



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

Republic of Kiribati



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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 4 in which the status of key components of the Kiribati tsunami warning and mitigation system are outlined (as at the date the Tsunami Capacity Assessment Workshop was held in September 2008, updates between then and the publication of this report are as marked).

Table 4: Summary of current status of key components of Kiribati's tsunami warning and mitigation system as at September 2008.

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	Yes	Legislative framework for Disaster Risk Management in place since 1993 (National Disaster Act, D1). Tsunami is included as a potential disaster in the National Disaster Act.
Tsunami coordination committee or effort at a National and local level	Partially	Ad hoc National Disaster Council established to advise the Minister (has convened for disease epidemics, water issues and food crisis). Members are nominated by the Minister. Disaster Risk Management structures at the national, council and village level need to be formalised.
Agency responsibilities clearly defined	No	There is a recognised requirement for a National Disaster Plan. Scope for this plan is defined in the National Disaster Act. Emergency response, evacuation and recovery plans do not currently exist.
NGOs and Red Cross Society have a defined role in tsunami warning dissemination, preparedness and awareness and emergency response	No	The Red Cross (along with the Police) are the only agencies with any disaster management capability.

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	Partially	<p>Kiribati is a SOPAC Member Country and cooperates on a number of projects and initiatives with international organizations such as PTWC, National Institute of Water and Atmospheric Research (NIWA) and AusAID, particularly with regard to climate change adaptation.</p> <p>Kiribati is not currently actively involved in the PTWS Southwest Pacific Working Group and it is not a member of the IOC.</p>
Priorities		
Priorities established for implementation of tsunami warning and mitigation system at a National level	Partially (through the tsunami assessment process)	<p>Priorities for the implementation of an effective tsunami warning and mitigation system in Kiribati were outlined in this Tsunami Capacity Assessment workshop. High priorities identified in the workshop are outlined below:</p> <p>Emergency Response Planning:</p> <ul style="list-style-type: none"> • Improved planning for extreme weather events including flooding etc., sea wall destruction, fresh water management, infrastructure breakdown. <p>Community Awareness:</p> <ul style="list-style-type: none"> • Include tsunami education in schools as part of primary and secondary geography curriculum. • Include tsunami awareness in Church community education efforts. • Government led community education required to explain tsunami and action to be taken in the event of a tsunami warning for Kiribati (e.g. safe places (still to be identified) and likely impacts on each island (still to be identified)). • Education using electronic media (radio and television). • Posters teaching about natural disasters. <p>Interagency Cooperation:</p> <ul style="list-style-type: none"> • Further interagency cooperation (possibly through a coordination committee) on search and rescue, public awareness, survival at sea and media information. • Better use and coordination through Island Councils and the Red Cross.

Key Component	Rating	Comment
Priorities (Continued)		
Priorities established for implementation of tsunami warning and mitigation system at a National level	Partially (through the tsunami assessment process)	<p>Risk Assessment and Warning Dissemination:</p> <ul style="list-style-type: none"> • Enhance communications systems by: • Funding RANET license. • Reinstating Emergency Managers Weather • Information Network (EMWIN) receiver. • Extending Telecom Services Kiribati Limited • (TSKL) telephone links. • Coordinating CB radio network. • Providing radios for all villages. • Providing Police with portable radios. • Providing television to all islands (currently south Tarawa only).
Multi-hazard Approach		
Tsunami warning capabilities are being established within a multi-hazard framework	Partially	Tsunami warning and mitigation capabilities are being addressed in a multi-hazard framework through the National Disaster Act 1993 (D1). National Disaster Council has convened for disease epidemics, water issues and food crisis.
Research Expertise		
Active research is being undertaken within the country for seismology and tsunami to strengthen the tsunami warning and mitigation system	Partially	<p>Limited active researchers or government research organisations involved in in-country scientific research on seismology, tsunami or products and services to strengthen Kiribati's tsunami warning and mitigation system (aside from the Kiribati Department of Fisheries Licensing Unit who study oceanography, including tsunami).</p> <p>A number of international studies exist, largely focused on climate change.</p>
Tsunami monitoring infrastructure		
Existence of seismograph stations and integration of real time data from these stations into the tsunami warning process	Partially	One seismic station is hosted at KMS and operated by United States Geological Survey (USGS). Kiribati has no real-time data access to this station but can request post-event data from USGS.

