



**SOPAC Member Countries
National Capacity Assessments:
Tsunami Warning and Mitigation Systems**

Solomon Islands



Solomon Islands



AUSTRALIA

SOPAC

5.1 Status of Key System Components

The Tsunami Capacity Assessment Workshop results are summarised below in Table 3 in which the status of key components of the Solomon Islands tsunami warning and mitigation system are outlined (as at the date the Tsunami Capacity Assessment Workshop was held in February 2008, updates between then and the publication of this report are as marked).

Table 3: Summary of current status of key components of the Solomon Islands tsunami warning and mitigation system as at February 2008.

Rating

Yes - fully realised
Partially realised
No - not realised

Key Component	Rating	Discussion
Authority, Coordination and NGO Role		
Legislation in place for tsunami warnings and response	Partially	<p>Currently the Minister for the Ministry of Home Affairs is responsible for management of disasters and emergencies as stipulated by the NDC Act 1989. The Police Act and associated legislation exists. The legislative mandate for issuing of tsunami warnings and coordination of National and Provincial responsibilities requires improvement.</p> <p>Update May 2009 – A consultant is currently assisting the Solomon Islands to review disaster risk reduction and disaster management legislation. Updated legislation is expected to be before Parliament by November 2009.</p>
Tsunami coordination committee or effort at a National and local level	Partially	<p>The NDC have the authority to coordinate the appropriate emergency response as per the NDC Act 1989 (Act currently being revised). NDC, of which the NDMO is the secretariat, has the “operational practical implementation authority” whereas the Cabinet has legislative authority to authorise the NDC to take action. The Solomon Islands National Emergency Operations Centre (to be renamed the NDOCs) has Standard Operations Procedures (SOPs). The NDOC activates the Provincial Disaster Operation Centres (PDOCs).</p> <p>Update May 2009 - A consultant is currently assisting the Solomon Islands to review the NDC structure. It is planned that four sub-committees will exist (Risk Reduction, Hazards, Disaster Management Arrangements and Recovery) headed by the key accountable agency. Workshops will be held with all stakeholders to develop Terms of Reference for these sub-committees agency specific SOPs. This process is AusAID funded.</p>

Key Component	Rating	Discussion
Authority, Coordination and NGO Role (Continued)		
Agency responsibilities clearly defined	Partially	<p>Agency responsibilities are defined within the draft Solomon Islands NEOC, Standard Operations Procedures (SOPs) under the headings of response and recovery. For tsunami, the lead technical agency is listed as the Ministry of Mines and Energy (MMERE).</p> <p>Update May 2009 – Agency responsibilities and accountability will be further enhanced by the review of legislation, Disaster Risk Management Plan and Disaster Risk Management National Action Planning process.</p>
NGOs have a defined role in tsunami warning dissemination, preparedness and awareness and emergency response	Yes	NGOs play a role in community awareness and preparedness and, most importantly, emergency response.
Regional and International Cooperation		
Country represented at an international and regional level to aid cooperation in tsunami warning and mitigation efforts	Yes	The Solomon Islands is involved in the PTWS and Southwest Pacific Tsunami Working Group. The Solomon Islands is yet to become a member of the IOC.
Priorities		
Priorities established for implementation of tsunami warning and mitigation system at a National level	Partially	<p>Lessons Learned from 2 April 2007 Solomon Islands tsunami have helped to focus efforts. Opportunity for further strategic development in an all hazards framework exists.</p> <p>Solomon Island's priorities in enhancing their tsunami warning and mitigation system are outlined in this report. The following priorities were identified by the participants in the Tsunami Capacity Assessment Workshop:</p> <ul style="list-style-type: none"> • Early warning • Risk assessment and inundation mapping • Defined roles and responsibilities • Training and exercising • Emergency response and recovery plan • Infrastructure standards • Community awareness

