For Consideration by PIC during Action Planning Session, 3 April 2007
Review and Recommend Changes to SOPAC Proposed Draft Regional Strategy

IOC SEMINAR ON TSUNAMI WARNING OPERATIONS UNDER THE PACIFIC TSUNAMI WARNING AND MITIGATION SYSTEM (PTWS): PROTOCOLS, PROCEDURES AND BEST PRACTICES FOR MONITORING, EVALUATION AND ALERTING THE PUBLIC, 2-3 APR 2007

Strategy for Enhancing Early Warning for Pacific Island Countries

Purpose and origin of Paper

This document presents the Strategy for Enhancing Early Warning for Pacific Island Countries developed by and for Pacific Island Countries, regional and other organisations that have committed to collaboration on disaster risk management issues and in this instance the development of specific initiatives to enhance early warnings for a range of natural hazards.

A planning meeting was held in Suva 05-06 September 2005 on Enhancing Early Warning for Pacific Island Countries. This meeting prepared a working draft strategy and commended it to all stakeholders for further input. In addition a second consultation was conducted at the North Pacific Tsunami Awareness Conference, Guam, August 22-24 2006. This led to the development of a combined Strategy for Enhancing Early Warning for Pacific Island Countries.

Strategy for Enhancing Early Warning for Pacific Island Countries

Background

1. Following the Mauritius International Meeting on Small Island Developing States in January 2005, the Second World Disaster Conference in Kobe, also in January 2005, agreed to the *Hyogo Framework For Action 2005 – 2015: Building The Resilience Of Nations And Communities To Disasters*. Subsequently at the 12th Pacific Regional Disaster Management Meeting in Madang, National Disaster Management Offices (NDMOs) and other stakeholders agreed to a disaster reduction and disaster management *Regional Framework for Action for 2005 –2015.* This regional framework comprised six themes, one of which was to address *Effective, Integrated and People-Focused Early Warning Systems*.

2. This Regional Framework states that effective measures for disaster preparedness should include well-functioning early warning systems that deliver accurate and understandable information in a timely manner. It also recognised the need to strengthen early warning systems that respond to specific and urgent needs in the circumstances appropriate to Pacific island nations and communities. Key challenges include the need to communicate over vast ocean distances within and between countries and isolation of many communities in national populations.

3. The Regional Framework emphasises under Theme 5 Para 41 that early warning systems need to be based on:

    a) prior knowledge of the specific hazards and risks faced by the communities,

    b) sound scientific and technical monitoring and sustainable warning services for these hazards and risks,

    c) dissemination of timely and understandable warnings,

    d) local knowledge and preparedness to act.

4. These early warning systems need to be integrated with existing global early warning networks, but must be tailored so that information remains “community-focused” and addresses all hazards.

5. In considering early warning systems, nations should strive to establish sustainable and effective ‘all hazards’ warning systems.

6. The Regional Framework states under Theme 5 Para 44 that expected outcomes for the early warning theme by 2015 are:

    a) Robust, effective national and regional monitoring and early warning systems established and strengthened for all hazards incorporating traditional knowledge and appropriate technology and tools.

    b) Community, national and regional warning systems integrated into the global network supporting early warning and vice-versa to improve safety and security to disasters

    c) Effective communication and awareness raising in place as part of these community-focused early warning systems

This Strategy describes actions to be implemented in order to achieve these outcomes. Some of the actions are cross cutting to other thematic areas of the Framework. Some activities are applicable to both the Regional and the National level and have been list as such. Overarching activities have been printed in bold. The established text in this Draft Strategy is under Theme 5 and each action is placed where it is deemed best suited in either Para 45 Theme 5: Key National Activities or Para 46 Theme 5: Key Regional Activities. The provisions of the Framework in regard to implementation and follow-up will apply as appropriate to the Strategy. Where NDMO is mentioned in this document it should be read as the office (state, local or national) or focal point responsible for DM and/or DRM and therefore includes NDC, NEMO, EMO etc.

