



Applied Geoscience and Technology Division (SOPAC)  
 Division Géosciences et Technologies Appliquées (SOPAC)

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## Second Meeting of the SOPAC Division Noumea, New Caledonia, 3-9 November 2012 (SOPAC-2)

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2	REPORTS
2.1	Director's Report: Introduction

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### INTRODUCTION

Colleagues, it would be truly remiss of me today if I did not begin with just a little bit of history. Tomorrow will be November 7th. It was on this day in 1972 that the First Session of the Committee for the Coordination of Offshore Prospecting (CCOP/SOPAC) convened in Suva, Fiji. Yes, we are gathered here on the eve of the fortieth anniversary of a work programme that has not only evolved over time but has also changed its institutional status on several occasions. It was first a UNDP Regional Project, second an independent intergovernmental organisation "The Commission", and most recently it has become a Division of the Pacific Community (SPC). Despite what have inevitably been institutional upheavals the work programme over the past forty years has grown from strength to strength and more so as the Membership has grown so the work programme has broadened in scope to better service it.

I would like to take a moment to recognise all those from the very beginning to this day who have contributed selflessly to the success of this work programme. Many of the early players are sadly no longer with us, and today we have a relatively young generation of Member country representatives and Secretariat staff. The corporate memory may therefore be said to be thin, but many have played a role no matter how large or small.

To ensure that the legacy of the first 40 years of work is not lost, for the past two years we have been engaged in a special project...the so-called Compendium Project. Its sole purpose is to catalogue and digitise all the work completed for each of the Member countries no matter when they joined the organisation. It has been a mammoth task as almost all the first 30 years of data was in hard copy form, and some already deteriorating. That part of the work is now almost completed and very tedious work it has been for many dedicated students. A temperature-controlled archiving environment has been constructed; and at the same time comes the task of bringing all the now electronic data files together and making them available – maps, charts, photos, reports, data spreadsheets and the like to each of the Members in a web-based format. The Division data managers will be kept busy on this latter part of the Compendium Project until the anticipated completion mid-2013.

The Division is now almost 2 years into the post regional institutional framework reform (so-called RIF reform). The truth is that it remains a period of transition for both the former SOPAC Commission and the former SPC. We have now an opportunity to demonstrate that big is beautiful. The two largest technical regional organisations, now a single new institution, are now

able to combine the best of their respective work programmes to improve the service delivery to Members. We need to realise that opportunity.

The road ahead will never be smooth but now is the time to give it a best shot and for the Division to put in a new driver whose task can focus on the road ahead and not be looking over their shoulders all the time.

I am pleased to introduce to you all the Director Designate for the Division who will assume office from 1 January 2013. May I assure everyone we will work together over the coming few weeks to ensure by the end of January the handover is seamless. I would like to take this opportunity to wish the incoming Director all the best in applying his leadership skills to the tasks ahead.

Many, if not all of you will be aware that I returned to the SOPAC programme at the request of the then Chair in January of 2010 to facilitate a way forward on the RIF reform. That is now almost three years ago and it is time for me to move on. As such this is the last time I will get the opportunity to speak to you on the matter of the Applied Geoscience and Technology Division Director's Report.

The Division built up its work programme reputation under the acronym SOPAC. SOPAC, I feel sure will live on affectionately in many minds as an icon for excellence in delivery of scientific and technical services to Members and of course especially its defacto role as the national geoscientific institution for many Members.

The poem "The Rime of the Ancient Mariner" by Samuel Taylor Coleridge in 1798 is a poem that may well have been inspired by James Cook's voyage of exploration (1772–1775) to the South Seas and the Pacific. A voyage that like many historic traditional voyages in the region captures the imagination of many. It may inspire us yet again as it, in my view, captures the very essence of our region with words like:

*Water, water, every where,  
And all the boards did shrink;  
Water, water, every where,  
Nor any drop to drink*

Of course what is being alluded to is not rainfall or a drought. But also, the vastness of the ocean where for 16 out of the 22 of SPC's island countries and territories over 99% sovereign territory is ocean. I ask you, do not these words capture the very essence of the SOPAC work programme that hinges on a better understanding of Nature's Water Cycle: the vastness of the ocean (97% of the water cycle and only 3% freshwater). The vastness of ocean space and small islands (the Ocean and Islands Programme), the necessity yet lack of security of safe drinking water and sanitation now a declared basic human right (the Water and Sanitation Programme, and if all fails and we cannot identify and manage the risks, especially the risks that are coming with development (the Disaster Reduction Programme).

To understand better Nature's cycles, whether the water cycle or any other cycle, we must have data. With data collected over time we can derive information products which ultimately, when shared with communities at all levels, will lead to a better understanding and knowledge of the risks being taken. Put very simply:

*We cannot manage what we do not measure!!!*

This pre-occupation with data gathering to better inform decision-making on a "whole of government" and "whole of country" basis, has, is, and will remain the very purpose of the SOPAC work programme. Together now with the much enlarged new SPC work programme the Members have an opportunity to gain greater benefits, and opportunity; which I mentioned earlier needs, at this time, to be nurtured and given the time to be realised.

Colleagues

Now may I turn to the progress over the past year in the work of the Division.

The Division has made good progress during 2011 in implementing the work programme against the three technical Key Result Areas (KRAs) of the 2011-2015 Division Strategic Plan. Some 47 activities/outputs were selected from the full narrative reports of the work programme to demonstrate the depth and breadth of the services delivered to Members (Annex 1). A subset of these (12 in number) was further selected to highlight to the SOPAC Division Meeting and will be the subject of discussion. It remains a challenge to quantify the impact of this work in the short term and clearly the Members themselves need to have input into and assessment of impact since they requested the work in the first instance.

