environment to better inform national and regional energy planning and policy choices where this should be incorporated into the one energy agency.
4. Ministers acknowledged progress in the implementation of the regional bulk fuel procurement initiative and called upon CROP agencies to continue to support PICs to move the initiative to implementation.
5. Ministers encouraged the necessary actions that would facilitate investment in sustainable renewable energy technologies and in energy efficiency and energy conservation initiatives.

Ministers in highlighting these five key priority areas acknowledged that all Pacific island countries are individual and unique in their own respect and accepted that the other outcome areas as recommended to the Ministers be individually assessed on a case by case basis as countries deemed necessary and on the availability of human and financial resources.

Habitats Working Group Report

The Habitats Working Group met at the La Lagon Resort in Vila, Vanuatu, October 21, 2009 and discussed the needs and interests to characterize marine benthic habitats in the SOPAC region. In this brief meeting the focus was primarily on what type of marine habitat related activities should the SOPAC work program reflect within the new administrative structure of SPC. Although the group was relatively small, it was diverse with representatives from industry, academia, governments and SOPAC.

The group was briefed on the purpose of the Habitats Working Group and notified on the GeoHab meeting to take place in Wellington, New Zealand May 3-7, 2009, which is a meeting that brings together geologists and biologists interested in marine benthic habitat characterization and mapping. It was pointed out that at last year's meeting discussion of the deep-water habitat atlas that Peter Harris is heading has direct application to the interests of PICs.

Peter Harris further explained to the group how the worldwide deep-water habitat atlas is evolving and what its benefits are to the SOPAC region. It was pointed out that to date over 50 habitat related case histories have been identified yet there are few identified for the SOPAC region in general.

It was noted that SOPAC has moved ahead in its shallow water habitat mapping of atolls with the completion of mapping in Aitutaki lagoon, Cook Islands. Results of this mapping are presently being prepared for publication and possible presentation at the 2010 GeoHab conference.

It was pointed out that, with a possible new deep-water (~800 m) fishery (Bluenose) developing offshore of various islands in the Pacific, there may be a need to characterize deep-water habitats for fisheries management. The group noted that with the movement of the core of SOPAC into SPC there may be good synergy between the seafloor working capabilities of SOPAC with other divisions within SPC such as the Fisheries Division.

The group indicated that there is good value in SOPAC's habitat mapping capability and habitat maps are needed for the management of marine resources. With the potential of marine seafloor mining activities in the future the group felt that SOPAC should not only be considering types of studies to be undertaken, but to evaluate what data exists in its archives that would be useful for deep-water habitats characterization. The mining industry could use such information and maps and it appears that industry would also be willing to contribute data for the purpose of constructing habitat maps.

Recommendations:

- SOPAC should continue to pursue shallow water marine benthic habitat mapping efforts and coordinate activities with other regional organizations and internally within SPC that have biological and fisheries capabilities.
- SOPAC is encouraged to participate in the compilation of the deep-water habitat atlas.
- SOPAC should encourage synergy between deep-water marine benthic habitat mapping and the emerging deep-water minerals exploration activities and maintain a dialog with such industries as Nautilus, which has been established during this working group meeting.
- Extensive habitat related data gaps exist and the working group recommended that these gaps be identified as a first step forward to compile data available in the region that can be used for marine benthic habitat characterization and mapping.

Participants:

- Jonathan Gardner, Victoria University, Wellington, jonathan.gardner@vuw.ac.nz
- Gary Greene, MLML/Tombolo, greene@mlml.calstate.edu
- Peter Harris, Geoscience Australia, Peter.Harris@ga.gov.au
- Alf Simpson, Consultant
- Robert Smith, SOPAC, Robert@sopac.org
- Sam Smith, Nautilus, Sls@natuilus-minerals.com
- Arthur Webb, SOPAC, arthur@sopac.org

Ocean Observations Working Group Report

Participants:

- Steve Piotrowicz (NOAA, USA)
- Mareva Kuchinke (CSIRO, Australia)
- Alexandre Ganachaud (IRD, New Caledonia)
- Kazuhiro Kitazawa (JAMSTEC, Japan)

The Working Group met on 22nd October 2009 and concluded that:

