



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

**Eighth Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami
Warning and Mitigation System
(ICG/IOTWS-VIII)
Melbourne, 3-6 May 2011**

Agenda Item 4.2

**REPORT OF INTERSESSIONAL MEETING OF ICG/IOTWS WORKING GROUP 2 ON:
“TSUNAMI DETECTION, WARNING AND DISSEMINATION”**

This document contains the report of the intersessional meeting of the ICG/IOTWS Working Group 2, held in Hyderabad, India, 10 - 11 February 2011. The ICG is requested to consider, comment on and eventually endorse the recommendations made by the Working Group.



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

ICG/IOTWS SECRETARIAT

Intersessional Meeting of ICG/IOTWS Working Group 2 on: Tsunami Detection, Warning and Dissemination

**INCOIS, Hyderabad, India
10th – 11th February 2011**

REPORT

The participants completed the registration list, a copy of which is provided in Annex 1

1. Opening and Session Organisation

Dr Satheesh Shenoi (India), chair of ICG/IOTWS Working Group 2 (WG2) and Director of INCOIS, welcomed the participants to the first intersessional meeting of Working Group 2 on Tsunami Detection, Warning and Dissemination. He recalled that the working group had been formed at the 7th Session of the ICG/IOTWS in Banda Aceh in April 2010, along with 2 other working groups on Tsunami Risk Assessment and Reduction and Tsunami Awareness and Response. He noted that WG2 had a lot of responsibility due to its broad terms of reference. He reminded the participants that the IOTWS was in a transitional phase and the expectation was that after the next session of the ICG in May, the RTWPs would start providing services to the Member States and the Interim Service Providers, PTWC and JMA, would begin to withdraw from the Indian Ocean. The NTWC Training Workshop held over the 2 days preceding this meeting was part of the transition process.

Dr Shenoi reminded the participants that WG2 had a formal base of members nominated by their respective Tsunami National Contacts (TNC). Observers present were welcome to make interventions as long as they were making a constructive contribution to the discussions.

Mr Rick Bailey (Australia), vice chair of the ICG/IOTWS, welcomed the participants to the meeting on behalf of the ICG. He noted that the implementation of the IOTWS RTWP service was taking place within a global framework, with the regional tsunami warning systems now working towards harmonization of warning products. He recalled that the group's terms of reference focused on the dissemination of warnings rather than the technical issues of detection and monitoring and he welcomed this new form of interaction.

Dr Shenoi reviewed the provisional agenda and timetable for the meeting and asked the participants for comments or suggested amendments. Mr Bailey requested that provisional agenda item 11: "Reports from the Inter-ICG Task Teams on Sea Level and Tsunami Watch Operations" be brought forward in the timetable as it would provide a global context for following agenda items. It was agreed to introduce this item in the timetable as agenda item 5. The final modified agenda and timetable is provided in Annex 2.

Mr Tony Elliott, Head of ICG/IOTWS Secretariat, reminded the meeting that the terms of reference for WG2 called for the election of 2 vice chairs. As this was the first meeting of the group, it would be appropriate to elect the vice chairs at this meeting and he called for nominations from the members.

- Mr Chris Ryan (Australia) was nominated by Mr Lalith Chandrapala (Sri Lanka) and seconded by Dr Srinivas Kumar (India).
- Dr Wahyu Pandoe (Indonesia) was nominated by Mr Chris Ryan (Australia) and seconded by Dr Mohd Rosaidi Che Abas (Malaysia).

Mr Ryan and Dr Pandoe accepted their nominations and, there being no other nominations, were confirmed as vice chairs by acclamation.

2. Reports

2.1 Interim Advisory Service

Neither of the Interim Advisory Providers was present at the meeting. JMA had submitted a brief written report, which was presented by Mr Elliott. JMA reported that since March 2005, it had issued 42 Tsunami Watch Information (TWI) bulletins for the Indian Ocean region, with a threshold of $M \geq 6.5$. Eight (8) TWI bulletins had been issued in 2010, with the last for the M7.5 Southern Sumatra (Mentawai) event of 25 October. No TWI had been issued for the Indian Ocean region so far in 2011.