Key Component	Rating	Discussion
Multi-hazard Approach		
Tsunami warning capabilities are being established within a multi-hazard framework	Yes	The draft Solomon Islands NEOC, Standard Operations Procedures (SOPs) provide a multi-hazard framework for Solomon Islands Government agencies and their disaster management partners before, during and after a disaster event. National and Provincial Disaster Committees and Offices are exist in a multi-hazards context. Update May 2009 – The multi-hazard approach will be further enhanced by the review of legislation, Disaster Management Plans, SOPs and the Disaster Risk Management National Action Planning process.
Research Expertise		
Active research is being undertaken within the country for seismology and tsunami to strengthen the tsunami warning and mitigation system	No	No formal research was identified specific to tsunami. A few projects proposed but under resourced. The Solomon Islands are generally reliant on the efforts of international and regional technical agencies as well as educational institutions such as the University of Papua New Guinea.
Tsunami monitoring infrastructure		
Existence of seismograph stations and integration of real time data from these stations into the tsunami warning process	Partially	There is one location where two digital seismic stations are co-located. The data is available in real-time to the international community that has provided the equipment and to the Solomon's MMERE but the MMERE do not have the capacity or authority to communicate it to the community during a real time event.
Existence of sea-level stations and integration of real time data from these stations into the tsunami warning process	Partially	One 3 rd party owned sea-level station exists. Real time data for this station is accessible via a web interface but not currently used in warnings.
Sharing of seismic and sea-level data internationally to facilitate improvement of PTWC tsunami messages for the region	Yes	Seismic data is shared internationally. Sea level data (3 rd party site) is shared internationally and fed into PTWC tsunami messages.

Key Component	Rating	Discussion
Warnings		
Nation receives PTWC messages	Yes	<p>The NDMO receives tsunami messages from PTWC via Short Message Service (SMS) to the Director or Deputy's mobile telephone and via e-mail. NDMO then uses the internet to confirm the tsunami advice. Once confirmed the NDMO officer will advise the duty SIMS officer at the airport meteorological office or conversely, the on duty SIMS Officer will advise the NDMO depending on who gets the advice first. SIMS receives the PTWC messages via the Aeronautical Fixed Telecommunications Network (AFTN) and/or a phone call (there is currently no set protocol) and from NDMO via a landline phone call at the airport meteorological office. SIMS has a number of data communication systems through which they can receive the PTWC messages but primarily it is through the AFTN and the Emergency Managers Weather Information Network (EMWIM). The WorldSpace system is due to be installed in the near future.</p> <p>The reliability of the message receipt systems on which SIMS received the PTWC message is questionable at times due to difficulties in maintaining the equipment. EMWIN (which is alarmed) is likely to be the most reliable option for SIMS to receive the PTWC message if it was operational.</p> <p>MMERE currently has no formal role in tsunami message receipt from PTWC, or subsequent analysis and dissemination of tsunami warnings for the Solomon Islands.</p> <p>Update May 2009 – SIMS has recently had a substantial input of resources for telephone, facsimile and power generators etc.</p>
24x7 operational staff at warning receipt and dissemination location	Yes	<p>The SIMS forecasting office is only staffed from 5am to 6pm daily as opposed to the airport meteorological office that is staffed 24x7 therefore PTWC tsunami messages are received by the airport office (Note – the forecasting office will receive notification of tsunami messages from the airport office).</p> <p>The Solomon Islands Police Force (SIPF) operate 24x7 and act as a back up to NDMO Duty Officer but are most likely to receive tsunami messages from NDMO. The SIPF disseminate it through their 24x7 hour HF radio network to their local stations (also staffed 24x7) and use loud speakers etc. to warn the community.</p>
Disseminate national tsunami warnings as guided by a Standard Operating Procedure	No	<p>Standard Operating Procedures do not exist for tsunami warnings post PTWC message receipt in the Solomon Islands.</p> <p>Update May 2009 – Enhancement of this aspect of the system is planned in the framework of the enhanced Act, committee structure and National, Provincial and agency emergency plans.</p>