## THE DIVISION

According to *Strategic Plan 2011–2015*, the specific goal of the SOPAC Division is to apply geoscience and technology to realise new opportunities for improving the livelihoods of Pacific communities. In order to achieve this goal, the division targets outcomes in three technical KRAs (see the SOPAC Division Strategic Plan for further information):

KRA 1 Natural resources, systems and processes monitored and assessed

KRA 2 Natural resources developed and managed and governance strengthened

KRA 3 Vulnerability and risks managed

Additionally, a fourth KRA represents internal corporate management mechanisms to ensure optimal delivery of the technical services under KRAs 1–3. Progressively, the activities and outputs of this KRA are being transferred to the broader SPC corporate environment.

In the 2011–2015 strategic plan, services are delivered by way of three technical work programmes — Oceans and Islands, Water and Sanitation, and Disaster Reduction — and five technical support service areas: Natural Resource Economics, GIS and Remote Sensing, Technical Equipment and Services, Data Management, and Publications and Library.

The annual **SOPAC Division meeting** will be convened in Noumea immediately prior to the 42nd CRGA. The Chair's summary report will be circulated as an annex to this report when it is available.

Full and extensive narrative reports for each of the three technical work programmes and technical support services have been prepared and tabled at the division meeting, and each report has been summarised and translated for discussion. Also prepared in summary form and translated are papers on: (i) the work programme delivery against the KRAs of the strategic plan, (ii) twelve selected highlights from the year's work, (iii) new and emerging issues; (iv) the draft 2013 work plan and budget.

The **Science, Technology and Resources Network (STAR)** continues and in the Chair's summary report from the last SOPAC division meeting it was noted that the members of the STAR network wish for the past, very successful, relationship with SOPAC to continue with the new SPC/SOPAC Division. They considered that STAR needs to evolve in response to the new situation, and wish to extend its relationship to other divisions of SPC where this is appropriate. The Chair of STAR, Professor John Collen of Victoria University, reaffirmed its offer of the expertise of its members as a resource freely available to the region.

The **Programme Monitoring and Evaluation Group (PMEG)** has been in place for the past decade and is today a process to give confidence to the annual SOPAC Division meeting and

the SPC Committee of Representatives of Governments and Administrations (CRGA) meeting that: (i) the agreed work programme of the SOPAC Division is being implemented efficiently; (ii) non programmed work is in line with the main focus of the work programme and has not detracted from delivery of the agreed programme; and (iii) the proposed future activities are aligned with the division's 2011–2015 strategic plan and regional policies. To achieve this, PMEG is required to provide an independent technical oversight of the achievements of the preceding year against the agreed work programme; review the proposed work programme in terms of relevance, coherence, prioritisation of actions and balance of focus across work areas and countries; make constructive recommendations to improve programme focus and delivery; and advise the annual SOPAC Division and CRGA meetings accordingly.

### **Finance: Budget for 2012**

The approved budget for 2012 was 8,898,293 CFP units together with 4,995,795 CFP units dedicated for national projects (totalling 13,894,088 CFP units) and a revised budget of 14,292,800 CFP units (see Table 1).

The quantum of project to programme/core funding remains very high at 90%. When a substantial share of the budget is to employ staff, there remains a continual shadow over the work programme with regard to continuity of service delivery.

A particular point of interest is the move by countries to request the division to implement projects funded by their own dedicated national resources, in particular from the European Development Fund 9 (see Table1).

- The 'B' envelope project is for eight countries: **Federated States of Micronesia, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands, Tonga and Tuvalu.**
- The 'C' envelope project is for the four Overseas Countries and Territories: **French Polynesia, New Caledonia, Pitcairn Islands and Wallis and Futuna.**
- **Kiribati:** has its own dedicated 'B' envelope project being implemented by the division

Should this trend continue, it will present a new opportunity to secure funding for the work programme.

It must be highlighted that there continues to be an extraordinary proportion of professional technical staff time spent on preparing proposals for funding at the expense of doing the work for which the staff were recruited. For example, the Ocean and Islands Programme reports that, out of 23 activities, seven were at the proposal stage of being considered for funding and potential implementation. It must be acknowledged that project development to secure funding is a huge burden on staff, with a significant proportion of their time and effort spent designing and writing proposals that may never secure funding.

Table 1: Revised budget for 2012 (CFP units)

<i>PROGRAMME</i>	<i>Core Funding (RB)</i>	<i>% of Total Budget</i>	<i>Programme Funding (RXB)</i>	<i>% of Total Budget</i>	<i>Project Funding (XB)</i>	<i>% of Total Budget</i>	<i>Total Budget</i>	<i>% of Total Budget</i>
Ocean and Islands	0	0.0%	100,000	1.2%	2,820,847	34.0%	2,920,847	35%
Water and Sanitation	0	0.0%	370,000	4.5%	1,143,700	13.8%	1,513,700	18%
Disaster Reduction	0	0%	400,000	5%	1,940,995	23.4%	2,340,995	28%
Technical Support Services	0	0.0%	590,000	7%	564,800	7%	1,154,800	14%
Directorate	373,100	4.5%	0	0%	0	0.0%	373,100	4%
<b>TOTAL SOPAC BUDGET</b>	<b>373,100</b>	<b>4%</b>	<b>1,460,000</b>	<b>18%</b>	<b>6,470,342</b>	<b>78%</b>	<b>8,303,442</b>	<b>100%</b>
*European Union EDF 9 B Envelope	0	0.0%	0	0%	3,376,365	27.1%	3,376,365	24%
**European Union EDF 9 C Envelope	0	0.0%	0	0%	1,021,840	8.2%	1,021,840	7%
Kiribati EU/NIP B Envelope	0	0.0%	0	0%	890,953	7.2%	890,953	6%
EDF9 Trust Funds	0	0.0%	0	0%	700,200	5.6%	700,200	5%
Various Savings	0	0.0%	0	0%	0	0%	0	0%
<b>GRAND TOTALS</b>	<b>373,100</b>		<b>1,460,000</b>		<b>12,459,700</b>		<b>14,292,800</b>	

## Staffing

The overall staffing of the division remained almost stable with nine resignations and six recruitments during the twelve-month period to 30 September 2012.

