



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

AGENDA ITEM	TITLE
2	REPORTS
2.2	SOPAC Division Report against Strategic Plan Key Results Areas

Purpose and Background

To provide an achievements summary report for 2012 against the SOPAC Division Strategic Plan Key Result Areas (KRAs).

OCEAN AND ISLANDS PROGRAMME (OIP)

KRA 1: Natural Resources, Systems and Processes Monitored and Assessed

Most, if not all, of the tasks associated with the Marine, Coastal Science and Survey Sector of OIP fit clearly within this KRA as do the tasks within the Pacific Sea Level Monitoring Project, and others. This KRA has the OIP success indicators of:

- More accurate and timely data and information collected.
- Strengthened capacity to assess, analyse and monitor natural resources, systems and processes.
- Improved evidence-based solutions.
- Improved availability of information.
- Strengthened networks and institutions.

In light of these success indicators and the volume of work OIP has undertaken in the MCSS Sector alone, the “collection of accurate and timely data and information” has been achieved. In all cases the data collected was in specific response to requests and questions around issues of vulnerability or resource use solutions and this information has subsequently been used to contribute to “improvements in the assessment, analysis and monitoring of natural systems and resources”.

An example is the *Reducing the Risk of Storm Wave and Surge in the Tuamotu Archipelago* activity which is part of the EU-funded *Supporting Disaster Risk Reduction in Pacific Overseas Countries & Territories* Project. The Project is implemented primarily to improve the geospatial baselines for atolls in the Tuamotu Group (**French Polynesia**) to better quantify the risk of cyclone wave and surge inundation and impacts (KRA 3); however, since these activities include the acquisition of bathymetric and oceanographic baselines which support numerical

modelling and also provide unique and new information about the lagoon habitats this same data will also be used to support the pearl industry. Likewise, tourism and coastal fisheries are important economic activities in the Tuamotu Group and these datasets support such activities by improving navigational safety (high quality sea floor mapping) as well as providing an excellent source of information for improved marine resource management decision making (linking to KRAs 1 and 2).

There are a great many similar examples in the OIP work plan and report and the key point is the multiple uses of data (across all KRA outcomes). When the Division invests effort to collect such baseline data we do so to meet the demands of the project at hand as well as in consideration of the potential needs across the broadest possible range of stakeholders.

KRA 2: Natural Resources Developed and Managed and Governance Strengthened

For the OIP, the KRA 2 has the following success indicators:

- Improved minerals governance systems within and across Members.
- Sustainable economic development of mineral resources by Members.
- Maritime jurisdictions between and across Members publically declared.
- Members jurisdictions codified in national legislation.
- Improved dissemination of information on boundary status within and between Members.
- Increased national and regional capacity to determine and progress maritime boundaries.
- Enhanced quality and availability of resource information databases for national, regional and international stakeholders.
- Improved regional coordination of marine scientific research.

As discussed, the above Tuamotu (**French Polynesia**) example also potentially fits with KRA 2, where those data are translated into policy relevant guidelines in, for example, the pearl industry and tourism.

A further simple and unexpected example however is a recent request for the OIP to deploy its multi-beam capacity to re-survey a hydroelectric dam in **Papua New Guinea**. In steep, geologically young Pacific Island catchments with high rainfall, sediment loads in rivers can be extremely high. In communities dependent on hydroelectric power the performance of these facilities is extremely important to sustained development and economic activity but can be critically affected by sedimentation. Thus OIP's survey and assessment of sedimentation rates allows decision makers to plan for remedial action before a crisis in power supply (and possibly water supply) is reached. The availability of such information clearly supports sound governance and economic development (KRA 2).

This year the OIP also achieved two major milestones contributing to improved marine resource management; the completion of the world's first Deep Sea Minerals *Regional Legislative and Regulatory Framework* (RLRF) document which will support the sustainable development of deep sea minerals in the Pacific Islands Region.

OIP also provided support to 7 Member countries (**Cook Islands, Niue, Kiribati, Tokelau, Tuvalu, Nauru and Marshall Islands**) to develop and sign 8 treaties which define the jurisdictional boundary between neighbouring states. Clearly these activities and achievements contribute to improved frameworks for the governance of marine resources and management of marine spaces.

KRA 3: Vulnerability and Risks Managed

The KRA 3 success indicators for the OIP are as follows:

- Improved understanding and monitoring of hazards.

- Enhancements in the design and or availability of information to support early warning systems.
- Improved capacity to respond to and mitigate/adapt to hazards.
- Policies and approaches to improve resilience and reduce vulnerability to disasters underpinned by sound science.
- Evidence-based decision making achieved through improved links between science and policy.