Key Component	Rating	Discussion
Warnings (Continued)		
System redundancies in place for receipt of PTWC messages and dissemination of National warnings	Partially	<p>NDMO and SIMS provide back up to each other with regard to receipt of tsunami messages from PTWC. However, as NDMO is not 24x7 (they are on a call in roster), this back up arrangement is largely reliant on the Director and Duty Officer receiving SMS messages. When a message is received from PTWC (or the NDMO) by SIMS, the tropical cyclone standard operating procedures are activated to disseminate tsunami warnings for the Solomon Islands. SIMS sends tsunami warnings to the media and to the Provincial Meteorological Offices and Provincial Government Offices by fax. The NDMO can also take on the warning dissemination role by issuing advice to Solomon Island Police Force (SIPF) and the Solomon Islands Broadcasting Commission (SIBC).</p> <p>Update May 2009 – NDMO is currently the agency most actively pursuing issuing of tsunami advice to the community based on PTWC messages.</p>
Redundant 24x7 methods available for dissemination of warnings to community (e.g. public radio, sirens etc.)	No	<p>SIMS currently issues tsunami warnings to the population with due consideration to its role in issuing tropical cyclone warnings. This is by fax to the media, Provincial Meteorological Offices and Provincial Government Offices.</p> <p>The warning dissemination role is sometimes filled by the NDMO under an informal agreement at the time of the event with SIMS. NDMO pass the warning onto the SIBC (the Amplitude Modulated (AM) frequency national broadcaster) for dissemination nationally. SIBC operates 6am to 11pm daily (main means of dissemination but is not 24x7). Although there is no formal agreement in the case of an emergency, operating hours can be extended but this can create a longer lead time for warning dissemination.</p> <p>The Provincial Government Offices then disseminate the warning as best they can to the community utilising the HF radio network and word of mouth. Media is then contacted to ensure the message has been received and will be transmitted immediately. Dissemination of messages is somewhat inefficient outside of office hours.</p> <p>The warning is also passed onto the SIPF who disseminate it through their HF radio network to their local stations and use loud speakers etc. to warn the community. The Ministry of Health and Medical Services Information Network is also a viable communication channel that connects with every village across the country. Both the Police and the Ministry of Health and Medical Services HF radio networks currently have dedicated frequencies. No agreement has been made which allows these dedicated frequencies to be used for tsunami warnings.</p> <p>Update May 2009 – The Solomon Islands People First Network (http://www.peoplefirst.net.sb) exists but is not operated 24x7. A World Bank initiative is currently working towards implementing low-cost broadband. New 'wake-up' AM radio technologies and other technologies such as the Chatty Beatle are being investigated. NDMO, through an EU funded project, has installed HF radios in Provincial Meteorological and Disaster offices. These use the same radio frequency.</p>

Key Component	Rating	Discussion
Warnings (Continued)		
Effective warning dissemination to remote communities	Partially	AM station is main means of dissemination but is not 24x7. Scope for improvement by use of dedicated HF frequencies (such as those used by the SIPF) and development of out of hours 'wake-up' technologies.
Communications coverage of whole country that is effectively utilised for the dissemination of tsunami warning messages	Partially	Adequate communications coverage via AM radio and HF systems. Scope for improvement by use of dedicated HF frequencies (such as those used by the SIPF) and development of out of hours 'wake-up' technologies.
Issue of marine tsunami warnings and guidance for vessels, harbours and ports	Partially	There is no marine tsunami warning product as such. The Search and Rescue Unit of the Ministry of Fisheries and Marine Resources operate 24x7 HF/VHF radio watch and pass on marine safety messages and tsunami warnings when received.
Emergency Response and Evacuation		
Disaster preparedness and emergency response system has been reviewed and opportunities for improvement and training identified	Partially	For tsunami this was done as a lessons learned workshop and resulting report from the 2 April 2007 event. Update May 2009 – The disaster preparedness and emergency response system is currently being reviewed through the review of the Act, committee structure and National, Provincial and agency response plans. The Solomon Islands will also in 2010 undertake the Disaster Risk Management National Action Planning process.
Tsunami emergency response, evacuation and recovery plan exists	Partially	Refer above to answers to "Legislation in place for tsunami warnings and response" and "Tsunami coordination committee or effort at a National and local level". Update May 2009 – The Solomon Islands Tsunami Response Plan is one third complete but needs technical input to be completed.
The designated agency for evacuation is identified and have authority by law	Yes	In areas where Police operate (Honiara and Urban Centres) the Ministry of Police, under the Police Act, are the key evacuation agency. Villages have their own arrangements.
Plans have been made for safe evacuation of population centres including aspects such as maps, routes and signage	No	There is currently no evacuation plan for tsunami. Evacuation planning will be undertaken by the new Provincial Disaster Coordinators and is in fact, written into their duty statements. Update May 2009 – Templates for evacuation plans will be developed and rolled out as part of the PCIDRR project (refer below under "Public and stakeholder awareness and education").
Procedures are tested and exercised to improve the response through better planning and preparedness	Partially	The Police exercise their procedures. No exercise program exists for other agencies involved in tsunami warning and response. The Solomon Islands participated in Exercise Pacific Wave 2006 (refer to D42). Update May 2009 – The Solomon Islands participated in Pacific Wave 2008 and would like to include a regular exercise regime in their Tsunami Response Plan.