<b>PROGRAMME</b>	<b>INTERNATIONALLY RECRUITED POSITIONS</b>		<b>LOCALLY RECRUITED POSITIONS</b>	
	<b>MALE</b>	<b>FEMALE</b>	<b>MALE</b>	<b>FEMALE</b>
DISASTER REDUCTION PROGRAMME	5	6	2	8
WATER & SANITATION PROGRAMME	6	1	3	4
OCEAN & ISLANDS PROGRAMME	8	2	6	3
TECHNICAL SUPPORT & DIRECTORATE	2	1	2	4
CORPORATE SERVICES (not shown in Division budget)	4	2	14	11
TOTALs	26	12	27	30
	38		57	
	95			
	Gender balance: 53 (55%) male and 42 (45%) female			

## 2012 WORK PROGRAMME HIGHLIGHTS AGAINST THE DIVISION 2011–2015 STRATEGIC PLAN

In addition to activities in the approved 2012 work plan and budget, the division provides a positive response to unscheduled, ad hoc requests from SPC members wherever possible and practical.

For example, in the course of 2012, the Ocean and Islands Programme (OIP) received 15 requests from nine members (refer to the OIP full narrative report to the SOPAC-2). In addition, 13 requests of a regional nature were considered.

A rare event for the SPC region occurred during 2012 — the **34th Session of the International Geological Congress (IGC)** (Brisbane, August 6–10). With funding from Geoscience Australia, the division was able to facilitate the participation of 13 Pacific Island representatives. The division organised exhibition space to promote ‘Pacific Islands Geosciences’ and, in conjunction with the IGC, Geoscience Australia and other organisations, trained 40 representatives from 13 ASEAN and PICTs to use a range of open source hazard and risk modelling tools to develop hazard maps and impact scenarios for a range of natural hazards.

The **Ocean and Islands Programme (OIP)** continues to provide applied ocean, island and coastal geoscience services to support countries to govern and develop their natural resources; increases their resilience to hazards; and facilitates data-based approaches to adaptation. These vital technical services are strategically deployed in response to specific requests from PICTs to assist in the development, management and monitoring of natural resources and unique island environmental systems and processes.

The unique range of technical services that OIP delivers includes the following:

- ocean and coastal resource characterisation, resource-use solutions, monitoring and development;
- provision of science-based ocean and coastal policy and governance support and advice;
- provision of strategic communications and advocacy for coastal and ocean resource policies;
- strategic alliances with regional and international partners in technical, research and development assistance relevant to PICTs;
- capacity building via specific initiatives or through hands-on joint implementation of work;
- science-based vulnerability assessments, particularly in shoreline and coastal zones, and science-based adaptation responses;
- continued secure investment in instrumentation, tools and support services as the only regional technological facility in geoscience.

The **Water and Sanitation Programme (WSP)** continues to provide technical support to PICTs through capacity building, awareness and advocacy related to the management of water resources and the provision of water supply and sanitation services.

In-country counterparts vary from national hydrological services, water resources managers, public water supply and wastewater service providers, water regulators, various ministries responsible for water governance, and various civil society partners. Recent growth has been guided largely by a number of regional strategic policy instruments developed over the last years through a broad series of coordinated and comprehensive consultations with relevant Pacific stakeholders.

There are three main strategic documents that underpin WSP for 2011–2015:

- The Pacific Wastewater Policy and associated Pacific Wastewater Framework for Action, both completed in 2001 in Majuro, Republic of the Marshall Islands, and developed as

part of the United Nations Environment Programme's Global Programme of Action for the Protection of the Marine Environment from Land-based Sources of Pollution.

- The more holistic Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP), completed in 2002 in Sigatoka, Fiji, in preparation for the Water in Small Island Countries session at the 3<sup>rd</sup> World Water Forum in 2003, Kyoto. Pacific Heads of State endorsed this strategic framework in 2004 and recommended in 2006 that water, sanitation and hygiene challenges facing the region be directly addressed under the Pacific Plan through the Pacific RAP.
- The Drinking Water Quality and Health Framework for Action that was developed as a complementary framework building on the Pacific RAP. The framework was developed by health and water officials at the WHO-facilitated workshop on Water Quality Standards and Monitoring in Pacific Island Countries. It was recommended for implementation by the region's ministers for health at their 2005 Apia meeting.

It should be noted that these regional strategic frameworks, while still very relevant in providing direction and guidance for regional support programmes in the sector, are currently under review in conjunction with the WSP Strategic Planning process.

The Pacific region has collectively been off-track in meeting the UN's Millennium Development Goal targets for water and sanitation. Furthermore, recognising the July 2010 declaration of safe and clean drinking water and sanitation as a human right by the United Nations General Assembly, it is especially important and most opportune to revisit these frameworks for action against current and future policy drivers through a new series of coordinated and comprehensive consultations with member countries and partner organisations in the period 2011–2012.