Again the Tuamotu example under KRA 1 is an excellent example of how data collected by OIP will be used to quantify risk and allow evidence-based decision making in adaptation and response. Also in the Tuamotu case, it is the specific intention of the authorities to incorporate this new data into their existing policy regarding zoning and building codes. A great many of the Marine, Coastal Science and Survey tasks are related to providing empirical guidance to decision makers on issues of coastal vulnerability.

Among these is the **Cook Islands** project to provide *A Geospatial Framework for Climate Change Adaptation in the Coastal Zone of Mangaia Island*. This study is typical of work undertaken by the Division and will provide timely and actionable geospatial information for the management of hazards and planning in the coastal zone. Likewise, the Division has continued work on *tsunami* modelling in Nuku'alofa, **Tonga**, and seeks to provide the best information on possible inundation hazard for various *tsunami* scenarios. In this case OIP is also investigating the level of accuracy of baseline data needed to provide robust *tsunami* hazard information to ensure the most efficient use of resources whilst achieving KRA 3.

WATER AND SANITATION PROGRAMME (WSP)

KRA 1: Monitoring and Assessment of Natural Hazards, Resources and Processes

- ***Sustained capacity to collect and manage essential water resources information***

Catalogue of Rivers released in March 2012

Under UNESCO support the Catalogue of Rivers publication and associated hydrological data brochure was completed in March 2012 and has since been disseminated to countries and partners. The publication is the first of its kind in the Pacific and will be continually strengthened in terms of information and presentation and covers **Cook Islands, Federated States of Micronesia, Fiji, Palau, Papua New Guinea, Samoa, Solomon Islands and Vanuatu**

Assessing vulnerability and adaptation to sea level rise in Lifuka Island Tonga

The low-lying island of Lifuka in the Ha'apai Group, **Tonga**, is presently facing a number of existing and emerging coastal vulnerability issues caused by rapid subsidence (manifesting as rapid sea level rise). Shoreline erosion and groundwater water resources availability is a major concern in this community and the OIP and the WSP along with the SPC Human Development Programme (HDP) collaborated to develop solutions and appropriate adaptation responses to vulnerability and impacts.

Significant hydrological assessments undertaken by WSP provided an improved understanding of the present groundwater resources and impacts of rapid sea level rise (subsidence) on the resource. In turn OIPs work characterised the vulnerability of the shoreline to erosion and potential inundation, leading to improved information for the groundwater vulnerability assessment and infrastructure damage. This work is being combined with the HDP support towards community engagement and "tested" by the Division's resource economics sector to help provide further guidance and understanding of the most appropriate solutions.

The combination efforts will assist the community and decision makers with adaptation planning.

KRA 2: Natural Resources Developed and Managed and Governance Strengthened

- ***Improved progress towards water and sanitation MDG targets***

Under the Pacific Regional IWRM programme, guidance is being provided towards looking at country specific monitoring and evaluation systems. The regional indicator framework adopted under the programme supports the development of national indicators tailored to national values and management information needs. **Tuvalu** was supported to develop a national indicator framework which will be used to inform the regional indicator framework as well as contribute to strengthening reporting against the current framework water and sanitation MDG's as well as inform the future reporting framework.

- ***Improved and sustained capacity for water quality monitoring***

Supporting Sustainable Water Quality Monitoring (WQM)

The WQM activity of work to support sustainable capacity of national laboratories for testing water quality (drinking and/or coastal waters) included work with the Republic of **Marshall Islands** in the analysis of the ground water quality in Majuro through sampling and testing for the Majuro Water and Sewerage Corporation supply and selected monitoring bores in Laura. Work was also carried out in partnership with the WHO South Pacific Office and in-country counterparts in **Vanuatu** towards technical support and guidance in developing national drinking water quality standards.

- ***Improved and sustained capacity for implementing water demand management***

Water Use Efficiency (WUE)

A regional WUE desk study was carried out and reported to the GEF Pacific IWRM Project 4th Steering Committee outlining WUE considerations in the Pacific and areas for further work in progressing the WUE agenda.

- ***Regional water and sanitation coordination strengthened***

The Pacific Regional Action Plan on Sustainable Water Management and the Partnership on Sustainable Water Management

A milestone event in revising the Pacific Regional Action Plan on Sustainable Water Management (Pacific RAP) was undertaken through holding a Pacific Regional Water and Sanitation Consultations (RWSC) alongside the 4th Session of the Pacific Platform in Noumea, New Caledonia from the 17 – 21 September 2012.

