Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System

Steering Group Meeting
Perth, Australia
10-11 December 2013

FINAL REPORT

Members
Mr. Rick Bailey, Chair of ICG/IOTWS
Dr. Srinivasa Kumar, Vice-Chair of ICG/IOTWS
Prof. Sam Hettiarachchi, Chair of WG1
Dr. Satheesh Shenoi, Chair of WG2
Dr. Mark Leonard, Vice-Chair of WG2
Mrs. Harkunti Rahayu, Chair of WG3
Daniel Jaska, RTSP Australia
Karyono, RTSP Indonesia
Masturyono, RTSP Indonesia

Observers
Dr. Peter Coburn, Australia Bureau of Meteorology
Dr. Yuelong Miao, Australian Bureau of Meteorology

Apologies
Dr. Prih Harjadi, Vice-Chair of ICG/IOTWS
Dr. Wahyu Pandoe, Vice-Chair of WG2

Secretariat
Mr. Tony Elliott, Head of ICG/IOTWS Secretariat
Ms. Nora Gale, ICG/IOTWS Secretariat

1 Welcome Address by Chair
Mr Rick Bailey, Chair of the ICG/IOTWS, opened the meeting at 9:00 am on Tuesday 10th December 2013. Mr Mike Bergin, the Western Australia Regional Director of the Bureau of Meteorology (BoM), welcomed the members of the Steering Group on behalf of BoM. Mr Tony Elliott, Head of IOTWS Secretariat, welcomed the Steering Group members on behalf of IOC UNESCO.

1.1 Approval of Agenda
Mr Bailey presented the provisional agenda for consideration and it was subsequently adopted by the Steering Group without amendment (Annex 1).
1.2 Matters Arising from Report of Previous Meetings

Update on outstanding actions arising from the last meeting of the Steering Group held in Jakarta, Indonesia in December 2011.

**Action 4:** National stock-take survey form, based on previous surveys, to be prepared by WG3 and distributed to all IOTWS Member States by the Secretariat through the TNC with copy to relevant contacts. The results will be posted on the IOTWS website by the Secretariat. *Secretariat to follow up.*

**Action 5:** WG3 to prepare the compilation document of Good Practices in Warning Dissemination in consultation with WG1 and WG2 before next ICG meeting. *Consultation with WG2 is needed to finalise outstanding chapters.*

**Action 6:** Mr Rick Bailey and Ms Irina Rafliana to work together on an information poster (1-2 pages) on RTSP and NTWC contacts for mail out to media, to be coordinated with the release of the public RTSP website (mid 2012). *Irina Rafliana is not currently available due to her studies.*

**Action 8:** WG2 to complete RTSP User Guide. *Draft complete - RTSPs to finalise.*

**Action 13:** RTT to prepare an RTSP Chapter for the IOTWS Implementation Plan by incorporating revised criteria for being RTSPs, Performance Indicators and Performance Monitoring procedures. *Needed – RTT has been discontinued so action to be undertaken by WG2.*

**Action 20:** Mr Rick Bailey to draft a communications plan and circulate to the Steering Group. *In progress. Needs to include IOWave14 and 10th anniversary of the Indian Ocean Tsunami.*

**Action 21:** Mr Rick Bailey to draft an IOTWS status document (to be part of the Outreach Plan). *Outstanding.*

**Action 22:** SG to review Implementation Plan. *Ongoing, refer to section 11 of this report. Should be finalised for submission to next ICG session.*

**Action 23:** Steering Group to work on a plan for IOTIC with proposals that can be viewed by donors, with the Secretariat to work with Ardito Kodijat and the UNESCO Jakarta office to see how it can be implemented. *IOTIC website is operational, but needs formalization. Terms of Reference for IOTIC need to be finalised and approved by the ICG.*
Update on actions arising from the Steering Group meeting held in Perth, Western Australia in October 2012:

**Action 1**: Secretariat to request Ardito Kodijat of UNESCO Jakarta to provide costed options for establishment of the Indian Ocean Tsunami Information Centre (IOTIC) for ICG-IX to consider. *Done and submitted in IOTIC’s work plan to ICG/IOTWS-IX*