In this context it is noted with concern that the region's access to improved drinking water and sanitation lags behind the rest of the world, as reported in the WHO/SOPAC report *Sanitation, Hygiene and Drinking Water in Pacific Island Countries*. Only 50% of the populations of the Oceania region, including PICTs, have access to improved drinking water compared to the global average of 87%. Similarly, only 53% of the populations of the region have access to improved sanitation, compared to 61% globally, according to the figures of the UNICEF/WHO Joint Monitoring Programme 2010.

The **Disaster Reduction Programme** (DRP) continues to provide PICTs with technical and policy advice and support to strengthen disaster risk management practices. The DRP carries out this responsibility in collaboration with other technical programme areas within the division and also with a range of regional and international development partners and donors.

The overarching policy guidance for DRP is the Pacific Disaster Risk Reduction and Disaster Management Framework for Action 2005–2015, which supports and advocates for the building of communities that are safer and more resilient to disasters. The Regional Disaster Risk Management Framework was approved by Pacific leaders in 2005. It is linked to the global Hyogo Framework for Action 2005–2015, which was endorsed by world leaders following the Second World Conference on Disaster Reduction in January 2005.

Another regional policy instrument that helps to guide the efforts of DRP is the Pacific Islands Framework for Action on Climate Change 2006 – 2015. Activity is under way to review and merge these two regional frameworks from 2015.

**Selected highlights from the overall 2012 work programme** delivered include 47 outputs/activities (Annex 1) listed against the key result areas of the strategic plan. Of these, 12 were selected as key highlights delivered across the work programme and by country for presentation in detail to the recent SOPAC Division meeting. These are listed below.

1. French Polynesia: Tuamotu Archipelago — reducing the risk of storm wave and surge

2. Fiji: An integrated approach to water resources and flood management in the Nadi catchment
3. Federated States of Micronesia: Construction of emergency operation centres and provision of disaster risk management training
4. Solomon Islands: Institutionalisation of disaster risk management training
5. Tonga: Lifuka Island — an integrated, multi-disciplinary approach to adaptation and coastal threats in the Ha'apai Group
6. Cook Islands, Niue, Kiribati, Tokelau, Tuvalu, Nauru and Marshall Islands: Maritime boundaries agreements signed
7. Tuvalu, Marshall Islands, Nauru, Tonga and Vanuatu: Ecosanitation promotion (EcoSan Toilets 'on the move')
8. Nauru: National policy and planning frameworks for water, sanitation and hygiene
9. All Pacific ACP States: Regional legislative and regulatory framework for deep sea minerals
10. Regional: 15 students complete postgraduate certificate course in integrated water resources management
11. Regional: 15 countries have increased capacity in-country for informed decision making in the management of vulnerability and risks
12. Regional: 12 countries benefit from knowledge development and sharing through the Global Environment Facility Pacific Integrated Water Resources Management (IWRM) Project.

Five **technical support services** cross-cut the work of the three technical work programmes of the SOPAC Division.

**Natural resource economics** has developed in response to PICTs' demand for information to improve policy planning and convince donors of the value of supporting new initiatives. The work focuses on inputs to natural resource policy development and the economic analysis of actions through cost-benefit analyses, and resource-use assessments. The outputs are used to underpin advocacy, awareness and effective policy development. The work is carried out in support of the technical work programme delivery and is reported accordingly. Climate change continues to feature strongly in the work of natural resource economics. This includes current work on coastal management in **French Polynesia** and **Tonga** (see the report of the Oceans and Islands Programme to SOPAC-2) as well as work being planned in food security related to climate change adaptation in **Kiribati** and **Solomon Islands**

**Geographic information systems (GIS) and remote sensing** are used to provide state-of-the-art assessment and monitoring of resource status and use. Expectations have increased, with improved technologies and data access opening new doors to analyse and respond to resource-use challenges. GIS/remote sensing services are delivered using modern technologies, such as satellite imagery and global positioning systems, underpinning mapping and modelling of natural resource systems. The work includes not only technical support, but also technical training and capacity building for Pacific island stakeholders to enable PICTs develop and maintain their national applications and data service. Image data ordered in the reporting period included a total of 15 for the following countries: **Cook Islands, Fiji, French Polynesia, Pitcairn Islands, Solomon Islands, Tokelau, Tonga** and **Vanuatu**. Image data pre-processing was completed for **Cook Islands, Fiji, French Polynesia, Solomon Islands** and **Tonga**. Vegetation and land cover mapping was completed and/or is under way for **Cook Islands, Fiji, Kiribati, Solomon Islands, Tonga, Tuvalu** and **Vanuatu**.

**Technical equipment and services** deliver an essential support function, both in the field and in the laboratory, to marine geoscientific and oceanographic surveys, as well as land-based geological, geophysical and hydrological surveying. Most of this technical support work supports the Ocean and Islands Programme and is reported in that part of this paper.

**Data management** support involves diverse and integrated services across the work programme to ensure that essential data management systems are operational, and that the necessary support is available to underpin the delivery of the technical work programmes. The demand for data management technical services is increasing with the need for larger

databases to monitor and respond to natural resource-use challenges. Data management services also respond to the need to ensure effective information and knowledge transfer across the region. Accordingly, data management work includes development of systems and software to underpin information sharing and links across PICTs and other key stakeholders, and technical advice to programmes. Digitisation of the large format maps and charts has been completed for the following countries: **Federated States of Micronesia, Guam, Kiribati, Marshall Islands, Niue, Nauru, Palau and Papua New Guinea.**

**Publications and library** services publish and provide access to corporate work programmes and promotional reports and publications. The service also maintains a special geoscientific library, containing a vast and unique collection of reports, charts, maps, seismic sections, research cruise tracks, cores and other data records from geoscientific surveys. As such, it is the most frequently used entry point for enquiries regarding access to products and services.