45. Theme 5: Key National Activities	Implementing Partners	Time Line
a. Established and/or strengthened institutional capacities to ensure early warning systems are integrated into governmental policies, decision-making processes and emergency management systems at both national and community levels.		
i. Develop understanding of risk and vulnerability, and of the use of risk assessments to refine and target management and planning activities, such as warnings, at all levels.	NDMOs with Community leaders supported by SOPAC and donor agencies, including the possible use of national 'B' envelope funding provided by the EU	Ongoing
ii. Identify, develop and strengthen, where necessary through advocacy and political buy-in, policy makers and national technical agencies to meet agreed national early warning responsibilities, notably for hazards such as hydrological and environmental hazards that are inadequately covered at present. Conduct regular stakeholder meetings to secure leaders' support for the joint implementation of national plans of action for development of people focussed early warning systems	National technical agencies (such as MetService NZ) supported by international, regional partner agencies such as NOAA, ITIC and SOPAC	Begin within 1-2 years - ongoing
iii Revise development planning policies to encourage better management of the use of Hazard prone areas, such as floodplains, low-lying coastal areas, volcanic regions and steep landslide-prone slopes, supported by appropriate baseline and ongoing data collection (including post-disaster) together with situation monitoring to support effective early warning systems.	National scientific and technical agencies, planning offices (national, fiscal, town & country, land use), local rural and town authorities supported by international and regional partner agencies including SOPAC	NEW, Begin within 2 year, then ongoing
iv. Develop and adopt national symbology, signage and terminology including map scales consistent with regional and international standards as appropriate for local application.	NDMOs, scientific and technical agencies, relevant national government authorities - with support from donors and regional organisations	NEW, Within 3 years
v. Encourage Pacific Island countries that have not already done so to join relevant international agencies such as the World Meteorological Organisation (WMO) and the Intergovernmental Oceanographic Commission (IOC) of UNESCO and Intergovernmental Coordination Group for the Pacific Tsunami Warning System (ICG/PTWS), in order to benefit from hazard warning and mitigation frameworks already operating in the region.	Relevant governments (Foreign Affairs Departments) , NWS, ICG/PTWS, IOC, ITIC, WMO, NDMO SOPAC	Begin immediately - ongoing
vi. Acquire and update baseline data then conduct all-hazard, risk and vulnerability assessments using historical, physical, population, bathymetric, paleotsunami studies, coastline and other data, develop risk maps, then ensure that NDMOs and other stakeholders at all levels, have the capacity to use these information products to refine and target warnings at all levels. NDMOs to coordinate a centralised database for collection and dissemination.	National and regional technical agencies, NDMOs, supported by relevant regional organisations: SPREP, SOPAC, SPC, NGOs, Guam University (Communication), RANET Group, Massey University, and international partners such as NOAA,FEMA, PMEL, JMA, Australian Tsunami Alerting System (ATAS)	NEW, Begin immediately - ongoing
vii. Develop and strengthen disaster warning communications to remote, high risk rural communities, supporting appropriate new initiatives and focusing on the use of common commercially available systems where possible.	NDMOs, Meteorological Services, other relevant national government authorities with support from regional organisations and international partners, MetService NZ	1-2 years for high risk communities then progressive

45. Theme 5: Key National Activities	Implementing Partners	Time Line
viii. Strengthen access to 'common interest' technical and scientific data and promote information sharing via MOUs supported by legislation, policy, regulations, as necessary, and the adoption of regional and international best practices' where available. For Northern American affiliated states to enrol and participate in the Storm Ready/ Tsunami Ready programs as a National top priority.	Relevant national agencies (Meteorological, Oceanographic, Geological, Health, Agriculture, Forestry, Fisheries, Environment, Water and Sanitation (Works), Civil Aviation, NDMOs, Emergency Services, Internal Affairs), State-owned enterprises, NGOs. Support from relevant regional organisations: SPREP, SOPAC, SPC, FSM, FFA, SPTO, ForSec, NGOs. Support from International Orgs: IFRC, GEF, UN agencies, FAO, Donor partners, NGOs. And support from NOAA, PTWC, GeoScience Australia, Niwa and Institute of Geological and Nuclear sciences through GeoNet	Immediate
ix. Strengthen or develop and maintain all-hazard national and sub-national disaster risk management plans, integrated with national development plans, and supported by Standard Operating Procedures, to optimise prevention, mitigation and preparedness measures, and involve government agencies, community organisations, the national Red Cross and NGOs with provisions for regular exercises and testing, to ensure that national and sub-national plans address the particular needs of the most vulnerable in the community as well as new residents and key development sectors.	National disaster risk management committees and agencies supported by SOPAC, Massey University and international partner agencies	Within 2 years
x. Countries to report back on progress of implementation in the planned next meeting in American Samoa with NOAA and SOPAC (Disaster Management Meeting in RMI) to assist with monitoring and reviewing of progress.	National agencies: NDMOs, NWS, others: NOAA, SOPAC	Within 2 years
xi. Undertake technical damage assessment on the root cause of vulnerability in all disaster events to enhance improvement in recovery programmes.	National agencies: NDMOs, NWS, Landuse and other technical agencies as relevant. Others: Institute of Engineers, SOPAC, NOAA, FEMA, SPC	Within 2 years, immediate post disaster assessment
xii. NDMOs to ensure participation of countries in all future Pacific Wide Exercises and to conduct national tsunami exercises regularly say every 1 to 2 years.	National agencies: NDMO, NWS, others: ITIC, NOAA, SOPAC	Within 5 years
xii. NDMOs are encouraged to provide for separate instructed planned responses for local, regional, and distant tsunamis in developing their National Tsunami Warning and Response Plans	National agencies: NDMO, NWS	Within 2 years
xiii. NDMOs are to promote the use of "Non-destructive tsunami" instead of "false alarm" when communicating with the public so as not to undermine the tsunami warning system	National agencies: NDMO, NWS	Immediate