The Platform is the annual opportunity for Pacific Island Countries and Territories (PICTs) to share experiences and knowledge in building the resilience of their island communities to disasters. In 2012, the RWSC was conducted alongside the Platform to provide an opportunity for the representatives of both the disaster and water/sanitation communities to interact and discuss crosscutting issues in dealing with disasters, water management and climate risk. The Platform not only contributed to the formulation of a new integrated regional strategy for Disaster Risk Management (DRM) and Climate Change, but also enabled the water and sanitation community to build a renewed commitment to the management of water and sanitation across the Pacific and provide input towards the framework and process of a revised through the RWSC.

- ***National coordination processes for water and sanitation initiatives supported***

Strengthening national consultation and coordination through Integrated Water Resources Management (IWRM)

The IWRM approach of “ridge to reef” and “community to cabinet” has much to offer water governance in the Pacific, and the Division’s Water and Sanitation Programme is assisting in the practical application of IWRM governance approaches through a range of initiatives. Since 2008, the EU-funded National IWRM Planning Programme has supported 14 Pacific Island

Countries to improve their governance of water resources, water supply and sanitation services officially concluded in June 2012.

Throughout the programme national level engagement has been significant through the facilitation of multi-stakeholder participation and empowerment through the water and sanitation apex bodies as a mechanism for national level coordination. This mechanism was used to in the development of *National Outlooks for Water, Sanitation and Climate* as a means of national input to the revised Pacific RAP. Countries that have developed a National Water, Sanitation and Climate Outlook to date include: **Cook Islands, Federated States of Micronesia, French Polynesia, Marshall Islands, Nauru, New Caledonia, Niue, Palau, Solomon Islands, Tonga, Tuvalu and Vanuatu**. Other countries will be supported in the next work programme year.

- **High priority provided to improve water resources management, water supply and sanitation at all levels, from community to cabinet with consideration to gender equality and equity.**

Knowledge Development and sharing through the Pacific Integrated Water Resources Management (IWRM) Project Results Notes

The Global Environment Facility (GEF) funded Pacific Integrated Water Resources Management (IWRM) Project was launched in 13 countries in 2009 to protect vital watersheds, manage wastewater and sanitation, assess and protect water resources, and improve water efficiency and safety. After 3 years of implementation, tangible on-ground impacts are now evident as highlighted in the table below. Knowledge exchange is a key objective of all GEF Projects but is often difficult. To increase awareness of national demonstration projects and to inform the region of the significant results achieved each country has produced result notes for the Fourth Regional Steering Committee meeting. This activity was used as a means of communicating results regionally and globally.

The effectiveness of this form for communicating the country projects most significant results is evidenced by them now being featured on the GEF Home page (www.theGEF.org) and as a result featuring globally. Results featured in the result notes follow:

Country/Projects	Project Results Featured In result Notes
FIJI Integrated Flood Risk Management in the Nadi River Basin	<ol style="list-style-type: none"> 1. The establishment of Nadi Basin Catchment Committee that demonstrates governance model for catchment management 2. Endorsement of Project Design and PM&E Plan by the Project Steering Committee 3. Development of Nadi Basin integrated Flood Management Plan 4. Increased sectoral engagement in formal multilateral communication on water issues 5. The establishment of sustainable forestry management activities and programs in the upper that involves every sect of the community in the catchment 6. Empowered communities to be more disaster resilient and independent
FEDERATED STATES OF MICRONESIA Ridge to Reef: Protecting Water Quality from Source to Sea - FSM	<ol style="list-style-type: none"> 1. Joint Resolution of President and State Governors Endorsing First Framework National Water and Sanitation Policy for the Federated States of Micronesia 2. Establishment and Operation of a National Water Task Force including representation of all States 3. Protection and Rehabilitation of Riparian Zone of Main Supply in Nett Watershed

