



ICG/IOTWS-VII/3s
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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

**SEVENTH SESSION
OF THE INTERGOVERNMENTAL COORDINATION GROUP
FOR THE INDIAN OCEAN TSUNAMI WARNING AND MITIGATION SYSTEM**

Banda Aceh, Indonesia
14–16 April 2010

EXECUTIVE SUMMARY

In accordance with Rule of Procedure 48.3, ICG/IOTWS, as a Primary Subsidiary Body of IOC, is required to report to a Governing Body on its sessions.

The IOC Executive Council at its 43rd Session will be invited to consider this Executive Summary.

1. The Seventh Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS-VI) was held in Banda Aceh, Indonesia, 14–16 April 2010 under the Chairmanship of Prof Dr Jan Sopaheluwakan. The session was attended by 85 delegates from 13 Member States in the Indian Ocean region, 5 Observer States and 12 UN agencies, NGOs and other organisations.
2. **The ICG reviewed the progress** made during the intersessional period, noted reports and recommendations from its Working Groups and reviewed the recommendations of the Steering Group Task Team concerning the restructuring of the ICG/IOTWS Working Groups. The ICG received an update on the nomination of Tsunami Warning Focal Points (TWFP) and Tsunami National Contact (TNC): 25 out of 28 countries have made either complete (23) or partial (2) formal nominations.
3. **The ICG decided** to dissolve the 6 existing Working Groups and establish 3 new Working Groups with nominated chairs, as follows:
 - Working Group 1: “Tsunami Risk Assessment and Reduction”.
Chair: Dr Sam Hettiarachchi (Sri Lanka).
 - Working Group 2: “Tsunami Detection, Warning and Dissemination”.
Chair: Dr Satheesh Shenoi (India).
 - Working Group 3: “Tsunami Awareness and Response”.
Chair: Ms Irina Rafliana (Indonesia).
4. **The ICG adopted** Terms of Reference for the Working Groups and **encouraged** the new Working Groups to also consider coastal inundation caused by storm surges and tropical cyclones within multi-hazard approaches and frameworks.

5. **The ICG decided** to organise an Indian Ocean Wave 10 Exercise between Regional Tsunami Watch Providers (RTWP) and National Tsunami Warning Centres (NTWC) in the 4th quarter of 2010 and requested the RTWP Task Team to coordinate the exercise.
6. **The ICG adopted** the 2010–2011 RTWP implementation work plan (annex to this document) for the newly formed Working Group 2, which targets the completion of transition from the Interim Advisory Service provided by JMA and PTWC to the Indian Ocean RTWP service by the 2nd quarter of 2011.
7. **The ICG decided** to hold its Eighth Session in April 2011 and accepted the kind offer from Australia to host it. The ICG extended its gratitude to the Government of Indonesia, and the Director General and personnel of the Agency for Meteorology, Climatology and Geophysics (BMKG) for the excellent host arrangements for its Seventh Session.
8. **The ICG adopted** the following recommendation:

Recommendation ICG/IOTWS-VII.1

The Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS),

Having met for its 7th Session from 14–16 April 2010 in Banda Aceh, Indonesia,

Recalling Resolution XXIII-12 that established the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System,

Recognizing the progress towards establishing national tsunami warning centres in all countries around the Indian Ocean since the Indian Ocean Tsunami of 26 December 2004,

Reaffirming that:

- (i) the Indian Ocean Tsunami Warning and Mitigation System (IOTWS) will be a coordinated network of national systems and capacities, and will be part of a global network of early-warning systems for all ocean-related hazards,
- (ii) each Member State has the responsibility to issue warnings within its respective territories,

Recalling the *Mauritius Declaration* adopted at the 2nd international coordination meeting for the development of a tsunami warning and mitigation system for the Indian Ocean held at Grand Baie, 14–16 April 2005 (IOC Workshop Report, 198), to openly share and exchange tsunami-relevant real-time observational data in accordance with the UNESCO/IOC Oceanographic Data Exchange Policy,

Having noted the Summary Report of the 2nd meeting of the IOC/TOWS-WG (Paris, 27 March 2009, IOC/TOWS-WG-II/3) and the Initial Draft Strategy and Plan 2009–2010 for a Global Ocean-related Hazards Warning and Mitigation System Framework and implementation of IOC/TOWS-WG recommendations,

