

**UNESCO INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION  
INTERGOVERNMENTAL CO-ORDINATION GROUP FOR THE PACIFIC TSUNAMI WARNING AND  
MITIGATION SYSTEM**

**PTWS Tsunami Warning Operations Seminar – 2-3 April 2007**

**Summary: Day 2 Action Planning - South China Sea Region**

As part of the Seminar, an action planning session for South China Sea region countries was held on Day 2. The session was led by Malaysia, and attended by directors of National Meteorological Services and National Disaster Managers, or their representatives, from Brunei, China, China (Hong Kong), Indonesia, Japan, Malaysia (Chair), Philippines, Singapore, Thailand, and Vietnam as the key stakeholders for tsunami warning and mitigation. Topics of consideration included end-to-end Tsunami warning (monitoring, detection, evaluation, alert dissemination, evacuation, all-clear) implementation and preparedness required for achieving success for input directly into the PTWS Medium Term Strategy and Implementation Plan. A guidance document was prepared by SOPAC and ITIC for this discussion, with the group asked to identify particularly who drives tsunami warning and mitigation activities, who the supporting agencies and partners are, known or committed implementation initiatives and timelines, and any constraints they have. The group reported on the status of activities and made a number of Recommendations of Action for implementing a successful national tsunami early warning system (TEWS).

The Group provided the following Status and Actions/Recommendations:

<b>Activity / Topic</b>	<b>Status</b>	<b>Action/Recommendation</b>
Governance	Brunei and Cambodia have not provided TNC for PTWS.	ICG Secretariat to provide necessary information and requirements.
Authority, Legislation, End-to-end tsunami warning responsibilities	All countries have a disaster management set-up	
Needs assessment	Some countries have had assessment done in Indian Ocean area but for western Pacific countries, it would be beneficial to have assessment done (end-to-end) especially for the marginal basins	IOC to consider organizing or leading assessments of marginal basin countries
Implementation Plans	Important	National implementation plans to be done
Modeling for islands	1. Issue is need for inundation modeling for our coastlines and for this training and capacity building needs to be continued and enhanced. 2. There needs also to be assessment of the best model available. Regional projects should open up for other member countries to participate. 3. Problem is bathymetric data but this is a national effort.	1. PTWS WG 3: Assessment of the best models available 2. Inundation modeling training needed, and should be open to all countries
Interoperability of systems	This is the goal but it is a tough process. We need to work with manufacturers who have not developed standards.	IOC should push for manufacturers to have standard formats for instrumentation but countries must also agree on data sharing.
Units		Use kilometers

Tsunami Warning Decisions; Wave Forecasts	Travel-time maps already available	Need the amplitude maps (to give figures of down to 0.25metres).
Current tide gauge gaps	The issue is more funding than determining locality of gauges.	ASEAN could start consultations with dialogue partners on funding. Need for appropriate nos. of tide gauges to be incorporated in the agenda at sub-committee level (SCMG) of ASEAN.
Operational tools	Useful	Should be updated and given to national organizations
Operational tools - TideTool	Yes, needed	Organize and provide training
Contingency plan	Important	Countries should include
Relationship strengthening - Media	When warning is correct, no problems with media but when warnings are off target, then media uses it as an issue causing many difficulties for agencies. 1. International media's broadcast should include termination of hazard news. ITIC should work with them. 2. ITIC should also ensure that clarifications be given by media on specific areas that may be affected by a Pacific-wide tsunami warning.	ITIC to work with media
Outreach and Educational Materials	All found to be useful.	IOC to duplicate educational material
Training	Interested in training but unable to self-fund without early notification	Schedule for capacity building workshops announced early so that funding can be planned for

Countries provided the following Status on their tsunami warning and mitigation activities:

Activity / Topic	Brunei	China	China Hong Kong	Indonesia	Japan	Malaysia	Philippines	Singapore	Thailand	Vietnam
<b>Authority, Legislation, End-to-end tsunami warning responsibilities</b>	Met services gets info from JMA and issues warning, advisory or statement but no evacuation order is given but order is given by	Local govt empowered to decide on evacuation	Met services monitors and issues tsunami warning but no plans for evacuation but announcement made to ask people to move away from beaches	National body and local govt for natural disaster management; tsunami warnings given to army, police and other agencies by Met Services; local govt issues evacuation	JMA issues national warning but evacuation is by local govt (legislation)	National Security Division under PM's Dept. but not for technical expertise but more for coordinating. Met Services provides tech. Info. and advice			Local govt calls for evacuation	Local govt issues evacuation orders
<b>Hazard Identification and Risk Assessment</b>		Starting possible tsunami run-up studies	Starting possible tsunami run-up studies	Many agencies involved; translated into local language in order achieve community-based empowerment	Min. of Science conducts assessments risk for long term assessment for info. To public	Earthquake updated; Tsunami on-going	Earthquake hazards completed; Tsunami almost completed; multi-hazard approach is a continuous approach; community based			
<b>Issuance of Warning and Use of Color codes</b>		Blue - IV (less than 1 metre), Yellow – III, Orange – II, Red – I (Highest level)	Earthquake press release, tsunami information bulletin, tsunami warning	Earthquake and Tsunami information given		Warnings given	Alert level depends on level of danger (Alert level is numbered; 0 to 3 – highest level)	Yellow, amber and red	Levels: Advisory, Watch, Warning, and Cancellation; Green (normal), yellow, orange and red	Level 0 – 3 (highest level)
<b>Tsunami Warning Decisions; Wave Forecasts</b>				Scenario and historical modeling database being developed and will be used in decision-making	Background seismicity prepared and used for briefing and given to press					360 scenarios using non-linear numerical models
<b>Alert Communication - remote high risk communities, use of traditional means</b>	Remote villages far inland – no problems	Phone and other methods used to inform remote areas		Local govt not 24/7 but police available all times	Special phone lines and satellite as back up. Ready 24/7.	NSD is 24/7 but not at local level; problem with remote islands off Sabah; plan to use mosques	Established contact points at local level; bells used		24/7 at provincial level; no problems with one-way communication, but two-way communications a problem; banging of items or more modern methods	Local govt does not work 24/7

Activity / Topic	Brunei	China	China Hong Kong	Indonesia	Japan	Malaysia	Philippines	Singapore	Thailand	Vietnam
<b>Regular National/Local, Regional exercise</b>		National level	Every year have cross-agency drills; tsunami exercise and typhoon tests held last year	26 December (yearly)			Drills at community level to be done before national drill (communication exercise)		Yearly (in July) at national level	
<b>Relationship strengthening - Media</b>	Bangkok workshop with media and technical experts found that we should be more comprehensive/concise and use layman language. Should bring media personnel to attend briefing sessions		Every year have meeting with media; course held for the media too and is done by the media officer (about weather).	Invites media for workshops			Conduct seminar and produce glossary of terms. Good to have direct contact with media			