<p>NAURU</p> <p>Enhancing water security for Nauru through better water management and reduced groundwater contamination</p>	<ol style="list-style-type: none"> 1. Establishment of a cross-sectoral APEX body with broad CSO, commerce, community and government membership, supported by divisional leader meetings. Both of these were national firsts, and these committees are now being used by multiple sectors for national coordination 2. Upgrading sanitation at 40 domestic locations and several schools to provide safe access to improved, environmentally sustainable sanitation 3. Establishment of a national water and sanitation policy with core national budget support, mainstreaming IWRM and water and sanitation solutions demonstrated through this project
<p>NIUE</p> <p>Using Integrated Land Use, Water Supply and Wastewater Management as a Protection Model for the Alofi Town Groundwater Supply and Nearshore Reef Fishery</p>	<ol style="list-style-type: none"> 1. Enactment of the Niue Water Act, providing a framework for water allocation and water resource protection management 2. Establishment and implementation of National and Village Drinking Water Safety Plans to provide safe drinking water to all central areas in Niue. 3. On ground works to improve Niue's water security, through reducing water loss through leakage and increasing water storage
<p>PALAU</p> <p>Ngerikiil Watershed Restoration for Improved Water Quality</p>	<ol style="list-style-type: none"> 1. Substantially increased political awareness and support for IWRM, evidenced by His Excellency President Johnson Toribiong participating in Palau's 1st National Water Summit (2011) and endorsing the Palau National Water Policy and national coordination mechanism (2012). 2. Protection and Rehabilitation Ngerikiil Watershed including increase in land area rehabilitated, establishment of buffer zones, mitigation of pollution sources, and leveraging of financing for ongoing watershed conservation 3. Increased collaboration between agencies that manage water which is driving strengthened coordination of investments in water and sanitation activities at National and State levels
<p>MARSHALL ISLANDS</p> <p>Integrated Water and Land Management for the Sustainable Use of the Laura Water Lens, Majuro Atoll</p>	<ol style="list-style-type: none"> 1. Establishment and Operation of the National IWRM Task Force as RMI's APEX Body for Coordination and Planning of Water and Sanitation Investments and Actions 2. Strengthened Community Engagement with National Government on Water and Sanitation Issues via Establishment and Operation of the Laura Lens Committee 3. Reduced stress on the Laura Water Lens by development and operation of septic remediation programme, pilot ECOSAN, and conversion of piggeries from wash down waste disposal systems to dry litter systems
<p>SAMOA</p> <p>Rehabilitation and Sustainable Management of the Apia Catchment</p>	<ol style="list-style-type: none"> 1. The taking of land from the Catholic Land subdivision for water resources protection. Government buy-in to a proposal to take lands that are considered priority for water resources conservation is a great achievement

	<p>when considering that the proposed subdivision was valued at 50 million Tala.</p> <ol style="list-style-type: none"> 2. Watershed Management Plans (WMP) have been finalized for 3 of the 4 catchments in the Apia Catchment. A key feature of the WMPs is the definition of Buffer zones and Natural reserves. The project has also legally defined buffer zones as 20m from the bank of the river or 20m from top of a steep slope where a river flows. 3. Watershed Conservation Policy. IWRM developed this policy to reserve the upland of the country for the specific purpose of water resources conservation. Up to 300m from sea level is encouraged to be developed; 300 – 600m will be classified as restricted developments; and 600m upward is classified as exclusion zone where no developments are allowed.
<p>SOLOMON ISLANDS</p> <p>Managing Honiara City Water Supply and Reducing Pollution via IWRM</p>	<ol style="list-style-type: none"> 1. Increasing land-owners, community awareness and project support on the importance of water catchments through dissemination of key findings and results from catchment surveys specifically at the Kovi/Kongulai catchment and public awareness on water resources management through water use and conservation through targeted water consumers and educational campaigns 2. IWRM profile raising and water resources issues by government and cabinet decision to implement IWRM Project and establish the basis by APEX Bodies to endorse the 2011 National Water Outlook in the future 3. Increased collaboration with primary stakeholders through sub-committee establishments to implement water demand management (WDM) and water safety planning (WSP) activities.
<p>TONGA</p> <p>Improvement and Sustainable Management of Neiafu, Vava'u's Groundwater Resource</p>	<ol style="list-style-type: none"> 1. A 60% increase in community engagement in water management in Neiafu reflects the focus of this project on the community solving local water and sanitation challenges 2. The first assessment of sustainable yields from the Neiafu aquifer may ensure the long-term sustainability of an aquifer that has seen increasing salinisation due to over-pumping 3. The provision of infrastructure and services to meet community-led directions on providing the 5,000 Neiafu residents with access to sustainable sanitation
<p>TUVALU</p> <p>Integrated Sustainable Wastewater Management (Ecosan) for Tuvalu</p>	<ol style="list-style-type: none"> 1. Successfully engaging the Tuvaluan community, government and politicians in the uptake of compost toilets, to the point where it is now seen nationally as the preferred sanitation option 2. Successfully designing and replicating across four countries a sanitation solution appropriate for SIDS, using local expertise to adapt existing international technologies 3. Mainstreaming IWRM into Tuvalu through the development of a national policy and a national indicator framework