The **SOPAC Compendium Project** is a special project being implemented in conjunction with the division's data management section, given the critical digitisation aspect of securing what was largely a hardcopy collection. June 2013 is the target date for project completion. The team includes six students, largely taken from the USP pool of graduates out of its GIS and remote sensing programme. A Project Officer closely supervises the students and a Graphic Artist is dedicated to the large-format scanning. The greatest challenge for the project has been motivating the team to stay focussed and inspired by an exercise that is particularly monotonous, not to mention the volume of material that had to be processed. E-data capture for all countries is now complete, and the collection is being organised under categories formulated according to how country users of the information have requested the material.

In mid-August, construction of a climate-controlled, spacious office/archive facility to eventually house the closed SOPAC collection (including the SOPAC petroleum data currently occupying rented space in Canberra) was completed. The team is also assisting the Geonetwork team (OIP data management portal) to reconcile the live Geonetwork and archival Compendium digital collections. Into the future, it is envisaged that Geonetwork will be the main portal through which the SOPAC Compendium closed collection may be accessed.

## **FUTURE DIRECTION OPPORTUNITIES AND CHALLENGES**

### **Sustaining service delivery — core funding**

Across the whole of SPC's programmes, the broader, long-term sustainable financing initiative is endeavouring to work towards a secure core budget of around 35% of current total funding over the next two to three years. This will in itself be good for the SOPAC Division, which currently has only 10% of funding secured, mostly from members' contributions. Nonetheless, delivery of the division work programme will remain heavily dependent on project proposals. The division has had a long and successful history in raising the greater part of its yearly budget through competitive proposal development. As mentioned earlier in this report this has required a huge amount of time commitment by technical staff. Though successful, this reality still generates a risk of negative impact on service delivery.

- In 2012, for OIP, the New Zealand-funded Regional Ocean Sciences Project contributed approximately 14% of the total OIP budget or about 17% of the total project funds for 2012. Without these funds, OIP could not have continued to operate effectively in 2012, so this needs to be sustained or, if at all possible, increased in 2013.
- Likewise, for WSP, the Pacific IWRM Programme (the major project implemented in 2012) accounted for 62% of the staffing costs compared to 38% provided by programme support.
- Similarly, DRP continues to be challenged to retain specialist skills in areas that would address the strategic needs of PICTs in relation to disaster risk management. Ten out of the twenty-three staff in 2012 (43%) are funded by projects that will end in 2013.

## Possible relocation within SPC of the Water and Sanitation Programme

The recent Independent Evaluation Review of SPC requested that ‘SPC should conduct a review of the best placement of the Water and Sanitation Programme, taking into account the views expressed by members, and should provide an update at CRGA 42’. There are several initiatives under way that will contribute to this work, including the revision of the Pacific Regional Action Plan for Sustainable Water Management (Pacific RAP) as well as the review of SOPAC’s 2011–2015 strategic plan. Furthermore, WSP has worked on a draft terms of reference for the review, which will be flagged internally, as well as with technical and other relevant national counterparts.

## Technical work programme initiatives

The following provides an overview by way of specific technical examples of emerging issues across the work programme of the division.

**Improving hydrodynamic modelling capacity:** Climate change concern in PICTs frequently translates into consideration of shoreline vulnerability. Traditional coping mechanisms are not adequate to address coastal vulnerability issues in urban and peri-urban coastal environments and, in many coastal PICT settlements, development is synonymous with increasing exposure to coastal hazards. Access to sound baseline information regarding the physical and built environment, combined with data that describe dynamic processes such as climate and ocean conditions and extremes, are fundamental to managing risk and hazards in the coastal zone. Activities designed to build resilience to natural disasters or, for example, ‘climate-proof’ shoreline infrastructure must be informed by analysis of such empirical baselines. In turn, computer-based modelling techniques — which simulate wind, water flow, waves, sediment transport, sea-level rise and inundation — are capable of showing the interaction of these processes, and the outputs provide empirical, data-based information to support improved management of hazards and use of coastal resources. OIP wishes to transfer its hydrodynamic modelling capacity across to open source alternatives that offer a free and more universal approach to handling data and model outputs.

**Hydrographic surveying:** assisting member countries to fulfil obligations for the benefit of maritime safety, protection of the marine environment and sustainable development of ocean and coastal areas, as required under the UN conventions of Safety of Life at Sea (SOLAS) and Law of the Sea (UNCLOS): Hydrographic surveying and marine charting are fundamental to many aspects of economic development. An assessment by the International Hydrographic Organisation (IHO) estimates that the return on an investment from having a national hydrographic programme is in the order of 1:10. Similarly, a recent socio-economic study in USA showed a 1:35 ratio. Despite these urgent needs and potential benefits, most PICTs lack the national capacity to plan and implement these activities. This is largely due to the fact that hydrographic surveys are expensive, require specialised technical skills and are, therefore, beyond the capacity of the majority of Pacific Island countries. Likewise, the regional hydrographic charting authorities of USA, UK, Australia and New Zealand are not substantially increasing resources for surveying in the region. However, SPC-SOPAC currently operates and maintains marine survey equipment worth approximately AUD 1million, and routinely conducts several surveys a year for environmental or geoscience applications in member countries. The drive to improve the region’s capacity to conduct hydrographic surveying was largely initiated through a 2011 memorandum of understanding between the IHO and SPC. Currently, seven SPC member states are members of the IHO (France, Fiji, Papua New Guinea, New Zealand, USA, Australia and Tonga) and these are also members of the South West Pacific Hydrographic Commission.