2.2 National Reports

Thailand

Capt Song Ekmahachai (Thailand) provided a brief report on the status of Thailand's National Disaster Warning Centre (NDWC). Capt Song outlined NDWC's concept of operations, early warning notification process and Standard Operating Procedures. Thailand has conducted 2 full scale evacuation drills in 2006 and 2007. He described NDWC's warning criteria and the dissemination channels used for issuing warnings. Thailand has a network of 328 warning towers nationally, 136 of which are on the Andaman Sea coastline. 9 real time tide gauges have been installed and 2 new tsunameter buoys were deployed in the Andaman Sea in December 2010. These buoys were undergoing commissioning tests and once operational, Thailand intends to share the data via GTS.

Australia

Mr Chris Ryan (Australia) provided an overview of the Australian tsunami warning system, including the detection, monitoring and warning systems as well as the agencies involved. The seismic and sea level networks are operated by Geoscience Australia and Bureau of Meteorology respectively and together they operate the Joint Australian Tsunami Warning Centre (JATWC). Since April 2010, JATWC has issued 6 bulletins for the Indian Ocean region (to other RTWPs) with an average time to issue of 13 minutes. Ongoing research was being conducted into tsunami risk, and capacity building efforts continue to be supported, particularly through the Australia-Indonesia Facility for Disaster Reduction (AIFDR). Plans for the future include further development of seismic and sea level networks, further expansion of the tsunami scenario database, and further development of RTWP services.

India

Dr Srinivas Kumar (India) gave an update on India's national tsunami warning system, ITEWS. India has upgraded its sea level stations and currently has 36 coastal and 3 deep ocean tsunameters operational (2 in the Bay of Bengal, 1 in the Arabian Sea).

Dr Kumar announced that INCOIS had received approval from the Indian government to share data from its 36 sea level gauges and its deep ocean Bottom Pressure Recorders. He advised that the data would be encrypted and shared by secure access only, and that a key would be required to decode the data. He informed the meeting that data from 3 seismic stations would also be shared in real time, with other data from the other stations in the network shared for earthquakes of greater than M5.0.

INCOIS had upgraded its tsunami scenario database and now used the TUNAMI N2 model and unit source approach. A research project was underway to link up all 200 seismic and GPS stations in the country with data coming into INCOIS.

Mr Bailey welcomed India's decision to share its sea level and seismic data and encouraged all countries to share their data, as RTWPs needed this information to validate their forecasts.

Mr Ahmed Al-Harthi (Oman) advised that Oman would share its sea level and seismic data once its national multi hazard early warning system and centre is operational.

Indonesia:

Dr Wahyu Pandoe (Indonesia) provided an update on the status of the Indonesian Tsunami Early Warning System (InaTEWS) with particular emphasis on deep ocean tsunameters. He noted that Indonesia's tsunami warning protocol anticipated sea level data to be available within 20 minutes of an earthquake, so sea level data was critical to update bulletins. The 2009 deployment plan identified 23 sites for tsunameters from Indonesia, Germany, USA and Malaysia. As of 2011, 16 buoys had been deployed but only 2 were operational. Dr Wahyu cited the technical and vandalism problems that had been encountered and gave details of some of the efforts that had been made to mitigate these problems. He went on to describe ongoing research, design and development programmes. In particular, Indonesia planned to design a seabed cable based system for deep ocean sea level measurements, using the islands offshore Sumatra as landfalls for the cables. Five (5) such sites are proposed.

Dr Wahyu noted that InaTEWS programme for 2011 included the handover of German facilities to Indonesia in March and for InaTEWS to become operational as an RTWP in May. Indonesia also offered to host an interessional meeting of WG2 in October.

Malaysia

Dr Mohd Rosaidi Che Abas (Malaysia) provided an update on the status of the Malaysian National Tsunami Early Warning System (MNTEWS). He described the components of the MNTEWS. The seismic network comprised 10 broadband and 7 short period sensors, with VSAT links to Indonesia for data exchange. The tide gauge network had 21 gauges and had been upgraded to VSAT communications. 3 deep ocean tsunameters had been deployed. 18 coastal cameras and 23 warning sirens also formed part of the system. A recent development was the implementation of a Fixed Line Alert System (FLAS) for disseminating warnings. The tsunami scenario database comprised 11,300 scenarios for Sunda and Makran sources, with a further 20,400 scenarios for the South China Sea.

Seventy-five (75) public awareness campaigns had been carried out, with the most recent in Langkawi in January 2011.