**Action 2**: RB to request the TOWS-WG to invite the IMO to attend the next TOWS WG meeting to discuss the issue of dissemination of tsunami threat information to mariners on the high seas. *Done. Mr Bailey to follow up with TOWS chair on status.*

**Action 3**: IOC Secretariat to advise subscribers of changes to IOC public bulletin service associated with implementation of RTSP system for IOTWS. *Done.*

**Action 4**: WG2’s report to the ICG to contain summary of the RTSP performance and the key issues so that they can be brought forward for discussion and facilitate a decision of the status and future of the RTSP service. *Done.*

**Action 5**: Secretariat and RTSPs to review NTWC contact database and compare to the results of the communications test to identify where the problems are and approach the relevant NTWCs directly. *Ongoing. Underpinning action log required – Secretariat.*

**Action 6**: Secretariat to re-issue request and template for National Reports for next ICG, highlighting the need for specific information on seismic and sea level network and technical national points of contact for each type of network. *Done.*

**Action 7**: Mr Ryan and Mr Bailey to provide a draft IOTWS Users Guide for tabling at ICG-IX. *Done.*

**Action 8**: RTT to make a list of the events since 2011 including the 3 major events and demonstrating the performance of the RTSPs. A report will be prepared for submission to WG2 and ICG-IX. *Done.*

**Action 9**: Steering Group to review and propose outreach material for the Annual NTWC User Workshops. *Open.*

**Action 10**: WG2 to review the number of bulletins issued by the RTSPs, IAS and RIMES during future Communications Tests and IOWave exercises as this has been a source of confusion for some countries. *Done. Number of bulletins to be reduced for Communications Tests but not for IOWave exercises.*

**Action 11**: Secretariat to circulate 10Wave 11 Task Team draft report as a working document to ICG/IOTWS-IX for review and Member States requested to provide their feedback by the end of 2012. *Done. IOWave 11 report published as IOC Technical Series No. 99*

**Action 12**: WG2 and RTT develop procedures for cancelling or revising tsunami bulletins if observations of the tsunami generated are less than forecast as a matter of priority. *Ongoing.*
**Action 13:** Chair ICG/IOTWS to write to Chair of the RIMES Council, Dr Shailesh Nayak, to request RIMES actively demonstrate conformity to RTSP guidelines. *RIMES informed that it is was not intending to become an RTSP at the last session of the ICG and would be concentrating on Service Level 3 activities. Rick Bailey to follow up with a letter to establish how RIMES is getting information for its bulletins.*

**Action 14:** Working Group reports should include the following sections:
1. Executive Summary
2. Introduction, including ToRs and relevance to pillar objectives in MTS
3. Progress:
   - Against actions
   - Activities undertaken in the intersessional period (ref to ToRs and MTS objectives)
   - Current Status
4. Gaps and deficiencies
5. Action plan for the next intersessional period
   *Done.*

**Action 15:** WG activities requiring financial support should be detailed in the WG reports and forwarded to the Secretariat by the end of October.* *Done.*

**Action 16:** Programme and Budget paper to be submitted by the ICG/IOTWS Secretariat to the ICG/IOTWS-IX as a draft working document to be reviewed by Member States. Incomplete, however, a sessional committee to be formed to work on the draft and finalise for adoption by the ICG. *Done.*

**Action 17:** WG chairs to prepare their reports prior to 7th November, 2012. *Done.*

## 2 Chair Report

Mr Bailey emphasised the value of the Steering Group and the TOWS-WG and the importance of their future continuity. He reported that the TOWS-WG was reconstituted at the last IOC Assembly and that the next TOWS-WG meeting will be held in Paris but noted it would be useful to hold a meeting in conjunction with an ICG session. Mr Bailey noted that leading up to the next ICG session, the primary focus of the IOTWS should be on the proof of concept phase for threat information, preparedness and response, best practice sharing, engagement with TOWS-WG for global coordination, and risk assessment including marine and maritime environments. He thanked the Steering Group for their ongoing work for the IOTWS.

Dr Hettiarchchi strongly recommended that a TOWS-WG Task Team on risk assessment should be established, noting that there should be a formal mechanism for coordinating this as the global level. Mr Bailey agreed that this should be taken to the next TOWS-WG meeting and that he and Dr Hettiarachchi should prepare draft Terms of Reference.