**Access to safe drinking water and sanitation, a human right:** In July this year, WSP staff met the UN Special Rapporteur on Water and Sanitation to provide a brief on the water and

sanitation sector in the Pacific region, as well as specific country information, ahead of the Rapporteur's visits to Kiribati and Tuvalu. It is hoped this dialogue will support the formulation of an agenda in the region and WSP will be a key implementing partner.

**A new Pacific Regional Water and Sanitation Strategy (RAP)** – ‘Building a framework for water, sanitation and climate’: Focussing specifically on regional efforts to revise the Pacific RAP, Regional Water and Sanitation Consultations (RWSC) were held in Noumea, 17–21 September 2012. An outcome of the consultations was an agreed process and framework for managing water and sanitation across the region. This is a step on the way to strategically reaffirming or repositioning the regional water and sanitation sector. A focus of work in 2013 will be to identify and secure resourcing in order to implement the Pacific RAP revision with a view to tabling the final outcome at the Forum Leaders meeting in 2014. The outcome from the RWSC will also contribute towards articulating the water sector within the joint strategy for disaster risk management (DRM) and climate change planned for 2015 onwards.

**Benchmarking of water utilities:** WSP has responded to a call from the membership to support the Pacific Island water and wastewater utilities; participating in a benchmarking exercise and actively collaborating with the Pacific Water and Wastes Association to help improve the performance of utilities. The next steps of the benchmarking exercise have already commenced. They include an inception phase to review work done to date with a view to informing the new work plan, questionnaire and database, drawing from lessons learned. The second phase includes data collection and quality control, and the final step is data analysis and presentation.

**Integrated regional strategy for DRM and climate change adaptation and mitigation:** Work will progress into 2013 on the 2011 SOPAC Division and SPC CRGA endorsement of a roadmap towards the development of an integrated regional strategy for DRM and climate change by 2015.

**2013 Joint meeting of the Pacific Platform for DRM and the Pacific Climate Change Round Table:** Following consultations in 2011 and 2012, it has been agreed between SPC and the Secretariat of the Pacific Regional Environment Programme (SPREP) that in 2013 there will be a joint meeting of the Pacific Platform for DRM and the Pacific Climate Change Round Table. The main purpose of this is to allow stakeholders to contribute to the development of the integrated regional strategy for DRM and climate change, which is targeted for completion by 2015. The joint meeting will also provide a useful hub to which a number of regional meetings, dealing with the issues of disaster and climate risk, could also be anchored, such as the Pacific Meteorological Council and Regional Water and Sanitation Consultation.

**DRM Competency Framework:** With the support of the Training and Capacity Building Working Group of the Pacific DRM Partnership Network, work will be undertaken on the development of a DRM competency framework in one or two Pacific Island countries. A competency framework identifies the ‘minimum standards’ of competence that are required at different levels (e.g. national, local government, provincial) and the development of this facility within a Pacific Island country context will greatly enhance DRM capacity building efforts.

**Building strategic alliances to strengthen emergency/disaster preparedness and response:** Following a visit to the State Control Centre in Melbourne, Australia, in February 2012, there has been ongoing collaboration between SOPAC Division, the Australasian Fire and Emergency Services Council, The Asia Foundation and the UN Office for the Coordination of Humanitarian Affairs to build a strategic alliance between members of the Pacific Islands Fire Services Association, Pacific NDMOs and AFAC members with the purpose of strengthening emergency/disaster preparedness and response in PICTs. The SOPAC Division is and will continue to take the lead role in this initiative.

**Transition of the Pacific DRM (Training) Programme from The Asia Foundation to SPC SOPAC Division:** The current Pacific DRM (Training) Programme supported by The Asia

Foundation (TAF) with funding from the Office of US Foreign Disaster Assistance (OFDA) will run its course by July 2013. Over more than ten years the TAF/OFDA programme, as it is commonly referred to, has provided DRM training at the regional as well as at the national level in a number of PICTs. The responsibility for the continuation of the training programme will rest with the SOPAC Division; and consultations have commenced internally to develop a new strategy for DRM training for 2013 and beyond.

*Table 2: Finance, proposed 2013 Budget (CFP units)*

<i>PROGRAMME</i>	<i>Core Funding</i> (RB)	<i>% of Total Budget</i>	<i>Programme Funding</i> (RXB)	<i>% of Total Budget</i>	<i>Project Funding</i> (XB)	<i>% of Total Budget</i>	<i>Total Budget</i>	<i>% of Total Budget</i>
Ocean and Islands	0	0.0%	520,000	4.8%	1,685,889	15.6%	2,205,889	20%
Water and Sanitation	0	0.0%	370,000	3.4%	1,442,400	13.3%	1,812,400	17%
Disaster Reduction	0	0%	400,000	4%	5,355,317	49.5%	5,755,317	53%
Technical Support Services	0	0.0%	510,000	5%	205,300	2%	715,300	7%
Directorate	319,400	3.0%	0	0%	0	0.0%	319,400	3%
<b>TOTAL SOPAC BUDGET</b>	<b>319,400</b>	<b>3%</b>	<b>1,800,000</b>	<b>17%</b>	<b>8,688,906</b>	<b>80%</b>	<b>10,808,306</b>	<b>100%</b>
*European Union EDF 9 B Envelope	0	0.0%	0	0%	1,447,006	11.1%	1,447,006	10%
**European Union EDF 9 C Envelope	0	0.0%	0	0%	933,277	7.2%	933,277	6%
Kiribati EU/NIP B Envelope	0	0.0%	0	0%	1,111,111	8.5%	1,111,111	7%
EDF9 Trust Funds	0	0.0%	0	0%	868,700	6.7%	868,700	6%
Various Savings	0	0.0%	0	0%	868,700	6.7%	868,700	6%
<b>GRAND TOTALS</b>	<b>319,400</b>		<b>1,800,000</b>		<b>13,049,000</b>		<b>15,168,400</b>	

## CONCLUSION

Colleagues, permit me to conclude on a note of reflection.