Sri Lanka

Mr Lalith Chandrapala gave a short presentation on Sri Lanka's status. Sri Lanka had installed 3 broadband seismometers, 2 of them from GFZ. Three (3) sea level gauges had also been installed. The Department of Meteorology is the NTC for Sri Lanka, whereas the Disaster Management Centre (DMC) is responsible for issuing national warnings. Fifty three (53) warning towers had been installed, connected to the Early Warning Centre by VSAT, and a further 25 towers were under construction. Evacuation drills were held regularly and inundation modelling of major coastal cities was also being conducted.

Oman

Mr Ahmed Al-Harthi gave a report on Oman's progress towards the implementation of its national tsunami early warning system. He noted that Oman may be affected by both distant and local tsunamis and it was therefore important to establish a warning system within the framework of a multi-hazard approach. He informed the meeting that Oman had entered into an agreement with IOC-UNESCO for implementing a National Multi-Hazard Early Warning System (NMHEWS). IOC would provide technical advice and specifications and guide the process for establishing the early warning system. Mr Al-Harthi announced that UNESCO IOC had appointed Dr Fauzi from Indonesia as project officer and he would be taking up his duties in March.

Mr Al-Harthi provided an overview of the project components and a timetable for implementation. He stressed that Oman recognized the need for regional cooperation in the Makran region, noting that it was in the interests of the countries of the region to establish an effective and sustainable tsunami warning system.

Kenya

Mr Peter Mirara Macharia gave a presentation on Kenya's tsunami warning and mitigation system progress and future needs. Kenya had installed 4 sea level gauges and currently had 1 broadband seismic sensor, as part of the CTBTO primary network. Another 2 broadband stations would be installed by GFZ in the near future. Mr Macharia gave an overview of communications and transmission of tsunami warning in Kenya, which included the RANET service. He listed some of the challenges that Kenya faces, particularly with equipment maintenance, lack of resources and security issues. He noted that Kenya had plans to enhance its detection and monitoring network, increase public awareness campaigns, install more RANET stations, develop a hazard map and identify escape routes and evacuation centres.

3. Report on the Status of implementation of the IOTWS Seismic Stations

Mr Elliott gave a report on the status of implementation of the IOTWS core seismic network. He reviewed the report that had been provided by the former WG1 chair, Dr Fauzi, to the 7th session of the ICG/IOTWS in Banda Aceh, April 2010. He noted that as of 2010, a total of 113 core stations had been installed, comprising 63 of the original 70 core stations originally proposed in 2006. He requested the members to provide the Secretariat with updates to their national seismic network so that the

IOTWS implementation plan could be updated. He circulated a copy of the 2010 station list for this purpose.

Mr Elliott provided a description of the International Monitoring System (IMS) of the Comprehensive Test Ban Treaty Organisation (CTBTO) and reminded the meeting that UNESCO had an agreement with the Preparatory Commission for the CTBTO to facilitate the use of the IMS for civil and scientific applications. The agreement covers scientific cooperation, exchange of data and capacity building. NTWCs recognized by IOC-UNESCO were encouraged to make use of data available from primary and auxiliary seismic stations. To date, only Australia, Indonesia, Sri Lanka, Thailand and France (La Reunion) had taken up this offer in the Indian Ocean. Mr Elliott encouraged all NTWCs to consider applying to CTBTO for this service and offered the assistance of IOC-UNESCO to facilitate communications with the CTBTO Secretariat.

Dr Shenoï noted that WG2 did not have a seismic expert to continue to monitor developments in this important aspect of the group's work. He asked the members to consider if an additional vice chair would be needed to take over this role.

Recommendation:	WG2 to recommend the ICG to elect a third vice chair with responsibility for seismology
Action:	Member States to update details of their seismic monitoring networks to the Secretariat by 28th February

4. Report on the Status of Implementation of the IOTWS Sea Level Stations

Mr Bernard Kilonsky (USA) gave a report on the status of implementation of the IOTWS sea level station network. He demonstrated how sea level gauge data related to inundation using data from Sri Lanka as an example. He then described how sea level data is used by the PTWC to update its tsunami bulletins. Mr Kilonsky discussed the issue of transmission intervals and used the example of sea level data from the Padang gauge during the 2007 Bengkulu event in Sumatra to illustrate that a 15 minute transmission interval for tsunami monitoring was too long and that we should be aiming for an interval of 5 minutes or less. Finally he expressed the willingness of the GLOSS group of experts to stay involved in sea level monitoring in the Indian Ocean.