Having further noted:

- (i) IOC Resolution XXV-13 outlining the requirements for the future development of tsunami warnings,
- (ii) the successful exercising of the Interim Advisory Services of JMA and PTWC of the IOTWS in Exercise IOWave09,

Recalling:

- (i) the IOTWS Implementation Plan for Regional Tsunami Watch Providers (RTWP) (IOC Technical Series 81),
- (ii) Recalling Recommendation ICG/IOTWS-VI.1 and the decision to establish a Task Team to review the Working Group Structure and Terms of Reference, to consider restructuring of the Working Groups,

Having reviewed the progress made in the implementation of the IOTWS since the 6th Session of the ICG/IOTWS,

Having considered the reports of:

- Working Group 1 on Seismic Measurements, Data Collection and Exchange,
- Working Group 2 on Sea Level Data Collection and Exchange, Including Deep Ocean Tsunami Detection,
- Working Group 3 on Risk Assessment,
- Working Group 4 on Modelling, Forecasting and Scenario Development,
- Working Group 5 on the Establishment of a System of Interoperable Advisory and Warning Centres and the RTWP Task Team,
- IOWave09 Task Team,
- Working Group 6 on Mitigation, Preparedness and Response,
- 4th meeting of the Steering Group on 1–2 December 2009 in Perth, Australia,

Having reviewed the recommendations of the ICG/IOTWS Steering Group Task Team concerning a restructure of ICG/IOTWS Working Groups,

Encourages Member States to continually update the list of Tsunami National Contacts (TNCs) and Tsunami Warning Focal Points (TWFPs) and inform the Secretariat of all changes;

Requests the Malaysian National Tsunami Early Warning Centre (MNTEWC) and Regional Integrated Multi-hazard Early Warning System (RIMES) to exchange their experimental tsunami watch products with existing ICG/IOTWS RTWPs (Australia, India, Indonesia);

Urges the Executive Secretary to complete the development of a website that provides for:

- Member States' ability to review and update information concerning TWFPs and TNCs consistent with the UNESCO/IOC rules established for such processes;
- Access to be password-protected and accessible by all TNCs and TWFPs;
- Timely distribution of official IOTWS and other ICG documents;
- Member States' ability to publish and access documents and information that may be of relevance to the international tsunami community;

Further requests that the Executive Secretary prepare the Executive Summary Report of the Seventh Session of the ICG/IOTWS within 30 days of the close of this meeting;

Decides to:

- (i) Establish three Working Groups with Terms of Reference as attached in Annex 1:

Working Group 1: "Tsunami Risk Assessment and Reduction"

Chair: Dr Sam Hettiarachchi (Sri Lanka);

Working Group 2: "Tsunami Detection, Warning and Dissemination"

Chair: Dr Satheesh Shenoi (India);

Working Group 3: "Tsunami Awareness and Response"

Chair: Ms Irina Rafliana (Indonesia):

(ii) Dissolve existing Working Groups:

Working Group 1: "Seismic Measurement, Data Collection and Exchange"

Working Group 2: "Sea Level Measurement Data Collection and Exchange"

Working Group 3: "Risk Assessment"

Working Group 4: "Modelling, Forecasting & Scenario Development"

Working Group 5: "A System for Interoperable Advisory & Warning Systems"

Working Group 6: "Mitigation, Preparedness & Response";

- (iii) Invite nominations for membership of the new Working Groups within 30 days of the close of this meeting, to ensure continuity and functioning of the Working Groups in the intersessional period;
- (iv) Continue the RTWP Task Team (RTT) of the former Working Group 5 with its existing Terms of Reference, but now reporting to the new Working Group 2, and including a Term of Reference to coordinate the IOWave10 Exercise involving RTWPs and NTWCs;
- (v) Adopt the amended work plan for RTWP implementation developed by former Working Group 5, as attached in Annex 2 for implementation by new Working Group 2;
- (vi) Adopt the action plan of former Working Group 6 for implementation by new Working Group 3;
- (vii) Instruct the new Working Groups to complete any outstanding actions of the dissolved former Working Groups;
- (viii) Continue the Steering Group with Terms of Reference as attached in Annex I;
- (ix) Instruct the Steering Group to prepare a draft Medium-term Strategy (MTS) for consideration by ICG/IOTWS-VIII;
- (x) Instruct the Steering Group to review and revise the IOTWS Implementation Plan (IOC Technical Series, 71) for consideration by ICG/IOTWS-VIII, noting and taking into account the recommendations of the sessional IOTWS Implementation Plan committee;
- (xi) Include a review of the decisions, recommendations and actions of the ICG as a standing item on the agenda at the start of each Session;
- (xii) Instruct the Working Groups and Task Teams to provide a review of recommendations and actions with respect to their Terms of Reference in their reports to the ICG;