"It would be difficult to find a more attractive and rewarding introduction to the basic concepts of science than physical geology. The activities of our planet may be compared to the combined operations of the four elements of the ancient Greek philosophers: Fire, Earth, Air and Water, to which we should now add Life. The over-arching interplay of these operations is responsible for a fascinating variety of natural phenomena ranging from landscape forms and scenery to the catastrophes brought about by earthquakes, volcanic eruptions, floods and hurricanes, all of which are of daily interest to a high proportion of the world's inhabitants. The effects of these activities – and so far as current knowledge permits – their causes, are the chief topics of our subject".

These were the words of a British geologist, Arthur Holmes in 1944 in the Preface to the First Edition to his classic text *The Principles of Physical Geology*. Some 35 years later I believed

those same words equally applied to the SOPAC work programme I got to know in 1979. Equally so some 70 years on I remain convinced the words still apply to the role the SOPAC work programme plays and will continue to play into the future for the people of the Pacific region.

In 2009 in a paper presented to STAR entitled "Metamorphism of SOPAC: A Short History of Change in a Pacific Regional Organisation 1972-2009" I ended as I will today end my last Director' Report with a toast to SOPAC:

**To all those who have contributed to the success of SOPAC to date.  
Where ever they may be, and  
No matter how large or small their contribution has been.  
We congratulate and thank you whole heartedly for that commitment.**

**To all those who have yet to contribute to the success of SOPAC in the future.  
Where ever they may be, and  
Whatever their contribution might be.  
We congratulate and thank you in anticipation.**

**The battle's neither lost nor won, it's ongoing,  
Let consequences become opportunities, and  
Let opportunities lead to valuable future outcomes.**

**God Bless and Long Live SOPAC.**

**ANNEX 1: Highlights of 2012 Work Programmes of the Division against the Key Result Areas of the 2011-2015 Strategic Plan**  
 (Yellow: Ocean and Islands Programme; Green: Water and Sanitation Programme; Blue: Disaster Reduction Programme)

KEY RESULT AREA (KRA)	OBJECTIVE OF KRA	OVERALL OUTCOMES BY 2015	EXAMPLES OF KEY PROGRESS and HIGHLIGHTS IN 2012
KRA 1: Natural Resources, Systems and Processes Monitored and Assessed	This KRA aims to improve the collection of information on, and monitoring of, natural resources, systems and processes and strengthen national and regional capacity to analyse and assess this information for data based solutions and informed decision making and responses	<ul style="list-style-type: none"> <li>• More accurate and timely data and information collected</li> <li>• Strengthened capacity to assess, analyse, and monitor natural resources, systems and processes</li> <li>• Improved evidence-based solutions</li> <li>• Improved availability of information</li> <li>• Strengthened networks and Institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Reducing the Risk of Storm Wave and Surge in the Tuamotu Archipelago <b>French Polynesia</b></li> <li>• Vulnerability assessment and adaption to sea level rise project in Lifuka, <b>Tonga</b></li> <li>• <b>Regional</b>; Sea level long term monitoring project enters new cycle and wave modeling work advanced for short term rapid changes such as tsunamis and storm surges</li> <li>• Catalogue of Rivers: completed for the <b>Cook Islands, Federated States of Micronesia, Fiji, Palau, Papua New Guinea, Samoa, Solomon Islands and Vanuatu</b></li> <li>• Upgrading of EMWIN systems in <b>Cook Islands, Fiji, Nauru, Papua New Guinea, Solomon Islands, Tuvalu and Vanuatu</b></li> </ul>
KRA 2: Natural Resources Developed and Managed and Governance Strengthened	This KRA aims to improve the development, management and governance of freshwater, minerals, island and oceanic resources to support sustainable development and livelihoods	<ul style="list-style-type: none"> <li>• Improved development and management of freshwater, hydrocarbon, minerals, island and oceanic resources</li> <li>• Increased in-country capacity to manage the development of natural resources</li> <li>• Improved institutional arrangements for natural resources management</li> </ul>	<ul style="list-style-type: none"> <li>• Deep Sea Minerals <b>Regional</b> Legislative and Regulatory Framework completed and supported by Forum Leaders</li> <li>• <b>Cook Islands, Niue, Kiribati, Tokelau, Tuvalu, Nauru and Marshall Islands</b> complete and sign 8 treaties which define the jurisdictional boundaries between neighbouring states.</li> <li>• Joint Monitoring Programme for tracking progress of countries against the water and sanitation MDGs progressed in <b>Tuvalu</b>.</li> <li>• Water Quality Monitoring support provided to <b>Marshall Islands and Vanuatu</b>.</li> <li>• <b>Regional</b> Water Use Efficiency report completed</li> <li>• <b>Regional</b> Water and Sanitation consultation completed</li> <li>• National Water, Sanitation and Climate Outlooks completed for: <b>Cook Islands, Federated States of Micronesia, French Polynesia, Marshall Islands, Nauru, New Caledonia, Niue, Palau, Solomon Islands, Tonga, Tuvalu and Vanuatu</b></li> <li>• <b>Fiji</b>: Integrated Flood Risk Management in the Nadi River Basin ongoing</li> <li>• <b>Federated States of Micronesia</b>: Ridge to Reef: Protecting Water Quality from Source to Sea ongoing</li> </ul>