Dr Shenoï thanked Mr Kilonsky for his presentation and enquired what progress had been made to adopting CREX as a standard for data transmission on the GTS

Mr Ryan commented that CREX was already being used and there was no impediment to using it. WMO approval was not required, but there were some difficulties in convincing equipment providers to develop tools for CREX unless WMO formally approved the protocol.

Mr Al-Harthi commented that CREX was not a problem for WMO and that any meteorological service could convert the data. Mr Al-Harthi expressed concern about the future sea level data distribution in the Indian Ocean once the Meteosat 7 satellite ceases to be in service after 2012. He requested the Secretariat to formally approach WMO to enquire about the status and future of the data collection and re-transmission service supported by Meteosat 7 in support of tsunami monitoring.

Dr Shenoi noted that the Indian National Satellite (INSAT) system supported data collection in India. He suggested that the Indian Space Research Organisation (ISRO) could be approached to enquire if it could support data collection for the wider Indian Ocean region.

Mr Elliott noted that the BGAN service operated by INMARSAT was also suitable for data collection and a number of stations were already using this service. Although this is a commercial service, he reminded the meeting that UNESCO IOC had signed an agreement with INMARSAT for 50 sea level station licenses for the purposes of sea level monitoring in the Indian Ocean but very few of these had been taken up.

Action:	Secretariat to follow up on availability of MeteoSat satellite beyond 2012
Action:	Secretariat to liaise with Dr Satheesh Shenoi to communicate with ISRO regarding transmission of sea level data

5. Reports from the Inter-ICG Task Teams on Sea Level and Tsunami Watch Operations

Mr Bailey provided a report on the meeting of the inter-ICG Task Teams on Sea Level held in Seattle in December 2010. He explained the background to the TOWS Working Group and noted that the group was chaired by an IOC vice chair and that it reported directly to the IOC Assembly. The inter-ICG task team 1 on sea level was tasked with looking into global sea level hazards. Its objective was to develop guidelines on sea level monitoring requirements so that operational groups such as GLOSS and ITP could provide ongoing support for tsunami warning systems.

Mr Bailey summarized the discussions and outcomes of the Seattle meeting. The report to the TOWS WG would include details of the status of sea level station implementation globally and report on instrumentation, system performance, data quality control and latency. The report would also address data requirements for tsunami warning, network design and station siting, data exchange formats and real time reporting requirements. In this context he noted that a 15 minute transmission interval was adequate for RTWP Service Level 1 (SL1) requirements but that for Service Level 2, 5 minutes or less would be required. Performance monitoring and quality control would also be essential and GLOSS would provide advice on this.

6. Reports

6.1 RTT Meeting Report

Dr Srinivas Kumar provided a summary report of the RTT meeting, held at INCOIS on 7th February. He listed the action items and noted that good progress had been made on Coastal Forecast Zone (CFZ) definition. The RTWP watch products had been demonstrated to the NTWCs at the training workshop and draft User Guides had been provided. The Secretariat was requested to obtain feedback from the NTWCs on the suitability of the CFZs for their countries.

The group was advised that the RTT proposed to postpone the Indian Ocean Wave exercise until October 2011. A communications test between RTWPs and NTWCs was proposed to be held on 16 March and quarterly thereafter.

Action:	Secretariat to circulate CFZ information to NTWCs by 18th February and request their feedback by 18th March
Action:	Quarterly communications tests between RTWPs and NTWCs to be conducted
Action:	First communications test to be held on 16th March 2011 with report to be prepared before 31st March for submission to ICG/IOTWS-VIII. Team leader is Peter Coburn (Australia) supported by Dr Srinivas Kumar (India) and Mr Karyono (Indonesia).
Action:	Second communications test to be held on 15 June. Opportunity for other RTWPs to test their products and services subject to prior review for compliance by the RTT

Dr Kumar explained the mechanism for obtaining feedback from the NTWCs during a tsunami event and noted that Mr Peter Coburn (Australia) was writing an application tool to facilitate this. It was planned to trial this during the March communications test.

GTS headers had also been discussed and the RTWPs needed to contact WMO as soon as possible to confirm these.