1. Ocean observations in the South Pacific region are actively implemented by various institutions, and the group recognized relevant information including observed data are being utilized for the benefit of the region. The group recommended that ocean observation activities be strengthened and include more active participation of scientists from the region.
2. The group understands the planned reformulation of SOPAC's administrative structure and recommends that SPREP should maintain the favourable tradition of supporting and operating ocean observations in the region established jointly with SOPAC.
3. An important mechanism to bring this about is the continued development of, and increase, the responsibilities of the Pacific Island-GOOS (PI-GOOS) coordinator and providing the coordinator with adequate support to conduct their work programme. The PI-GOOS coordinator should provide the leadership in the region for implementing and operating ocean observing systems that provide data freely and openly for the public good.
4. SPREP should develop a programme providing integrated ocean products to users in the region; products that likely could not be developed by individual nations. These products would be of use to both the private sector to use resources in a sustainable manner and establish ocean industries, and to regulatory and enforcement agencies within the nation to manage resources and to control and eliminate the illegal exploitation of resources.

Tsunami Working Group Report

Members of Group:

Ken Gledhill [Co-Chair], Laura Kong [Co-Chair], Lawrence Anton, Litea Biukoto, Herve

Damlamian, 'Ofa Fa'anunu (by email), Esline Garaebiti, Gary Green, Trevor Jones, Peter Koltermann, Kelepi Mafi, Keu Mataroa, Cherie O'Brien, Bernard Pelletier, Alf Simpson, Lameko Talia, Masahiro Yamamoto

Noting the high frequency of tsunamis affecting this region over the last decade (23 tsunamis, of which 4 caused deaths (1998, 1999, 2007, 2009)), and the damaging effects they have had on communities, physical infrastructure, social well-being, and livelihoods,

Noting the recommendations of the UNESCO/IOC PTWS Seismic Data Sharing Task Team meeting 19-20 October 2009, which took action to address the urgent need for more seismic data so as to reduce the detection and warning issuance time for tsunami early warning,

Noting the reports, information sharing, and discussions from the STAR Tsunami and 29 September 2009 Tsunami Sessions, and the STAR Tsunami Working Group that highlighted the importance of

- Natural warnings of tsunami, such as intense earthquake shaking and the draw-down of the sea for near-source, local tsunami response,
- Education and awareness campaigns on natural warnings and the required response,
- Community response planning, including evacuation plans and safe areas.

Recognizing the coordination role of UNESCO/IOC and long experiences of its Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (PTWS) and its efforts to promote the development of strong tsunami early warning systems in the Pacific for more effective tsunami mitigation,

Recognizing SOPAC's role working with Pacific Island Countries in the disaster risk reduction for tsunami and other hazards in the context of the Hyogo Framework,

Recognizing SOPAC's role in the coordination of the international tsunami scientific responses to tsunami (and other disaster) events in the region, in cooperation with UNESCO IOC, to ensure the maximum scientific and local benefit from the work of the international science teams,

Appreciating the important role that UNESCO/IOC, SOPAC, and other regional and international organizations and donors play in working together to assist Pacific Island Countries to build effective tsunami early warning systems,

Identifying the need for countries in the region to develop and exercise effective standard operation procedures (SOPs) to specify the response once a tsunami warning is received,

Identifying the need for capacity building in national warning centre operations and the decision support tools that aid in operations,

Endorsing the continued need for free and open exchange of data and information to benefit both the local and international communities,

Recognizing that tsunami hazard and risk assessments are essential to identify coastal communities so as to assist them to better respond to tsunamis and guide development in these areas. Inundation mapping, using standardized tools and high-resolution bathymetric and topographic sets such as LIDAR, is needed for tsunami flood planning. SOPAC is developing its capacity to address inundation modeling in the region, and is combining this with its existing bathymetric capacity.

