



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

Papua New Guinea



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SOPAC

5. Assessment Results

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 PNG tsunami warning and mitigation system are outlined (as at the date the Tsunami Capacity Assessment Workshop was held in October 2008, and updates completed during the November 2009 review).

Table 3: Summary of current status of key components of PNG's tsunami warning and mitigation system as at October 2008 and review November 2009.

Rating

Yes – fully realised
Partially realised
No – not realised

Key Component	Rating	Comment
Authority, Coordination and NGO Role		
Legislation in place for tsunami warnings and response	No	PNG does have a Disaster Management Act (D12). However, this does not outline responsibilities for DRM, including tsunami warnings. The National Disaster Management Plan is relied upon to establish this framework. However, the Disaster Management Plan requires review (D13, current version 1987) to sufficiently outline responsibilities at the National and Provincial level.
Tsunami coordination committee or effort at a National and local level	No	There is no specific Tsunami Coordination Committee. The National Disaster Committee or Provincial Disaster Committees can be convened. However, further enhancement of these forums is required.
Agency responsibilities clearly defined	No	Agencies know their responsibilities but this is not documented. The Disaster Management Plan requires review (D13, current version 1987) to sufficiently outline responsibilities at the National and Provincial level.
NGOs and Red Cross Society have a defined role in tsunami warning dissemination, preparedness and awareness and emergency response	Partially	NGOs undertake primarily emergency response and awareness activities. Further integration of these capabilities in national DRM planning could significantly enhance national preparedness and response capacity. The PNG Red Cross Society Disaster Preparedness and Response Plan (D5) is detailed and contains some extremely useful information.

Key Component	Rating	Comment
International and Regional Cooperation		
Country represented at an international and regional level to aid cooperation in tsunami warning and mitigation efforts	Yes	Provides some data into tsunami system and involved in some bilateral engagement and international tsunami and DRM forums.
Priorities		
Priorities established for implementation of tsunami warning and mitigation system at a National level	Partially	Priorities for PNG's tsunami warning and mitigation system were discussed and recorded in the Tsunami Capacity Assessment Workshop (Refer to Annexure 8). These could be further formalised in DRM and tsunami plans.
Multi-hazard Approach		
Tsunami warning capabilities are being established within a multi-hazard framework	Yes	Through the Disaster Management Act (D12) and the National Disaster Management Plan (D13) a multi-hazard framework is undertaken.
Research Expertise		
Active research is being undertaken within the country for seismology and tsunami to strengthen the tsunami warning and mitigation system	Partially	Doing baseline research survey work primarily through PMGO and UPNG as well as international partnerships.
Tsunami monitoring infrastructure		
Existence of seismograph stations and integration of real time data from these stations into the tsunami warning process	No	Currently only one Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) station at Gerehu and one station at PMGO operational. PMGO link to CTBTO seismic stations in the Region via Telikom VSAT to receive earthquake information on request. Funding secured through the European Union (EU) B-envelope to re-establish the seismic network (Update March 2010 – Currently progressing through a tender process). New system with ten stations and telemetry (satellite and telephone) planned for 2009/11.
Existence of sea level stations and integration of real time data from these stations into the tsunami warning process	Yes	There is one Seaframe sea level station at Lombrum, Manus and three stations at Rabaul. All stations are telemetered to RVO. The Lombrum station reports to the Global Telecommunications System (GTS) and is available to PTWC. The Rubaul stations are currently not available to PTWC.
Sharing of seismic and sea level data internationally to facilitate improvement of PTWC tsunami messages for the region	Partially	CTBTO seismic station is, as is the Lombrum sea-level station.