45. Theme 5: Key National Activities	Implementing Partners	Time Line
b. Completed inventories and needs analyses of national early warning systems ensuring inputs from all stakeholders, including traditional knowledge and community needs, are addressed.		
i. Define the minimum requirements for a successful national warning system; complete assessments of formal and informal national warning systems, identify needs and gaps and prepare capacity building activities that will meet needs and fill gaps at all levels. And explore the scope for IOC to extend needs assessment model (being used in the Indian Ocean context) to the Pacific.	National governments with support from relevant regional and international organisations and partner governments, Massey University, GNS and Donor Partners, including the possible use of national 'B' envelope funding provided by the EU	NEW, 1-2 years
ii. Strengthen appropriate agency partnerships to monitor human health, crop and animal pests and diseases, encouraging feedback from the community to extension offices of all relevant agencies and, inclusion of technological and traditional practices, instrumental and sensory systems.	SPC in collaboration with national Health, Agriculture, Forestry and Quarantine institutions, NGOs and regional and international partners	Activities commenced and ongoing
iii. Building on work already being undertaken, document all forms of indigenous knowledge, skills and coping mechanisms on hazards and early warning, and, as appropriate, integrate these into risk assessments, warning systems and national planning.	Indigenous groups, NDMOs,– in close consultation with communities and other national stakeholders, technical, research and academic institutions, Massey University, NGOs, NOAA (for storage at NGDC in Northern Pacific, Paula Dunbar)and SOPAC regional organisations and donor partners Integration into national planning - NDMOs	Immediate and ongoing
iv. Ensure that an inventory of local conditions and influences are documented for in particular existing seismic and oceanographic data, stations and networks, local tsunamis in coastal areas backed by lagoons, rivers and cliffs, in a centralised national data collection centre only community awareness and sensory inputs (perhaps supported by such technology as sirens) can minimise impact.	National disaster risk management and planning authorities, Lands Department with support/training from regional orgs such as SOPAC, NOAA, national and international partners such as UNDP	3 years
v. Develop and strengthen the relationship between the media, NDMOs and other response agencies to ensure timely and effective warning to high risk vulnerable communities.	NDMOs, NGOs, UNOCHA, WMO Public Weather Services Program, The Red Cross Societies, the media	Within 5 years and ongoing
vi. NWS to list each country's inventory of end –to-end communication devises and assess needs particularly of rural areas.	National agencies: NWS, NDMOs and all other relevant agencies	Within 2 years
c. Upgraded or redesigned existing national forecasting or early warning systems to cater for major hazards.		
i. Promote wider usage and NWS to undertake needs analysis of (redundant) communication systems, education awareness programmes and detection systems as relevant and appropriate to support a multi-hazard approach to warning systems.	National governments, NWS, supported by regional organisations, and international partners, the RANET Group, including the possible use of national 'B' envelope funding provided by the EU, NOAA	NEW, 2 years