<p>VANUATU</p> <p>Sustainable Management of the Sarakata Watershed</p>	<ol style="list-style-type: none"> 1. Establishment of the Sarakata Basin Integrated Flood Management Plan - Initial activities toward the Flood Management Plan saw the establishment of the Sarakata Basin Flood Hazard Map. The Flood Hazard Map will be the initial tool for the Development of the Sarakata Basin Flood Management Plan. 2. Increase in Community Engagement with National Government on Water Issues A key outcome of the community engagement is the increase of women and youths participating in the on ground activities of the project. 3. National Staff across institutions with IWRM knowledge and experience Capacity building and sharing of knowledge and skills with national staff is a vital part for the sustainability of the IWRM Project.
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Empowering rural communities: simple drinking water safety plans Tuvalu

The WSP conducted a “Training of Trainers” in **Tuvalu** supported by the B Envelope for key community facilitators in Community-Based Drinking Water Safety Planning and Water Quality Monitoring in relation to Public Health. The intention is the community facilitators will now be in a position to replicate this training in their own communities.

- ***Improved water and wastewater management***

Ecosanitation Promotion (EcoSan Toilets “on the move”) – experiences of the GEF Pacific-IWRM project in Tuvalu

The GEF Pacific IWRM **Tuvalu** Demonstration aims to demonstrate that improved sanitation technology and practices can protect water resources, marine biodiversity, livelihood, food security and public health. Achieving this has required the Project to embark on a program to change peoples perceptions about how to best deal with sanitation on atolls and then to demonstrate this in practice. After 3 years, a successful public education campaign has resulted in acceptance of the EcoSan toilet (named locally as Falevatie) and the installation of 40 EcoSan toilets in Funafuti. Falevatie’s are Tuvaluan designed and have created wide interest in the Pacific, particularly for atolls and can be said to be on “On the Move”.

Sharing lessons learned through the network established by the GEF IWRM project, this work was picked up by the Project Manager for the Marshall Islands GEF Pacific IWRM project, who indicated that the Marshall Islands had a lot to learn from Tuvalu’s experience and that looking at all options to protect Majuro’s water was vital for the long term sustainability of the atoll.

The GEF Pacific IWRM Project has been replicating this design in other Pacific Nations and helping them to construct demonstration EcoSan solutions in **Nauru, Marshall Islands, Vanuatu and Tonga**.

KRA 3: Management of Vulnerability and Risks

- ***Improved access to secure and safe drinking water supplies***

Improving Drinking Water Safety Planning

The Water and Sewerage Department in Fiji spearheaded consultations on their rural water supply and sanitation policy which came into effect in 2012. The Pacific Framework for Drinking Water and Health provided the appropriate guidance and advice on water quality and risk assessment and management approaches to this exercise. Furthermore, the concept of drinking water safety planning is now embedded in development of the village supply management plans

with the aim being to ensure rural communities receive consistent and safe drinking water supplies through use of these plans and appropriate technologies.

National Policy and Planning Frameworks for Water, Sanitation and Hygiene – The Nauru Experience

The Government of **Nauru** was supported through the EU-funded Pacific IWRM Planning Programme to apply an IWRM approach towards the development and endorsement of its first National Water and Sanitation Policy. The assistance provided to Nauru was designed in accordance with the specific needs and preferred approaches identified by WSPs country counterparts, and planned over a long period of consultation.

Nauru's policy addresses 38 priority issues over the next 15 years, covering seven key themes: climate variability and change and water resource vulnerability; water quality and supply; sanitation and environment; demand; governance; capacity; and community awareness and participation. A range of short, medium and long-term activities was selected to address the priority issues under these themes and to fulfill the Government's policy goals and objectives. The agencies responsible for carrying out these activities were identified, along with time lines for completion. An implementation plan to the policy is currently being finalised and consultations are being held for approval.

- ***Sustained capacity to mitigate the effects of, prepare for and respond to hydro-meteorological hazards***

Tuvalu Drought Assessment

In September 2011 **Tuvalu** called a state of emergency due to an extended drought period affecting water supply. In response and at the request of the Government of Tuvalu a drought assessment was carried out to provide information to support short and longer drought management planning. The technical report for this work entitled "The Tuvalu Drought Assessment" was completed in the early part of the 2012 workplan year and since been provided back to the Government and partners.