Mr Ryan commented that as Dr Fauzi had stepped down as chair of the RTT, he felt that it was appropriate to elect a new chair and vice chair. The WG2 members agreed with this proposal, and the chair, Dr Shenoi, called for nominations.

- Dr Srinivas Kumar (India) was nominated as chair by Mr Ahmed Al-Harthi (Oman) and seconded by Mr Chris Ryan (Australia). Dr Kumar accepted the nomination.
- Mr Peter Coburn (Australia) was nominated as vice chair by Dr Srinivas Kumar (India) and seconded by Mr Lalith Chandrapala (Sri Lanka). Mr Coburn accepted the nomination.

There being no further nominations, Dr Kumar and Mr Coburn were confirmed as chair and vice chair of the RTT by acclamation.

Action:	RTWPs to contact WMO regarding GTS headers for notifications by 28th February
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6.2 NTWC Training Workshop Report

Mr Bailey presented a summary report of the NTWC training workshop held at INCOIS on 8-9 February. He reported that the workshop had been successful and that the NTWC representatives attending were now expected to train their fellow NTWC staff. The main exercise had simulated a M9.0 earthquake in the Nicobar region with an ocean wide tsunami generated. The participants had been split into 4 regional groups of 6 people each and each group had assigned 2 members per RTWP, so that all RTWP bulletins were considered. At the end of the exercise, the groups provided feedback in a plenary session.

Feedback from the workshop had been very useful for the RTWPs and included the following recommendations from the NTWCs:

- Further harmonisation of information provided by each RTWP on their web sites
- “Lite” versions of web sites for bandwidth limited users
- Links to each other’s RTWP web sites
- Management of passwords for registered user web sites
- Branded “exercise” bulletins
- Need for regular training workshops (yearly) and communications testing (quarterly)
- On-line training materials

The “next steps” agreed at the workshop and recommended to WG2 were as follows:

- Review of Coastal Forecast Zone definitions
- Preparations for procedures and communications testing as next phase of demonstration/implementation
 - 16 March 2011
 - Coordinator – Peter Coburn
 - Develop guide for NTWCs and RTWPs
 - Organise WMO/GTS headers
 - RTWPs will disseminate test notifications via GTS and threat bulletins via Secure Registered User web sites
 - Nicobar Mwp=9.0 scenario
- Propose full IOWave11 Exercise in late 2011 to mark beginning of new RTWP service, pending ICG approval in May’11

7. Status of Implementation of RTWPs

Mr Coburn provided a brief summary of the report that he gave at the RTT meeting on the status of Australia’s RTWP implementation. Since April 2010, JATWC had issued 6 bulletins for the Indian Ocean region, with an average time from earthquake to issue of 12.7 minutes. Average absolute magnitude difference from PTWC’s initial estimate (Mwp) was 0.2. Mr Coburn then demonstrated the web based application for NTWCs to provide feedback to the RTWPs during an event.

Dr Srinivas Kumar also provided a brief summary from India’s RTT report and confirmed that ITEWC is ready to provide SL2 services as per the RTWP Implementation Plan.

For Indonesia, Mr Priyobudi reported that InaTEWS’ Decision Support System (DSS) was now fully operational, with approximately 2000 tsunami scenarios available for the national case. For the wider Indian Ocean, the database would be ready in a few months. In the national context, Bulletin 1 is now issued within 5 minutes of an earthquake and Bulletin 3 within 20 minutes. In terms of false alarms, 20% of tsunami warnings were real and 80% were false alarms. In Indonesia, the worst case scenario is always considered but this would be different for the rest of the Indian Ocean.

Dr Shenoï summarized the discussions on RTWP status and noted that three items had been highlighted: the need to harmonise bulletins so that formats were not substantially different between RTWPs; the need for secure access to RTWP websites; and the need for the RTWPs to agree GTS header format with WMO before the 16 March communications exercise.

Mr Dwijendra Das (RIMES) confirmed that RIMES was working towards adapting its CFZs and bulletins to harmonise with the other RTWPs. Mr Das also confirmed that RIMES would not participate in the 16th March communications test but aimed to take part in subsequent tests.

8. Transition from IAS to RTWP

Dr Shenoï introduced this agenda item, noting that most of the issues had already been discussed during the RTT meeting and the NTWC training workshop, and he invited the participants to discuss the key issues.