Expresses its gratitude to the Government of Indonesia for kindly hosting the Seventh Session of the ICG/IOTWS in Banda Aceh,

Accepts with appreciation the kind offer of Australia to host the Eighth Session of the ICG/IOTWS in Melbourne in April 2011, and

Accepts with appreciation the interest of Oman to host the Ninth Session of the ICG/IOTWS in first quarter 2012 subject to the approval of the government.

Financial Implications: None

Annex 1 to Recommendation ICG/IOTWS-VII.1

Working Group and Task Team Terms of Reference

A

Terms-of-Reference Working Group 1: “Tsunami Risk Assessment and Reduction”

1. Develop guidelines for tsunami risk assessment in the marine and land environment as part of a global multi-hazard risk management framework;
2. Provide guidance to emergency response managers on the preparation of risk assessment products;
3. Facilitate the application and use of inundation model outputs for tsunami hazard and risk assessment;
4. Facilitate data sharing, including access to and development of databases, incorporating exposure, tsunami hazard and vulnerability;
5. Facilitate capacity building, including knowledge transfer, in the form of workshops, training programmes and case studies for risk assessment in all Indian Ocean countries;
6. Provide advice and develop guidelines on hazard mitigation (physical interventions – artificial and natural methods);
7. Liaise with Working Groups from the other ocean basins, as well as other working groups within ICG/IOTWS to coordinate and ensure efficient and effective information for tsunami risk assessment and reduction.

The Group will be composed of members nominated by Member States, invited observers, with a chairperson and a vice-chairperson to be elected.

B

Terms-of-Reference Working Group 2: “Tsunami Detection, Warning and Dissemination”

1. Monitor existing international and national arrangements with regards to seismic, sea level and other kinds of measurements, data collection and exchange;
2. Promote best practices to ensure that all events likely to cause tsunami can be reliably located and sized in a timely manner;
3. Review and make recommendations regarding upgrades and enhancements to the IOTWS seismic and sea level stations and networks, communications, processing and analysis to optimise the time required for source characterization and tsunami verification to meet desired warning responses;
4. Coordinate and monitor operational implementation of [the upstream part of] warning systems in the Indian Ocean, including ongoing development and benchmarking of tsunami detection, verification and forecast systems, integrated with coastal inundation caused by storm surges and tropical cyclones within multi-hazard approaches and frameworks;
5. Coordinate the implementation of the Regional Tsunami Watch Provider (RTWP) Service and transition from Interim Advisory Service (IAS), including the development and maintenance of User Guides;

6. Review and report on various means of transmitting data and products to and from warning centres, and conduct tests of latency (timeliness) of transmissions as required;
7. Liaise with the appropriate organizations and relevant experts to ensure effective data representation and code forms are used for the exchange of data (standards, metadata requirements);
8. Develop, coordinate and help implement training and capacity-building programmes for National Tsunami Warning Centres (NTWCs) to utilise RTWP Service, including development of guidelines for Standard Operating Procedures (SOPs);
9. Liaise with Working Groups from the other ocean basins, as well as other working groups within ICG/IOTWS to coordinate and ensure efficient and effective information for tsunami detection, warning and dissemination.

The Group will be composed of members nominated by Member States, representatives of the IAS as invited experts, invited observers, with a chairperson and two vice-chairpersons to be elected.