Fiji Floods (January and March 2012)

In January and March 2012 **Fiji** experienced significant flooding in the Nadi Basin and its surrounding areas resulting in loss of life and the ability to go about business for several months as a key tourist destination for the Fiji Islands. In the height of this extreme disaster event the WSP were called upon by the Government of Fiji to support response efforts by way of flood impact assessments. A team was mobilised to the affected area to augment work already underway by the national disaster response team and also by the GEF funded IWRM Demonstration Project in the Nadi Basin entitled "Integrated Flood Risk Management in the Nadi River Basin". Work carried out by the WSP team and national government counterparts included assessments of flood height levels and extent of flooding as well as hydrological assessment of the river systems to understand flow regimes and impacts in such events. This information has been provided to various government counterparts and partners to assist with planning to manage flood risks into the future. In addition to this technical support, input was also provided to the broader networks activated during the flood event by partners such as the Pacific Humanitarian Team and the WASH Cluster to assist with coordination and scoping up of support packages provided. This work took a significant amount of unplanned staff time and resourcing to support and final technical reports are in the process of being finalised for presentation back to the stakeholders.

Both assessment programmes were delivered through a package of technical assistance and capacity building.

Building Capacity In Integrated Water Resources Management

In an effort to address the knowledge and competency gaps well known to the sector and with the support of the EU, a Graduate Certificate Programme that provides an integrated perspective on water management was delivered in the Pacific region in partnership with the

International Water Centre (IWC) and a consortium of four Australian Universities. The fully accredited Postgraduate Certificate in IWRM included four core modules.

- Project Management
- Science of Water
- Catchment and Aquatic Ecosystem Health; and
- Capacity Building and Community Development

The course was successfully completed by 15 professionals from PICs participating in the IWRM Planning Programme, including 8 women, and 9 staff of country Project Management Units implementing the Pacific IWRM Project.

Through planned problem-based activities based on regional case studies, students learned from each other's experiences and formed an effective and ongoing knowledge-sharing network across the region. Feedback from graduates has been overwhelmingly positive, and one of the graduates is now continuing to a Masters degree.

DISASTER REDUCTION PROGRAMME

KRA 1: Monitoring and Assessment of Natural Hazards, Resources and Processes

- ***Increased availability of accurate scientific and technical information for disaster risk management***

Reducing the risk of storm surge in the Tuamotu Archipelago, French Polynesia

Under the framework of the **French Polynesia** national disaster risk prevention policy, this activity seeks to provide an accurate definition of the inundation hazard from tropical cyclone waves in select areas of the Tuamotu archipelago. Results will feed into revised land use and disaster plans, with a view to enhance people's safety and protect coastal infrastructure (applications also extend to the pearl culture and tourism industry, environmental protection and maritime security).

Following extensive bathymetric, oceanographic and topographic data collection in 5 atolls (Rangiroa, Manihi, Kauehi, Arutua and Apataki), efforts in 2012 focused on processing and analysing the data to enable the development of cyclone wave models and inundation maps. This work led the testing of new tools (such as Xbeach which investigates wave transformation over fringing reefs); these will now become standard procedures for future modelling at SPC and should benefit similar upcoming projects. As of end 2012, several reports, bathymetric maps and emerging models (1D and 2D) will be available, awaiting refinement in 2013.

As part of this project, an economic analysis of inundation mitigation options in coastal areas (particularly as they relate to housing) will be carried out. The Terms of Reference have been agreed to and a literature review is underway.

- ***Strengthened networks and institutions to monitor and assess natural hazards***

Upgrading of EMWIN systems

SOPAC Division, working in collaboration with the United States National Oceanic and Atmospheric Administration (NOAA) and SPREP, provided support to PICs from November 2011 for the upgrade of Emergency Managers Weather Information Systems.

The EMWIN were deployed in the late 1990s through early 2003 with National Disaster Management Offices and Meteorological offices through assistance from the NOAA and an EU funded Tropical Cyclone Warning System Upgrade Project for the Pacific Islands. NOAA in mid-2011 announced that given a change in the satellite system used for EMWIN all existing

EMWIN users needed to have new equipment (receiver, PC and software) installed to be able to receive the EMWIN direct broadcast after the changeover date of 14th December 2011.

In the arrangement with NOAA, the Division agreed to provide funding support for 2 technical specialists to address the required equipment upgrades in a number of countries as per the table below:

Country	Status
Cook Islands	Complete
Fiji	Complete
Nauru	Awaiting confirmation of dates from National DRM Office
Papua New Guinea	To complete between 20 September – 9 October 2012
Solomon Islands	Complete
Tuvalu	To complete between 15 – 27 October 2012
Vanuatu	Complete

During the upgrade exercise the specialists also completed the upgrade of the EMWIN unit housed in the SOPAC Division compound.