Recognizing the important value of paleotsunami scientific studies for extending the historical record of destructive tsunamis that have impacted each country,

We present the following recommendations for Council endorsement:

- Encourage and support the conduct of hazard risk assessments to identify the most vulnerable communities for tsunami. In most areas, the necessary topographic and bathymetric data, which are useful for other purposes such as climate change impacts, disaster risk reduction and land use planning, are not available presently. Extending the known historical tsunami database back in time for each country is critical.
- Urgently encourage and support countries to immediately develop effective and practical tsunami response and evacuation plans, based on the existing and best available science, and to practice them in preparation for the next tsunami. Effective emergency alert systems that will reach vulnerable communities need to be implemented. As better inundation models become available, evacuation maps can be refined.
- Encourage and support the continued conduct of community-based education and awareness campaigns for tsunami and other hazards, especially for local tsunamis, so that everyone will be able

to recognize a tsunami and know what to do. Implement tsunami awareness in local education systems through curriculum development.

- Organize and assist countries to develop tsunami warning and response capacities through training, twinning, and other means of skills building.
- Facilitate a coordinated approach for Post-Tsunami Science Surveys that are conducted immediately after destructive tsunamis to assemble lessons learned and capture data to validate risk assessment models following the guidance of the revised IOC Post-Tsunami Field Survey Guide and the lessons learned from the International Tsunami Survey in Samoa in October 2009. These findings will benefit countries in recovery and tsunami mitigation.
- Facilitate coordination and sharing of data and information between warning agencies, response agencies and communities before, during, and after tsunami events.

Water Working Group

Attendees: Kelepi Mafi, Chris Ioan, Alf Simpson, Erickson Sammy, Rosette Kalmat, Rhonda Robinson, Marc Overmars, David Duncan

Agenda

1. Review of last year's recommendations
2. Future staffing and continued programme funding under SPC and future of the STAR water working group
3. Regional indicator development
4. The value of the Pacific RAP

Last year's and past recommendations

- Noted the STAR Water Working Group (WWG) recommendations to Council over the past 8 years. The WWG note with some satisfaction that a significant number of its recommendations had been implemented by the SOPAC Secretariat.

Future Direction

- The Water Working Group expressed concern at the continued lack of core programme funding and future staffing for Water and Sanitation
- Noted the end of the present Strategic Plan of SOPAC and saw it as an opportune time to assess the wider role of W&S not only

in the next strategic planning exercise but also to provide direction for the water sector within the wider SPC programmes.

- Further recognise within the strategic planning process that water resources management is central to sustainable development and needs to be integrated across climate change adaptation, disaster risk reduction, land and coastal zone management and public health.

Indicator Development

- Recognise the need for programmatic approaches and results oriented monitoring of projects and programmes.
- Recognised the need for the development of a Regional Indicator Framework for integrated water resource management, including the required capacity building to support decision making at a national and regional levels.

Pacific Regional Action Plan on Sustainable Water Management

- Noted the value of the Pacific RAP to continue to provide strategic guidance for regional support in water and sanitation.

Recommendations to Council

- Noting the STAR recommendations to Council over the past 8 years and the follow-up to those recommendations by the SOPAC Secretariat, most notably the mobilisation of human and financial resources which significantly strengthened SOPAC's delivery of services on water and sanitation as well as the recognition by Pacific Leaders of the strategic guidance that is provided by the Pacific Regional Action Plan on Sustainable Water Management under the Pacific Plan;
- Recognising the importance of water resources management for sustainable development;
- Recognising the central role of water resources management in disaster risk reduction and climate adaptation;
- Recognising the inextricable links between water resources management and coastal zone and land resources management;
- Recognising the impact of improved water supply, sanitation and hygiene to the reduction of the regional disease burden;
- Recognising the need for the development of a Regional Indicator Framework for

integrated water resource management, including the essential capacity building to support decision making and programme implementation at a national and regional levels;

The Water Working Group recommends to Council that, whilst transferring its service delivery from SOPAC to SPC, all avenues are explored to ensure the recognition of water and sanitation by decision makers and that adequate resources are being mobilised to guarantee the ongoing regional support in water and sanitation for Pacific island communities.

Annex 2

RESOLUTION OF THE STAR BUSINESS MEETING

The Science Technology and Resources (STAR) Network, at its 2009 Meeting held in Port Vila, Vanuatu, 21-23 October, considered the options for the future of STAR, and the following resolution was agreed to for transmission to the 38th Annual Session of the SOPAC Governing Council. Consideration of this matter was necessary following the joint decision of the governing bodies of SOPAC, SPREP, and SPC and the support of the Leaders at their August Cairns Forum, that the core work programme of SOPAC would become a division of SPC with implementation from 1 January 2010.