Key Component	Rating	Discussion
Emergency Response and Evacuation (Continued)		
Land use policies and building codes are in place to mitigate against the tsunami hazard	Partially	The building code applies only in Honiara and urban centres has been in draft for almost 20 years and is now ready for cabinet approval. Once approved, enforcement needs to be considered to ensure that this code is an effective tool. Developments on the coastal verge in Honiara have been approved without consideration of risk. This is a problem.
Tsunami hazard, vulnerability and risk		
Completion of studies to assess the tsunami hazard in the country or Region	Partially	Preliminary and Probabilistic Tsunami Hazard Assessment of the South West Pacific completed by SOPAC and GA. No national studies exist at present.
Local risk assessments have been completed for at risk communities	No	This has not been completed for tsunami.
Adequate data exists and local inundation modelling has been completed for population centres	Partially	Some accurate bathymetry exists at some locations, however these studies were undertaken by the Japanese and the data is not currently available in-country. Satellite topography data for the entire Solomon Islands is available (with 40meter contours for the country and 5meter contours for Honiara). Available data is outlined in the report "Inventory of Geospatial Data and Options for Tsunami Inundation& Risk Modelling" (SOPAC 2008). Update May 2009 – Inundation studies of the areas affected by the Gizo tsunami of April 2007 have been completed.
Public and stakeholder awareness and education		
Measures have been taken to ensure the public understand and take action in the event of a tsunami warning being issued	No	This is incorporated into a multi-hazard approach. Could be improved once Tsunami Response Plan is in place.

Key Component	Rating	Discussion
Community level education and preparedness programs exist tsunami	Partially	<p>Education and preparedness efforts are generally multi-hazard. Efforts have been made to incorporate Disaster Risk Management into education curriculum (all hazards through the National Adaptation Plan of Action), radio and television programs. Community education coverage is quite good with the joint efforts of the Red Cross, Solomon Islands Development Trust (STDT) and NDMO. Travel to remote islands is expensive and can hinder community awareness and preparedness efforts.</p> <p>Update May 2009 –</p> <ul style="list-style-type: none"> • AusAID funding has been used for multi-hazard wall calendars and posters for schools and Government departments. • The Solomon Islands is included in the Pacific Community Focused Integrated Disaster Risk Reduction (PCIDRR) project managed by the National Council of Churches Australia and funded by AusAID. Under this project the Solomon Islands have two NDMO trained field officers who will be accompanied by Provincial Disaster Officers to run village workshops. These workshops will focus on education and awareness and non-structural DRR such as evacuation planning, risk assessments and development of disaster committees and plans. The project is three years duration with the field officers visiting two villages per month. • At a Tertiary level, introduction to disaster management has been integrated into the third year nursing curriculum. • NDMO's budget spent on education through the media.
Training programs for the National media exist for natural hazard and tsunami	Yes	Tsunami training programmes are provided for the media by NDMO and partners.