KRA 3: Management of Vulnerability and Risks

- ***Improved understanding of island hazards and risks based on modelling, analyses and mapping to inform decision making for the management of vulnerability and risks***

Pacific Catastrophe Risk Assessment & Financing Initiative, Phase 3

The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) has provided PICs with disaster risk modelling and disaster risk assessment tools. These have been developed with the financial and technical assistance of a number of partner agencies such as the World Bank, ADB, AIR Worldwide, NZ Institute of Geological and Nuclear Sciences and Pacific Disaster Center working with the SOPAC Division over a 2 year period from 2010.

The tools include:

- Regional historical hazard and loss database for major disasters
- Regional probabilistic hazard models for major hazards: earthquakes (both ground shaking and tsunamis) and tropical cyclones (wind, storm surge, and excess rainfall).
- Regional and national geo-referenced exposure database containing components for buildings and infrastructure, agriculture, and population
- Information on major cash crops and population.
- Country-specific catastrophe risk models and country risk profiles which includes maps showing the geographic distribution of hazards, assets at risk, and potential losses that can be used to prioritise DRM interventions.

The Pacific Risk Information System is the largest collection of geospatial risk information for the Pacific. It contains detailed, country-specific information on assets, population, hazards, and risks; a comprehensive regional historical hazard catalogue (115,000 earthquake and 2,500 tropical cyclone events) and historical loss database for major disasters, as well as country-specific hazard models that simulate earthquakes (both ground shaking and tsunamis) and tropical cyclones (wind, storm surge, and excess rainfall) and contains risk maps showing the geographic distribution of potential losses for each country as well as other visualization

products of the risk assessments, which can be accessed through an open-source web-based platform: paris.sopac.org.

Preparations are progressing with the World Bank and the ADB for Phase 3 of PCRAFI and a formal agreement is expected to be signed before the end of 2012.

Informed decision making for disaster risk management

- *DRM Investment Country Profiles*

As part of the ongoing effort to improve advocacy for improved DRM within countries the work continues to produce DRM investment profiles for interested countries. These are developed using support available through the EDF9 ACP-EU Natural Disaster Facility.

Profiles have been completed for **Vanuatu, Cook Islands, Fiji** and the **Marshall Islands** with a final draft in place for **Papua New Guinea**. Work has commenced on developing profiles as well for **Niue** and **Tuvalu**.

These profiles present a high level desk based assessment of the potential economic costs of a disaster and to identify the level of investment in DRM. This will be used to draw attention to the benefits of investing in Disaster Risk Reduction (DRR) versus the cost of a disaster.

Strengthened institutions and capacity built for effective disaster risk reduction and disaster management

Pacific Disaster Risk Financing & Insurance Programme

Building on the Pacific Catastrophe Risk Assessment and Financing Initiative, the World Bank in collaboration with the Division and with funding support from the Government of Japan and the WB's Global Facility for Disaster Reduction and Recovery, is leading an initiative entitled *Pacific Disaster Risk Financing and Insurance (PDRFI) Program*. The (PDRFI) aims to assist selected PICs in strengthening their financial resilience against natural and climate-related disasters and help them to strengthen disaster risk management, institutional capacity, and access to a broader range of financial instruments and markets. It complements ongoing disaster risk reduction and climate change adaptation activities, focusing particularly on adverse natural events that cannot be fully mitigated through disaster risk reduction operations.

The PDRFI programme provides the PICs with advisory services and financial instruments for developing and implementing national disaster risk financing and insurance strategies. It assists the PICs in the improvement of their macroeconomic planning against natural disasters and the design and implementation of national disaster risk financing strategies, as part of their national disaster risk management and climate change adaptation agendas. It also promotes the development of market-based catastrophe risk insurance to be offered by the private insurance and reinsurance industry.

The World Bank and the Division convened a workshop in Nadi, Fiji from 3rd to 4th May 2012 to launch the pilot for the PDRFI. The purpose of the two-year PDRFI pilot is to:

- Test the credibility of Pacific catastrophe risk models on reinsurance/capital markets
- Assess the risk appetite of international reinsurers for Pacific catastrophe risks
- Ascertain the viability of Pacific catastrophe risk insurance
- Help countries develop their national disaster risk financing strategies

In attendance were representatives of the PDRFI pilot countries Marshall Islands, Samoa, Solomon Islands, Tonga and Vanuatu as well as representatives from the Government of Japan, World Bank, AIR Worldwide and the Caribbean Catastrophe Risk Insurance Facility, and the Division.