The STAR meeting:

- Recalled its origins in 1984 as a joint SOPAC and IOC/UNESCO partnership, a partnership which has endured for the past 25 years.
- Reaffirmed their resolution in 2007 in regard to the regional institutional framework review underway.
 - o commended its excellent relationship with SOPAC Governing Council extending back over the past nearly 25 years, during which it has developed and strengthened the linkages between science and policy through holding meetings in conjunction with SOPAC Governing Council;
 - o recalled the many occasions the SOPAC-STAR evolving relationship has been examined and endorsed both by the SOPAC National Representatives and the international geo-scientific community,
 - o noted STAR has developed into a complex mix of science and scientists, and is tending to grow, and with an empha-

sis that shifts from year to year in order to address the breadth of the SOPAC work programmes and focus on current issues in an integrated and synergistic manner;

- o noted further that STAR meetings provide the opportunity for the increasing numbers of Pacific island nationals to present the results of their work, and in this context STAR meetings provide a valuable capacity building opportunity, especially for young scientists; the meetings also provide an invaluable direct networking experience for scientists based outside the region, as well as providing a venue for SOPAC and member countries to become apprised of work planned or underway by organisations from outside the region;
 - o highlighted that STAR meetings provide a unique interface for scientists based outside the region to familiarise themselves with issues facing the SOPAC island member states and the role that their science can play in contributing to development in the region; and provide a foundation from which scientists are better informed to advise Council on the SOPAC work programmes”
 - o highlighted further that ‘geoscience’ is not just about geology (e.g. minerals) and geophysics (e.g. earthquakes), but rather is about an integration of the broad sweep of sciences that study the earth, and include as well physical oceanography, meteorology, marine biology and ecology, and aspects of earth-related social sciences such as urban geography;
 - o strongly reiterated that one of the great strengths of SOPAC is its ability to mobilise excellent science and bring it to bear so as to address the national needs of SOPAC’s island member countries, and the long-established working relationship between SOPAC and the international research community is a vital element in this endeavour that STAR is charged to nurture;
 - o acknowledged that to remain relevant, change is inevitable but nonetheless for change to be least disruptive to the delivery of benefits to the region, change must be a deliberate and strategic ongoing process;
 - o expressed the strong desire that a mechanism be found that will enable the benefits of STAR to be continued, and hence contribute to improvement of delivery of benefits to the region, noting that the international community of scientists and technologists contribute freely to STAR and that this constitutes on an annual basis a substantial “no fee for service” to the region;
- o concluded that, if invited by Council, the Chair of STAR supported by a small group of senior advisers, will be prepared to provide advice to Council at its 36th Session during the consideration of the process of responding to the recent Forum Leaders Communique.
 - Recognised the strong desire of the SOPAC Council to retain STAR and their encouragement that STAR align itself with the new governance arrangements
 - Recognised that the arrangements for the future, in particular 2010, are not known at this time, but emphasised these arrangements are crucial to any decisions on the future of STAR.
 - Recognised that the meeting anticipated in late 2010 that would consider a new strategic plan for the SOPAC Science and Technology Division of SPC, and the 2011 work programme and budget would be a meeting organised by either SOPAC, or SPC, or jointly organised by both organisations.
 - Noted with pleasure the unequivocal assurance that SPC is committed to ensuring that STAR continue its excellent work, and would like to expand its functions to include other scientific areas. This commitment will ensure resources to hold an annual STAR meeting and the provision of a date for this annual meeting a year or thereabouts in advance.
 - Agreed that the future continuation of STAR requires a re-commitment of the STAR members and the representatives of the island nations.
 - Agreed that assuming the above commitments be given, STAR would convene in 2010 in Nadi or Noumea immediately prior to the meeting that is to consider the SOPAC work programme and budget.
 - Agreed further that the STAR Chair establish as necessary Vice Chairs and a committee to assist with the transition arrangements and work with the SOPAC and SPC Secretariats.
 - Unanimously agreed that Professor John Collen be re-elected Chair of STAR for the coming year.