45. Theme 5: Key National Activities	Implementing Partners	Time Line
ii. Use warning dissemination methods that are easily accessible, and understandable including traditional technologies (lali/drum, conch shells/horns and church bells etc) as well as such appropriate, existing and new information communication technologies as RANET, robust 2 – way communication system with alerting capability including emergency alert capability, Internet, E-mail, text-messaging and satellites systems, in order to build redundancy in warning systems at all levels.	NDMOs, national scientific and technical agencies, NOAA, SOPAC, regional organisations, MetService NZ and international partners such as RANET-group	Within 5 years
iii. Improve identification, prediction and dissemination of information on climate variability, including ENSO events, and its influence on the frequency and intensity of hazard-related events.	SPREP, Australian Bureau of Meteorology, National Institute of Water and Atmospheric Research (NIWA) New Zealand, donor partners	Within 3 years and ongoing
iv. Improve, develop and install cost-effective national surface weather observing systems in strategic locations to assist early detection of tropical cyclones and forecasting of their movements including restoring weather stations that are performing poorly and installing additional cost-effective sustainable stations and networks in strategic locations.	National meteorological services supported by MetService NZ, regional partners and donor agencies	2 years then ongoing
v. Strengthen national seismic and sea-level observation systems (RMI, FSM to submit to NOAA or other relevant sea level measuring programmes their requirements for tide gauges) and their communication systems in order to facilitate the timely exchange of data between national and regional observatories, and thereby enhance early warning capabilities in the region.	National geological and seismic agencies supported by regional organisations, international partners, NOAA and GNS	6 years and ongoing
vi. Pacific island countries that do not currently receive Pacific Tsunami Warning Center (PTWC) bulletins contact PTWC and make arrangements to receive and interpret these bulletins.	National governments, PTWC, SOPAC, NDMOs, geological and meteorological agencies supported by regional partners	6 months
vii. Countries to identify national tsunami warning message reception and dissemination centre and be prepared to respond on a 24/7 basis. Also ensure to have in country 24/7 contacts through beepers/alarms to reach the last mile	National governments, PTWC, SOPAC, NDMOs, RANET Group, geological and meteorological agencies supported by regional partners	1 year
viii. Identify national river flood warning system needs across the region.	NDMO with community leaders and National hydrological agencies with support from National Institute of Water and Atmospheric Research (NIWA)	NEW, Within 2 years
ix. Identify potential risk areas and create landslide susceptibility maps.	National geological and mapping agencies, NDMOs, partner agencies and GNS	NEW, Within 4 years
x. Install basic, low-cost instrumental systems on a restricted number of the highest risk volcanoes, noting on-going maintenance costs and system sustainability.	National geological/vulcanological agencies supported by SOPAC and partner agencies, GNS and Massey University	NEW, Within 5 years
xi. Develop and strengthen national maritime safety and search and rescue agencies, supported by improved communications between these agencies and vessels in EEZs.	SPC through its Regional Maritime Programme in collaboration with National Maritime Administration	Activities commenced and ongoing

45. Theme 5: Key National Activities	Implementing Partners	Time Line
xii. Each NDMO encouraged subscribing to SMS and EAS text messaging services of early warnings through local telephone network services and maintaining up to date info.	NDMOs, SOPAC	Immediate and ongoing
xiii. NDMOs to consult with SOPAC for provision of iridium satellite phones with external antenna. State EMOs encouraged to procure satellite phones as they are proven to be most viable backup communications system for the wide Pacific ocean region.	NDMOs, Red Cross, SOPAC	Immediate and ongoing
xiiii. NDMOs to encourage owners of all HF radios to maintain them properly as they today remain a viable communication systems.	NDMOs UoG – Communication unit (Bruce Best)	Immediate and ongoing
xiv. NDMOs to advocate internally to ensure uninterupted power supply is provided to government national radio stations (incl fuel).	National agencies: NDMO, NWS and radio offices	Within 2 years
d. Developed and implemented a comprehensive programme for community awareness and preparedness.		
i. Develop community awareness, preparedness and maintenance and understanding of risk then engage and support communities in the use of risk assessments to identify their hazard risks, vulnerabilities and associated preparedness needs, through national surveys and community awareness assessments to gauge the level of awareness	NDMOs, NWS, SOPAC and other regional organisations and donor partners, including NOAA and the possible use of national 'B' envelope funding provided by the EU, Education authorities	Ongoing
ii. Engage all relevant organisations in developing and strengthening coordinated, ongoing, national multi-hazard public awareness programmes based on risk assessments and needs analyses.	National disaster risk management committees, technical and scientific and communication agencies, The Red Cross, NGOs, the media and communities	Ongoing
iii. Conduct regular community based disaster risk management training and workshops using an "all-hazards approach" which will include Training of Trainers for emergency response and disaster risk management.	NDMOs, NGOs, The Red Cross, National training providers supported by SOPAC Centre of Expertise and other regional and international training providers	Commenced and ongoing
iv. Improve formal and informal multidisciplinary education programmes that integrate sustainable development, disaster risk reduction and disaster management.	National education authorities and training providers with NDMOs, technical and scientific agencies supported by regional and international equivalents such as NOAA and SOPAC	Within 2 years and ongoing
v. Institutionalise through formal educational curricula and public awareness/outreach campaigns the enhanced awareness of natural and other hazards, including coastal hazards such as the impacts of storms, tides, wind waves, tsunamis, and river floods.	National education authorities and training providers with NDMOs, technical and scientific agencies, Massey University and supported by regional and international equivalents	Within 5 years and ongoing
vi. Develop indicators that will identify and trigger responses to slow onset disasters; including those caused by biological, environmental, technological and other hazards.	National scientific and technical agencies, NDMOs, NGOs, The Red Cross, communities supported by regional agencies and partners	Ongoing