8.1 Trial Exchange of Products

It was agreed that the RTWPs should include the NTWCs in the trial exchange of products so that they could provide feedback. The communications test on the 16th March would be the first opportunity to involve the NTWCs, especially those that had not been able to attend the WG2 intersessional meeting. It was therefore important to provide advance notice of this test.

After further discussion, Dr Shenoï summarized the steps to be taken after the communications test before starting the exchange of trial products with the NTWCs. A report of the test will be prepared and circulated to the Member States for review prior to the ICG/IOTWS-VIII meeting. With the approval of the ICG, exchange of trial products can then begin as soon as the RTWPs were ready to commence. Dr Shenoï noted that it may be necessary for a further review during the trial period, depending on feedback from the NTWCs. Between ICG/IOTWS-VIII and the proposed IOWave11 exercise in October, there would be a further 2 communications tests which would provide further opportunity to obtain feedback from the NTWCs and resolve any outstanding issues.

Recommendation: WG2 to recommend to ICG to make RTWP service operational at the proposed IOWave11 exercise and for ICG to request the IAS to continue in shadow mode until an evaluation report on operational performance is submitted to the next ICG meeting in 2012

Action: Mr Coburn to draw up the communications test instructions by 23rd February.

Action: Secretariat to circulate to NTWCs by 25th February

Action: RTWPs to distribute trial products to NTWCs May – Oct 2011 following review of feedback from first communications test

9. RTWP and NTWC Standard Operating Procedures; Operational Manuals and User Guides

It was agreed that the RTWPs would standardize the format of their User Guides so that the NTWCs would only have to work with one common format. It was noted that the current User Guides were first drafts and that feedback from the NTWCs would be welcome. All RTWPs committed to finalise their User Guides prior to ICG/IOTWS-VIII.

The RTWPs were in the process of finalizing their SOPs and their Operations Manuals. The SOP manuals would not necessarily be shared with others; however they would be available so that they could be scrutinized by third parties, if required.

Regarding NTWC SOPs, it was noted that the NTWCs should already have SOPs for the Interim Advisory Service, and that these would need to be adapted for the RTWP service. The timeline for achieving this would be by the proposed IOWave11 exercise on 12 October. It was acknowledged that some NTWCs would need assistance with this.

Action:	ITEWC and JATWC to finalise User Guides in a harmonized format by 11th March. InaTEWS to provide draft User Guide in March and a final by 1 May
Action:	NTWCs to adapt their SOPs for RTWP products and services during the period May – September 2011 in time for the proposed IOWave11 exercise on 12 October and provide an update on progress in their national reports to ICG/IOTWS-VIII

10. Exercise IOWave11

Dr Shenoï introduced this item and noted that a recommendation would be made to the ICG to conduct the exercise on 12th October. The exercise would be planned and coordinated by the RTT.

Recommendation: IOWave11 exercise to be held on 12th October 2011
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11. RTWP Acceptance Criteria

The participants discussed the issue of acceptance criteria for Service Level 2 operations. It was noted that acceptance criteria for Service Level 1 operations were listed in the RTWP Implementation Plan. The meeting considered that this was a matter for the RTT to advise on. The RTWPs were therefore requested to discuss and agree on a draft set of acceptance criteria for inclusion in the User Guides and for consideration by WG2.

12. Review of Action Items and Recommendations to ICG/IOTWS-VIII

Mr Elliott presented the RTWP workplan and timetable as adopted by recommendation ICG/IOTWS-VII.1 and the group updated it for presentation at ICG/IOTWS-VIII. The updated workplan is included as Annex 3 and outstanding actions are included in section 12.2.