			<ul style="list-style-type: none"> <li>• <b>Nauru:</b> Enhancing water security for Nauru through better water management and reduced groundwater contamination ongoing</li> <li>• <b>Niue:</b> Using Integrated Land Use, Water Supply and Wastewater Management as a Protection Model for the Alofi Town Groundwater Supply and Nearshore Reef Fishery ongoing</li> <li>• <b>Palau:</b> Ngerikiil Watershed Restoration for Improved Water Quality ongoing</li> <li>• <b>Marshall Islands:</b> Integrated Water and Land Management for the Sustainable Use of the Laura Water Lens, Majuro Atoll ongoing</li> <li>• <b>Samoa:</b> Rehabilitation and Sustainable Management of the Apia Catchment ongoing</li> <li>• <b>Solomon Islands:</b> Managing Honiara City Water Supply and Reducing Pollution ongoing</li> <li>• <b>Tonga:</b> Improvement and Sustainable Management of Neiafu, Vava'u's Groundwater Resource ongoing</li> <li>• <b>Tuvalu:</b> Integrated Sustainable Wastewater Management (Ecosan) for Tuvalu ongoing with followup projects in <b>Nauru, Marshall Islands, Vanuatu and Tonga</b></li> <li>• <b>Vanuatu:</b> Sustainable Management of the Sarakata Watershed, Espiritu Santo ongoing</li> <li>• <b>Tuvalu:</b> Empowering rural communities with simple drinking water safety plans.</li> </ul>
<p>KRA 3: Vulnerability and Risks Managed</p>	<p>This KRA aims to provide effective technical and scientific solutions to inform disaster risk management and climate change adaptation as a means of supporting sustainable development</p>	<ul style="list-style-type: none"> <li>• Robust disaster risk management and climate change adaptation solutions provided</li> <li>• Disaster risk and climate risk management mainstreamed into development planning and budgeting processes</li> <li>• Increased capacity in-country for informed decision making in the management of vulnerability and risks</li> </ul>	<ul style="list-style-type: none"> <li>• Geospatial Framework for Climate Change Adaptation in the Coastal Zone of Mangaia, <b>Cook Islands</b> completed</li> <li>• Tsunami modelling in Nuku'alofa, <b>Tonga</b></li> <li>• 16 new site surveys of vulnerable coastal areas/infrastructure carried out, most linked directly to impacts of climate change.</li> <li>• Pearl aquaculture industry support to <b>Cook Islands, Fiji and Tonga</b></li> <li>• Drinking Water Safety Plan operating effectively in <b>Niue</b>.</li> <li>• <b>Tuvalu</b> Drought Assessment completed and followed up</li> <li>• Pacific Post-graduate Certificate in IWRM completed; <b>20 Pacific water managers (10male, 10 female)</b> participated.</li> <li>• South-south cooperation inter-regional with the Caribbean and intraregional within the Pacific ongoing in water and disaster risk.</li> <li>• Improved access to safe and clean drinking water through provision and installation of infrastructure in <b>New Caledonia, Nauru, Marshall Islands, Pitcairn Islands, Tonga, Tuvalu</b> as part of EDF 9 B and C Envelope Projects.</li> <li>• The <b>Regional Pacific Risk Information System</b> launched for 14 PICs with development of a range of disaster risk assessment tools/databases.</li> <li>• Continued provision of robust emergency communications and overall national disaster response coordination infrastructure provided for <b>Federated States of</b></li> </ul>

			<p><b>Micronesia, Palau, Papua New Guinea, and Solomon Islands.</b></p> <ul style="list-style-type: none"> <li>• DRM Investment Profiles completed for <b>Vanuatu, Cook Islands, Fiji and the Marshall Islands</b> with a final draft in place for <b>Papua New Guinea</b></li> <li>• Disaster Risk Financing &amp; Insurance Programme launched for <b>Marshall Islands Samoa, Solomon Islands, Tonga and Vanuatu</b></li> <li>• EDF 10 ACP-EU Natural Disaster Facility Project worth 20m Euros over 5 years for 15 P-ACP countries approved</li> <li>• <b>Tonga:</b> Tsunami Early Warning Siren System for Nuku'alofa</li> <li>• <b>Wallis and Futuna:</b> tsunami modelling complete with bathymetric maps available for Uvea and Futuna-Alofi</li> <li>• Communications Equipment for the Police in Morobe Province, <b>Papua New Guinea</b></li> <li>• Refurbishment of the National Emergency Operations Centre – <b>Vanuatu</b></li> <li>• Establishment of the National Advisory Board for Climate Change and DRM in <b>Vanuatu</b></li> <li>• Electronic Initial Damage Assessment (IDA) form and training for NDMO and Divisional offices in <b>Fiji</b></li> <li>• Extension of DRM training for nursing students in the <b>Solomon Islands</b></li> <li>• <b>Regional:</b> Fourth Pacific Platform for DRM combined with Regional Water and Sanitation Consultation and Fire Services Meeting attracts nearly 200 participants.</li> <li>• DRM skills and knowledge enhancement training in <b>Cook Islands, Federated States of Micronesia, Fiji, Nauru, Marshall Islands, Palau, Samoa, Solomon Islands, Tonga and Vanuatu</b> provided by TAF/OFDA/SOPAC partnership.</li> </ul>
<p>KRA 4: Service into Member Countries and the Division Efficiently and Effectively Delivered</p>	<p>Improved delivery of the Division services through the sound application of generally accepted principles of corporate best practice</p>		<p>Critical issues covered in the SPC-wide Independent External Review (IER) Report considered by the Special Session of CRGA in early August and decisions by Members to be followed-up in November CRGA.</p>

**ANNEX 2: Chair's Report from the Second SOPAC Division Meeting  
(to be added after SOPAC-2)**

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