45. Theme 5: Key National Activities	Implementing Partners	Time Line
vii. Develop hazard-aware communities through education and awareness-raising so that they become 'front line' observers of precursory signs of impending volcanic eruptions and other hazards.	NDMOs, regional organisations, Massey University and donor partners	2 years and ongoing
viii. NDMOs to identify available materials and/or work with SOPAC and other partners to enhance hazard awareness in outreach campaigns by using such resources as the Tsunami Awareness Kit and Tsunami Teacher to reach diverse audiences.	Technical agencies, NDMO, NWS, NGOs supported by regional organisations (SOPAC, SPC, SPREP, PDC), international agencies (WMO, WHO, UN FAO, etc) and partner agencies (ITIC, NOAA) in the region	2 years
ix. NDMOs to coordinate securing of relevant technical skill upgrading and hands-on training complete with training aids to assist direct interaction with the public.	National agencies: NDMOs and key stakeholders, others: NOAA, SOPAC	Within 2 years
x. NDMOs to improve national coordination of community outreach and public education of building bridges between community and leaders.	National agencies: NDMOs and key stakeholders and other providers of community outreach programmes, others: NOAA, SOPAC	Within 2 years
xi. Training providers to ensure exercises/drills are incorporated into national and island level preparedness and planning programmes.	National agencies: NDMOs	Immediate
Xii. NEMOs to monitor translation of brochures and training materials into local languages so that message intent is not lost and manage a "Train the Trainer" approach.	National agencies: NDMOs, Education Authorities	Within 5 years

46. Theme 5: Key Regional Activities	Implementing Partners	Time Line
a. Completed inventories and needs analyses of regional early warning systems and identify priorities for improved regional early warning systems that will better support national needs.		
i. SOPAC Council to consider strengthening its Secretariat to be a Focal Point with resources to support Pacific island countries in developing their early warning capacities.	SOPAC	NEW, 1 year
ii. Complete a regional hazard/risk analysis of active volcanoes in the SOPAC region, to identify the highest risk volcanoes; including any that are not monitored currently and taking account of the potential for different kinds of eruptions, cone collapses, caldera formation, etc.	National and regional vulcanologists coordinated by SOPAC and supported by GNS and Massey University	NEW, Within 5 years
iii. Conduct further Pacific Wide Exercises.	PTWC, NOAA, SOPAC	Within 2 years
iv. Strengthen dissemination systems using technology appropriate to reach the last mile {RANET, NWR, satellite text messaging/phone, EMWIN, HF, AHAB, EAS, hotlines (NAWAS)}.	SOPAC, University of Guam, NOAA, RANET Group	Ongoing
b. Supported the provision of regional multi-hazard forecasting, and early warning and monitoring systems of hazards such as tropical cyclones, droughts, flooding, storm surges, tsunamis, earthquakes and volcanic activity.		
i. Develop and adopt regional symbology, signage and terminology, including map scales, consistent with International standards and promulgate these to NDMOs, technical and other agencies.	Regional organisations. WMO Tropical Cyclone Committee, NDMOs, Meteorological Services, SOPAC, IOC	NEW, Within 3 years
ii. Carry out a feasibility study on the possible use of (Nadi) Regional Specialised Meteorological Centre as a communications node for a multi-hazard early warning system service provision for the region.	Fiji Meteorological Service, SOPAC, NDMOs, NZAID	NEW, Within 2 years
iii. Develop storm surge/wave models for the region and make them available to relevant countries.	Meteorological Services, particularly Fiji Meteorological Service, Australian Bureau of Meteorology, WMO, NIWA (in joint venture with UK MetService, EcoConnect)	NEW, Within 5 years
iv. Establish a regional support centre to provide technical advice, assistance, repair and calibration facility for meteorological surface observing systems and hold the necessary spare parts.	SPREP, supported by national and regional meteorological agencies, MetService NZ, WMO and donor agencies	NEW, Within 8 years
v. Enhance relationships between vulcanological agencies in the SOPAC region and the two regional Volcanic Ash Advisory Centres (Darwin and Wellington), in order to enhance volcanic eruption warnings throughout the region through the joint use of satellite data and ground observations.	Regional vulcanological agencies, Australian Bureau of Meteorology, MetService New Zealand, GNS, Massey University, SOPAC and SPREP	Within 3 years