Key Component	Rating	Comment
Tsunami monitoring infrastructure (Continued)		
Existence of sea level stations and integration of real time data from these stations into the tsunami warning process	Partially	One coastal sea level monitoring station exists at Betio Jetty in Kiribati operated by the Bureau. Meteorological and sea level data is displayed at KMS.
Sharing of seismic and sea level data internationally to facilitate improvement of PTWC tsunami messages for the region	Yes	Data from stations available to international community for seismic and tsunami related purposes.
Warnings		
Nation receives PTWC messages	Partially	KMS receives PTWC messages via phone call to the Chief Meteorological Officer, e-mail and EMWIN (when functioning). Receipt of these messages is not alarmed in the KMS office.
24/7 operational staff at warning receipt and dissemination location	Partially	KMS role is to relay warning to the OB only if Kiribati is mentioned in the PTWC message. This is currently completed manually. No 24/7 operational staff at OB.
Disseminate national tsunami warnings as guided by a Standard Operating Procedure	No	No local interpretation of PTWC warnings is undertaken, including issuing of public advice. No standard operating procedures currently exist.
System redundancies in place for receipt of PTWC messages and dissemination of National warnings	No	There is no 24/7 agency backing up KMS for the receipt of tsunami warnings from PTWC. Communications systems outages at KMS compromise operations. There is a lack of built-in redundancy.
Redundant 24/7 methods available for dissemination of warnings to community (e.g. public radio, sirens etc.)	Partially	Media broadcasting services and OB are not 24/7. Lack of defined use of warning mediums and lack of coordination between government agencies, church, NGOs and media who have the capability to inform communities of disaster warnings. Possibilities in future include a variety of radio networks capable of delivering alerts, sirens, horns, church bells and word of mouth. Expanding telephone network and planned mobile network with enhanced messaging services.

Key Component	Rating	Comment
Effective warning dissemination to remote communities	No	Refer above. Kiribati's telecommunications systems allow for some possible solutions for disseminating warning information over distances, these are generally not suitable for getting the warning information to communities in remote or outlying areas where the infrastructure does not exist or is not reliable.
Communications coverage of whole country that is effectively utilised for the dissemination of tsunami warning messages	No	Current radio communication technologies are the key communications coverage in Kiribati. Lack of technical expertise, equipment and funding.
Warnings (Continued)		
Issue of marine tsunami warnings and guidance for vessels, harbours and ports	No	No procedures are in place for marine tsunami warnings at present.
Emergency Response and Evacuation		
Disaster preparedness and emergency response system has been reviewed and opportunities for improvement and training identified	No	No reviews have been undertaken aside from the National Disaster Act 1993 (D1) which establishes command and control arrangements for managing a range of disasters from tsunami, other natural and man made disasters.
Tsunami emergency response, evacuation and recovery plan exists	No	Emergency response, evacuation and recovery plans do not currently exist.
The designated agency for evacuation is identified and have authority by law	Yes	Police designated as the authority for disaster evacuation (under orders issued by the OB). This is including the outer islands.
Plans have been made for safe evacuation of population centres including aspects such as maps, routes and signage	No	No tsunami evacuation maps, evacuation routes, and evacuation signage have been developed. No assessment has been made of lead times for safe evacuations of communities in the event of a tsunami. The National Disaster Act 1993 (D1) provides for government and NGOs to make such plans.
Procedures are tested and exercised to improve the response through better planning and preparedness	No	Every two years an exercise is conducted but only for aviation incidents and no other testing or exercises have been carried out.

Key Component	Rating	Comment
Emergency Response and Evacuation (Continued)		
Land use policies and building codes are in place to mitigate against the tsunami hazard	Partially	<p>Policies to mitigate sea level rise provide some tsunami mitigation.</p> <p>Responsible agencies are nominated:</p> <ul style="list-style-type: none"> • Lands Management Division - responsible for the foreshore and land use planning. • The Ministry of Public Works and Utilities - also responsible for coastal infrastructure planning and protection (water, roads, sea walls, government buildings). • Councils – regulation and control of private and public buildings under the Local Government Act 2006 (D12). <p>Planning ordinance currently exists.</p> <p>However, these agencies and measures do not currently consider tsunami mitigation. Better enforcement is needed.</p>
Tsunami hazard, vulnerability and risk		
Completion of studies to assess the tsunami hazard in the country or Region	Partially	A “Preliminary Study into the Tsunami Hazard faced by Southwest Pacific Nations” (D25) and a “Probabilistic Tsunami Hazard Assessment of the Southwest Pacific Nations” (D27) have been completed.
Local risk assessments have been completed for at risk communities	No	No local tsunami risk assessments have been carried out.
Adequate data exists and local inundation modelling has been completed for population centres	Partially	<p>Inundation data available for some locations in South Tarawa for sea level rise scenarios for 2050 and 2100 from IPCC assessments (World Bank 2000 study on climate change adaptation), using local surveys by the Lands Department.</p> <p>Bathymetric and topographic surveys in limited areas have been conducted and incorporated into sea level rise impact assessments.</p> <p>Inventory of Geospatial Data and Options for Tsunami Inundation and Risk Modelling has been completed (D26).</p>
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	No	<p>No tsunami preparedness information currently provided in school curriculum or by public education campaigns.</p> <p>Community needs to know what to do – safe places (still to be identified) and likely impacts on each island needs to be identified.</p> <p>Kiribati communities need to be educated as to how government and NGOs will respond to those emergencies from which they are at risk.</p>

Key Component	Rating	Comment
Public and Stakeholder Awareness, Education and Training (Continued)		
Community level education and preparedness programs exist for tsunami	Partially	Some media coverage (post Solomon Islands tsunami in April 2007) and education (tsunami education kit specific to Kiribati). Limited penetration of these programs to date.
Training programs for the National media exist for natural hazard and tsunami	No	No training programs for media on tsunami or other hazards have been undertaken.
Training programs exist for officials involved in tsunami warning and response	Partially	Disaster Management capability and training across other agencies (aside from Police and Red Cross) is limited. Financial and human resources are an issue. KMS tsunami training is limited.