Key Component	Rating	Comment
Warnings/Communications		
Nation receives PTWC messages	Yes	PMGO receives messages from PTWC and JMA via fax and e-mail. NWS, who are 24/7, also receive PTWC and JMA tsunami messages via EMWIN, AFTN, Fax and e-mail. There is a in-office system that is alarmed. NDC and RVO also receive these messages.
24/7 operational staff at warning receipt and dissemination location	Yes	PMGO and NDC is not reliably 24/7. NWS is 24/7.
Disseminate national tsunami warnings as guided by a Standard Operating Procedure	No	SOPs have been developed for earthquakes and tsunamis to assist PMGO during events, with the assistance of PTWC and ITIC. They are being used (per. comm. Lawrence Anton, PMGO, 26 February 2010). SOPs in draft form or non existent for wider agencies involved in tsunami warning and response. (Update March 2010 – PMGO and NDC are currently progressing enhancement of SOPs (per. comm. AusAID Port Moresby, 19 March 2010)).
System redundancies in place for receipt of PTWC messages and dissemination of National warnings	No	Messages received at multiple offices (PMGO, NWS, NDC and RVO) but some of these agencies are not staffed 24/7..
Redundant 24/7 methods available for dissemination of warnings to community (e.g. public radio, sirens etc.)	No	Yes 8am to 5pm Monday to Friday but not after hours or on weekends. Systems are often not located in 24/7 staffed offices, systems are turned off or volume is down. Only the FM and AM National Broadcast Stations are on 24/7. Other (mostly church related or sponsored) broadcast media is off air before midnight. Many remote communities are not covered by any free to air broadcast systems without elaborate antennas. EU funding for upgrade to 24/7 communication for NDC received.
Effective warning dissemination to remote communities	No	Not reliable unless warnings coincide with the HF schedule of a health or church radio network.
Communications coverage of whole country that is effectively utilised for the dissemination of tsunami warning messages	Partially	No sirens, no country wide warning system. Less than 60 percent cell coverage. Communications systems (primarily radio) is not coordinated to consider 24/7 warning capability.

Key Component	Rating	Comment
Warnings/Communications (Continued...)		
Issue of marine tsunami warnings and guidance for vessels, harbours and ports	Partially	The Port Moresby radio station (HF) broadcasts weather every two hours 8am to 6pm Monday to Friday only.
Emergency Response and Evacuation		
Disaster preparedness and emergency response system has been reviewed and opportunities for improvement and training identified	Partially	Only implemented for Manus
Tsunami emergency response, evacuation and recovery plan exists	No	Emergency response, evacuation and recovery plans do not currently exist for tsunami.
The designated agency for evacuation is identified and have authority by law	No	Legislation surrounding public evacuations is lacking. Most evacuations are voluntary.
Plans have been made for safe evacuation of population centres including aspects such as maps, routes and signage	Partially	Plans are limited to only two Provinces at this time.
Procedures are tested and exercised to improve the response through better planning and preparedness	Partially	At limited Provincial level only.
Land use policies and building codes are in place to mitigate against the tsunami hazard	No	Building codes and enforcement need review/revision.

Key Component	Rating	Comment
Tsunami hazard, vulnerability and risk		
Completion of studies to assess the tsunami hazard in the country or Region	Partially	This is based primarily on a good historical database of events. Baseline information is available.
Local risk assessments have been completed for at risk communities	Partially	Tsunami risk studies along the north coast and the risk of tsunami generated by volcanic cone collapse have been investigated by UPNG and RVO respectively, sometimes with assistance from international partners such as Hokkaido University. Some vulnerability and local risk assessments have been completed in PNG (Refer to Attachment 1a, Question 77 and 78).
Adequate data exists and local inundation modelling has been completed for population centres	No	Some numerical modelling studies have been completed to calculate inundation from tsunami in PNG (primarily modelling of past events).
Public and Stakeholder Awareness, Education and Training		
Measures have been taken to ensure the public understand and take action in the event of a tsunami warning being issued	Yes	Ongoing awareness programs and activities, including media campaigns, are conducted by a number of agencies, with a number of donor funds and some agency budget funds.
Community level education and preparedness programs exist for tsunami	Partially	All hazards training. The UPNG takes a key role in community education and disaster management training in PNG. Their Geology and Disaster Reduction course includes tsunami (see D28 for the course outline).
Training programs for the National media exist for natural hazard and tsunami	Partially	No formal training programs, but a number of meetings have been held to clarify roles and awareness talk has been made for future translation and dissemination.
Training programs exist for officials involved in tsunami warning and response	No	Training specific to tsunami is lacking for key warning and response agencies. Tsunami competency-based training program for the operational staff of key agencies are required to reflect tsunami operational practices as outlined in developed SOPs.