12.1 Recommendations to ICG/IOTWS-VIII

- WG2 to elect a third vice chair with responsibility for seismology
- WG2 to recommend to ICG to make RTWP service operational at the proposed IOWave11 exercise and for ICG to request the IAS to continue in shadow mode until an evaluation report on operational performance is submitted to the next ICG meeting in 2012
- IOWave11 exercise to be held on 12th October 2011

12.2 Actions

- Member States to update details of their seismic monitoring network to Secretariat by 28th February
- Secretariat to follow up on availability of MeteoSat satellite beyond 2012
- Secretariat to liaise with Dr Satheesh Shenoi to communicate with ISRO regarding transmission of sea level data.
- Secretariat to circulate CFZ information to NTWCs by 18th February and request their feedback by 18th March.
- Secretariat to provide RTWPs with updated list of TWFP and NTWC contacts by 25th February.
- Quarterly communications tests between RTWPs and NTWCs to be conducted.
- First communications test to be held on 16th March 2011 with report to be prepared 31st March for submission to ICG/IOTWS-VIII. Team leader is Peter Coburn (Australia) supported by Dr Srinivas Kumar (India) and Mr Karyono (Indonesia).
- Second comms test to be held on 15 June. Opportunity for other RTWPs to test their products and services subject to prior review for compliance by the RTT.
- RTWPs to contact WMO regarding GTS headers for notifications by 28th February
- RTWPs to harmonise the structure and content of their RTWP products on their secure websites.
- Communications test documentation to be prepared by 23rd February.
- Letter announcing IOTWS Communications Test to be circulated by Secretariat by 25th February. Exercise instructions, user guides and website passwords should be sent out at the same time.
- ITEWC and JATWC to finalise User Guides in a harmonized format by 11th March. InaTEWS to provide draft User Guide in March and a final by 1 May 2011.
- RTWPs to distribute trial products to NTWCs May – Oct 2011 following review of feedback from first communications test.
- NTWCs to adapt their SOPs for RTWP products and services during the period May – September 2011 in time for the IOWave11 exercise on 12 October and provide an update on progress in their national reports to ICG/IOTWS-VIII.
- Next NTWC training workshop to be scheduled in association with the next WG2 intersessional meeting in late 2011. Ongoing annual training workshops should be scheduled.
- RTWP bulletins used in the NTWC workshop desktop exercise to be made available on a secure website at INCOIS for use by the NTWCs.
- All test and trial products should be clearly labelled as such by RTWPs.

13. Close of Meeting

Dr Shenoi thanked the participants for their active participation and closed the meeting at 3pm.

**ICG/IOTWS Working Group 2 Intersessional Meeting
INCOIS, Hyderabad, India, 10-11 February 2011**

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

**Intersessional Meeting of ICG/IOTWS Working Group 2 on
Tsunami Detection, Warning and Dissemination**

**February 10 – 11, 2011
Hyderabad, India**

Agenda

Day 1: Thursday February 10, 2011

Item	Time	Topic
	0830-0900	Registration
1	0900-0930	Opening and Session Organisation: (i) Welcome (ii) Meeting Objectives (iii) Introductions (vi) Review of Agenda and Timetable
2	0930-1100	Reports: (i) IAS Report (ii) National updates
	1100-1130	<i>Break</i>
3	1130-1200	Report on the Status of implementation of the IOTWS Seismic Stations
4	1200-1230	Report on the Status of implementation of the IOTWS Sea Level Stations
	1230-1400	<i>Lunch</i>
5	1400-1430	Reports from the Inter-ICG Task Teams on Sea Level and Tsunami Watch Operations
6	1430-1530	Reports: (i) RTT Meeting, (ii) NTWC User Workshop
	1530-1600	<i>Break</i>
7	1600-1730	Status of implementation of RTWPs – Product Formats, Content, Warning Zones, NTWC Feedback, Dissemination Modes
	1730	<i>Close Day 1</i>

Day 2: Friday February 11, 2011

Item	Time	Topic
8	0900-1030	Transition from IAS to RTWP – (i) Trial Exchange of Products between RTWPs (ii) Trial Exchange of Products with NTWCs, (iii) RTWP Websites, (iv) Communication Tests
	1030-1100	<i>Break</i>
9	1100-1230	Transition from IAS to RTWP – (i) RTWP & NTWC SOPs, (ii) Operations Manuals & User Guides
	1230-1330	<i>Lunch</i>
10	1330-1530	Transition from IAS to RTWP: - Exercise IOWave11
	1530-1600	<i>Break</i>
11	1600-1630	Transition from IAS to RTWP: RTWP Acceptance Criteria (ii) Review of RTWP Performance (iii) Review of the Transition Timelines
12	1700-1730	Review of Action Items and Recommendations to ICG VIII
13	1730	Close of Meeting