46. Theme 5: Key Regional Activities	Implementing Partners	Time Line
vi. Create a mobile instrumental monitoring system for deployment at restless volcanoes in the region, to be managed by the SOPAC Secretariat and maintained by an existing selected and funded national technical agency. This initiative should be partnered with an interim measure.	SOPAC in consultation with regional vulcanological agencies, Massey University and donors, explore USGS (World Organisation of Vulcanological Observatory) contribution options	NEW, Within 10 years
vii. Invite PTWC and other warning centres to send messages with P-wave arrival times and preliminary earthquake parameters for events in the region from about Mw=5.7 to Mw=6.4, (i.e. below PTWC's Mw=6.5 Tsunami Information Bulletin threshold) to regional and national observatories.	PTWC, regional seismic and other relevant monitoring and warning networks such as GeoNet	NEW, Within 3 years
viii. Integrate the development of early warning systems with PI-GOOS, PI-GCOS and PI-HYCOS.	WMO, SPREP, Meteorological Services	NEW, Within 5 years
ix. Improve the preparedness of quarantine (and health) services in Pacific island countries to respond to human, crop and animal pest and disease incursions by developing and strengthening regional surveillance systems and including these hazards in emergency response plans.	SPC (through its Public Health Programme and Land Resource Division) and in collaboration with national Health, Agriculture, Forestry and Quarantine institutions. Health: Pacific Public Health Surveillance Network (PPHSN) partners, including SPC and WHO. Food: FAO, WHO. Animal Health: The World Health Organization for Animal Health (OIE). Plants: FAO	Activities commenced and ongoing
x. Investigate the requirements for a regional ocean monitoring system in support of maritime safety, commercial operations and scientific programs.	SPC	Within 2 years
xi. Identify existing volcano monitoring teams with an international crises response capacity (e.g. Japan, USGS – VDAP) to facilitate their responses to this region if needed.	SOPAC	Within 2 years
xii. Encourage interoperability of systems and equipment upgrade to provide appropriate real time data to PTWC as well as to other hazard warning centres of the region.	PTWC, JMA	Within 2 years
xiii. Better coordination of information sharing and upgrades of existing equipment and systems interoperability between global and regional Warning Centres using data from the region.	PTWC, JMA, ATAS, PGOOS, SOPAC	Within 2 years
xiv. Focus more efforts on tsunami inundation modelling around a string of islands vs an atoll, deep vs shallow, reef vs no reef and on determining if there is a “critical” size (surface area or is it all bathymetry?).	NOAA, SOPAC, PMEL, PDC	Within 2 years
c. Integrated national and regional early warning systems into the global networks and vice-versa.		
i. Continue to support and develop the tropical cyclone monitoring and prediction system for that operates in the region under the auspices of the WMO, and extend it to countries that need it.	National and regional meteorological services, SPREP, WMO, SOPAC, MetService	Ongoing

46. Theme 5: Key Regional Activities	Implementing Partners	Time Line
ii. Rather than establish a regional tsunami warning centre for Pacific island countries, arrange that existing data as well as data from new or improved observation systems be made available to existing and developing warning centres, such as the PTWC, to enhance their ability to warn of events in the region.	National and regional seismological and other relevant agencies including PTWC and GeoNet	NEW, Immediate
iii. SOPAC Secretariat support regional participation in the Global Earth Observing System of Systems (GEOSS).	SOPAC	NEW, Immediate
iv. Implementation of the 2005 International Health Regulations (IHR) core capacity assessment and development at country and regional level.	Pacific Public Health Surveillance Network (PPHSN) partners, including WHO and SPC.	Within 2 years