To facilitate the pilot the Government of Japan is providing US\$5.4 million to cover the costs of premium payments by the target countries. Funding support is also being provided to the Division to facilitate its counterpart role.

Increased levels of investment in disaster risk management

EDF 10 ACP-EU Natural Disaster Facility

Preparatory work towards the EDF 10 ACP-EU Natural Disaster Facility continued during the reporting period and following the approval of an Identification Fiche by the European Union in early 2012, an Action Fiche and Technical Administrative Provisions (TAPs) document was prepared and submitted to the ACP Secretariat and the European Commission for consideration in June 2012.

The Facility will provide the Pacific ACP States at national and regional level a total of €20 million over 5 years from 2013 for investments in disaster risk management and climate change adaptation.

The Division has been advised that the Action Fiche and TAPs has been approved in Brussels and further work is underway to complete additional documentation to enable the commencement of the assistance to the region in early 2013.

An integral part of the preparatory efforts have also been taking place at national level within most of the target Pacific ACP s to develop initial drafts of Country Implementation Plans. These draft plans will be revisited and finalised with the relevant national authorities during the inception phase of the NDF in 2013.

Effective end-to-end early warning systems established and supported

Tsunami Early Warning Siren System for Nuku'alofa, Tonga

The Division undertook a mission to **Tonga** in March 2012 to discuss a range of DRM priorities. During the course of the mission a special request was submitted for funding support to enable the establishment of a *tsunami* siren system for Nuku'alofa. The request was supported in the context of ongoing assistance to Tonga in relation to the implementation of its Joint Climate Change and DRM National Action Plan.

As at July 2012 the Government has finalised the selection of a provider for the siren system. The Division is providing F\$35,000 for the system based on specifications provided by the Tonga Met Service.

Strengthened Institutional DRM Capacity

Papua New Guinea – Communications Equipment for the Police

Under the DRM Mainstreaming Programme supported by the Division and UNDP an agreement was established with the Police in **Papua New Guinea** for the provision of communications equipment for 10 outposts in Morobe province. The equipment has been purchased in 2012 and is awaiting deployment to Morobe.

The equipment is to facilitate the work of the Police in their role as 'first responders' for emergency/disaster events. The total value of the equipment is PGK204,264.

Refurbishment of the National Emergency Operations Centre – Vanuatu

Support was provided to the **Vanuatu** NDMO for the refurbishment of the National Emergency Operations Centre in connection with Vanuatu's DRM priorities articulated in an agreement signed with SPC in December 2011. The refurbishment included new partitioning, furniture and equipment and the total amount provided was AUD\$55,000.

This support will significantly enhance the NDMOs management of post emergency/disaster response at a national level and also with disaster coordination agents at a provincial level.

Establishment of the National Advisory Board for Climate Change and DRM in Vanuatu

In March 2012 the Division provided direct technical advice and support to the Government of **Vanuatu** in its efforts to establish a National Advisory Board for Climate Change and Disaster Risk Management. The initiative is being spearheaded by the Vanuatu Meteorological and Geohazards Department working in close consultation and collaboration with the NDMO and other national agencies and partner organisations. The NAB is intended to be the apex body dealing with DRM and Climate Change and its establishment will require the review of existing DRM institutional arrangements. The National DRM Council currently carries the overall mandate for DRM.

Electronic Initial Damage Assessment (IDA) form and training for NDMO and Divisional offices in Fiji

The Division in collaboration with the **Fiji** NDMO and the Fiji Lands Information System office successfully developed an online IDA that will enable district disaster coordinators to enter data gathered by field assessors and reports generated at divisional and national Emergency Operation Centres. This is part of the Disaster Information Management System (DIMS) supported by the AUSAID through the National Action Plan Facility.

The online system is aimed at enhancing the timely transfer of basic damage information to inform primarily the humanitarian effort but will also assist disaster recovery efforts.

Training for the online IDA system has been held in the Central, Western and Northern Divisions for Provincial Administrators, District Officers, Assistant District Officers and Clerical Officers.

Extension of DRM training for nursing students in the Solomon Islands

Building on the successful partnership between the **Solomon Islands** College of Higher Education (SICHE), Solomon Islands NDMO and PDRMP, a four-day version of the IDM and IDA courses was developed for delivery to nursing schools in the Solomon Islands. The combined course was delivered to students at SICHE in April 2012 and again to students training at the Atoifi Hospital in August 2012 and Munda Hospital in September 2012. In 2012, 117 nursing students have completed this training. Significant to note the latter two courses were delivered by national trainers from the Solomon Islands trained through the PDRMP.