RTWP Implementation Workplan 2010 – 2011, Updated February 2011

	<u>2nd Quarter 2010</u>	<u>WG2 Meeting Feb 11 Update</u>
1	Trial exchange of Service Level 2 products between RTWPs to commence forthwith.	RTWPs to advise if this has commenced. RTWPs to commence together with the comms test on 16 March
2	Websites to be created for posting formal and informal RTWP information. Hosting institution to be decided.	RTWPs to advise on progress. Indonesia to host? Indonesia has developed a website which can host formal and informal information. RTWPs also has created public and password protected websites for RTWP operations which will be operational by mid March 2011.
3	India to distribute details of coastal forecast zones to NTWCs for feedback on their requirements.	INCOIS to forward to Secretariat by 10 August for circulation to NTWCs Secretariat to forward to NTWCs by 18 th Feb for comments by 18 th March 2011
4	ICG/IOTWS Secretariat to confirm TWFP contact details with Member States and make available to RTWPs.	In progress. TWFPs will receive individual letters requesting confirmation of correct contact details. Target for completion is August 2010 Secretariat to provide updated TWFP contact list to RTWPs by 25 th Feb 2011.
5	ICG/IOTWS Secretariat to request NTWCs to advise which products they request for direct delivery and which they will access through the website.	Advice from RTWPs required. This should probably be postponed until after NTWC training courses? During NTWC training workshop it was confirmed that product notifications would be delivered by GTS, email and fax. Exchange products will be available

		on password protected websites. Spatial dbf made available on password protected web/ftp sites. Action completed
6	Distribution of experimental products extended to NTWCs.	Secretariat to invite NTWC participation at same time as requesting confirmation of contact details (item 4) NTWCs will receive trial products from RTWPs from May – Oct 2011
7	RTWPs to develop SOPs and User Guides to cover international operations.	RTWPs to advise on progress. First draft of JATWC and ITEWC User Guides are already made available to NTWCs. Updated versions with harmonised structure will be provided by 11 March 2011. InaTEWS to provide draft user guide in March 2011, final by May 2011
	3rd Quarter 2010	
8	RTWPs to commence establishing bilateral service agreements with NTWCs.	Up to individual RTWPs and NTWCs, but please keep Secretariat informed.
9	NTWC training workshops to be conducted by RTWPs in India (confirmed) and Kenya (provisional).	India has confirmed, with target date of late October/early November for training workshop and WG2/RTT meetings in Hyderabad. Second workshop in East Africa to be confirmed. NTWC Training workshop held in INCOIS 8-9 Feb 2011. Preference was expressed for next training workshop to be held at an RTWP location. Tentatively at the next WG intersessional meeting in late 2011.
10	NTWCs to document their SOPs and develop national User Guides.	Up to individual NTWCs, but please advise Secretariat on progress. NTWCs to target IOWave11 exercise for completion

		of SOPs, with update on progress in national reports to ICG-VIII in May 2011
11	RTWPs to run a trial of procedures and communication systems during the limited experimental phase.	RTWPs to advise on progress.
12	RTT to organise and coordinate IOWave10 exercise of RTWP experimental service with NTWCs.	RTT to consider dates for exercise and nominate exercise leader. First quarterly communications test between RTWPs and NTWCs to be held on 16 th March 2011. Exercise leader is Peter Coburn, team is Srinivas Kumar and Karyono.
	<u>4th Quarter 2010</u>	
13	RTT to hold an IOWave10 exercise to trial procedures and communications systems between RTWPs and NTWCs.	IOWave10 will be come 11 and target date is 12 th October 2011 and will be a full exercise.
	<u>1st Quarter 2011</u>	
14	Working Group 2 to evaluate performance of RTWPs and NTWCs during experimental trials	Performance will be evaluated by WG2 at next meeting to be held after IOWave11 exercise.
15	Working Group 2 to prepare a report for adoption by ICG/IOTWS-VIII on the readiness of RTWPs to replace IAS.	WG2 to prepare a report to ICG on progress made, including RTWP status, NTWC training workshop, comms test and expected progress until IOWave11 exercise.
16	The RTT to submit a recommendation to ICG/IOTWS-VIII for the RTWPs to be declared operational and the IAS to be declared to be in “shadow” mode.	WG2 to recommend to ICG to make RTWP service operational at IOWave11 and for ICG to request the IAS to continue in shadow mode until an evaluation report on operational performance is submitted to the next ICG meeting in 2012