C

Terms-of-Reference Working Group 3: “Tsunami Awareness and Response”

1. Promote good practice examples of capacity and resilience building and emergency management to improve the management of tsunami risk through preparedness and response activities. Such measures include the following:
 - Promotion and enhancement of the institutionalisation of tsunami early warning systems, their implementation and maintenance,
 - Mainstreaming of tsunami warning and mitigation system into development policy, plans, practice and legislation,
 - Integration of national tsunami programmes and experts into the defined national platforms for disaster risk reduction and national disaster management processes,
 - Development and adaptation of tsunami-related guidelines, manuals and tools for downstream activities i.e. public information, education, training, communication processes, evacuation planning and drills, standard operating procedures and emergency management,
 - Assessments of national capacity and capability to receive and respond to tsunami warnings,
 - Coordination at regional and sub-regional levels on the above matters;
2. Liaise with Working Groups from the other ocean basins, as well as other working groups within ICG/IOTWS to coordinate and ensure efficient and effective information for tsunami awareness and response.

The Group will be composed of members nominated by Member States, with invited observers, with a chairperson and a vice-chairperson to be elected.

D

Terms-of-Reference Steering Group

The Steering Group shall coordinate and integrate the work of ICG/IOTWS in the intersessional periods, as implemented through the various Working Groups and Task Teams, including but not limited to:

1. Provide strategic advice on sustainability and implementation of the IOTWS, including development and maintenance of Medium-Term Strategic Plan;
2. Help maintain and update the IOTWS Implementation Plan;
3. Monitor performance of the IOTWS;
4. Provide advice on working group and task team structures;

The Steering Group will be composed of the ICG/IOTWS Officers (Chair and two Vice-Chairs) and Chairs and Vice-Chairs of the Working Groups.

ANNEX

**Regional Tsunami Watch Providers (RTWP)
Implementation Work plan 2010–2011**

Transition period to run throughout the intersessional period from ICG/IOTWS VII to ICG/IOTWS-VIII (April 2010 to April 2011).

2nd Quarter 2010

1. Trial exchange of Service Level-2 products between RTWPs to commence forthwith.
2. Websites to be created for posting formal and informal RTWP information. Hosting institution to be decided.
3. India to distribute details of coastal forecast zones to NTWCs for feedback on their requirements.
4. ICG/IOTWS Secretariat to confirm TWFP contact details with Member States and make available to RTWPs.
5. ICG/IOTWS Secretariat to request NTWCs to advise which products they request for direct delivery and which they will access through the website.
6. Distribution of experimental products extended to NTWCs.
7. RTWPs to develop SOPs and User Guides to cover international operations.

3rd Quarter 2010

8. RTWPs to commence establishing bilateral service agreements with NTWCs.
9. NTWC training workshops to be conducted by RTWPs in India (confirmed) and Kenya (provisional).
10. NTWCs to document their SOPs and develop national User Guides.
11. RTWPs to run a trial of procedures and communication systems during the limited experimental phase.
12. RTT to organise and coordinate IOWave'10 exercise of RTWP experimental service with NTWCs.

4th Quarter 2010

13. RTT to hold an IOWave'10 exercise to trial procedures and communications systems between RTWPs and NTWCs.

1st Quarter 2011

14. Working Group 2 to evaluate performance of RTWPs and NTWCs during experimental trials.
15. Working Group 2 to prepare a report for adoption by ICG/IOTWS-VIII on the readiness of RTWPs to replace IAS.

16. The RTWP Task Team (RTT) to submit a recommendation to ICG/IOTWS-VIII for the RTWPs to be declared operational and the Interim Advisory Service (IAS) to be declared to be in “shadow” mode.

Action	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011
Transition – RTWPs in trial mode	I----	-----	-----	-----	- I
Trial between RTWPs (SL 2)	X				
Web sites for RTWPs	X				
MS to advise warning zones	X				
TWFP contacts/MS delivery prefs	X				
RTWP SOPs/User Guides	X				
Bilateral RTWP/NTWC agreements		X ---	-----	-----	
Trial extended to NTWCs		X			
NTWP SOPs/User Guides		X			
NTWC Training		X			
RTWP Comms Test(s)		X			
Set up IOWave'10 TT		X			
IOWave'10 exercise			X		
Evaluate Exercise Performance				X	
Prepare Readiness Report				X	
ICG/IOTWS-VIII Adoption >> RTWPs Operational					X