*Action 1:* Mr Rick Bailey and Dr Sam Hettiarachchi to draw up draft Terms of Reference for an Inter-ICG Task Team on risk assessment to present at the next TOWS-WG meeting.

## 3 Secretariat Report

Mr Tony Elliott summarized the meetings and workshops that the Secretariat participated in during 2013. These included the TOWS-WG meeting, ESCAP project meetings and
workshops, ICG/PTWS-XXV, IOC 27th Assembly, IOTWS SOP Workshop in Jakarta, Indonesia, Oman NMHEWS project, IOC Coastal Hazards Workshop in Colombo, Sri Lanka, and an IOTIC Coordination meeting. The key achievements of the Secretariat include the communication tests, maintenance of the IOTWS contact database, the Coastal Hazards Assessment workshop in Sri Lanka, the IOTWS SOP workshop in Jakarta, TOWS-WG and Task Team on Tsunami Watch Operations, ESCAP project management, seismic and sea level station databases, and IOTWS documentation structure.

Ms Nora Gale and Mr Elliott presented progress on the two ESCAP projects on 1) communicating the effects of the 1945 Makran Tsunami and 2) enhancing tsunami risk assessment and management, strengthening policy support and developing guidelines for tsunami exercises in Indian Ocean Countries.

Mr Elliott summarized the IOC Tsunami Unit staff structure. Mr Elliott discussed the ongoing funding situation at UNESCO noting that the General Conference had recently approved a budget reduction to the Regular Programme of $146m to $507m for the 2014-16 biennium, and this would lead to significant staff restructuring. He noted that the ICG/IOTWS is largely supported by extra budgetary funds thanks to the continued support of Australia.

Mr Elliott provided an overview of activities for 2014, noting that a busy programme of work was envisaged. He provided the Steering Group with an update on negotiations to host the 10th Session of the ICG/IOTWS. The Steering Group decided that it would be preferable to hold the ICG meeting back-to-back with the proposed symposium in Oman in late 2014.

The Steering Group discussed the timing of the key activities in 2014. It was agreed that the SOP workshop should be held in mid-June and that the IOWave14 exercise should be held in early September. The group also discussed plans for commemorating the 10th anniversary of the Indian Ocean tsunami and agreed that the Steering Group should prepare a short summary document highlighting the achievements of the IOTWS.

**Action 2: Secretariat to develop running log of Steering Group action items.**

4 Working Group Reports

4.1 Working Group 1 on Tsunami Risk Assessment and Reduction  
Dr Sam Hettiarachchi, Chair of WG1, reported on the current initiatives of WG1 including the TRATE Project and the WGs contribution to numerous documents and guidelines. He discussed risk and hazard mitigation in terms of natural environment resilience and terrestrial and marine infrastructure.

Training programme was developed and carried out in Muscat (December 2012) and Colombo (March 2013). Dr Hettiarchachi has assisted the government of Oman design risk and vulnerability assessments for nine localities as well as a regional assessment. Mr Bailey commented that Oman’s contributions of shared seismic, sea level, and GNSS data as well as case studies should be made known in the Indian Ocean region. Dr Hettiarachchi noted that teaching materials are being developed for capacity training in Coastal Hazards and Tsunami Risk Assessment and Management and a guideline for tsunami risk assessment in Indonesia for practitioners and end users has been endorsed.
**Action 3:** Dr Hettiarachchi to work with WG2 and WG3 chairs to develop material on tsunami risk assessment, preparedness and management relating to ‘Disaster Resilience in the Built Environment’.

**Action 4:** Mr Bailey to send Dr Sultan of Oman an invitation to become Vice-Chair of WG1.

**Action 5:** Secretariat to organise a coastal hazards workshop in Colombo in 2014 in conjunction with intersessional WG1 meeting, subject to availability of funding.

### 4.2 Working Group 3 on Tsunami Awareness and Response

Dr Harkunti Rahayu, Chair of WG3, discussed evacuations, highlighting issues with lack of action following warnings and public notification of tsunami threats. The UNESCAP Project on strengthening capacity is ongoing and includes workshops, in-country activities that feed into IOWAVE, and a regional workshop. Stock taking in Timor Leste, Bangladesh and Myanmar is planned for July 2014. Mr Bailey suggested that RTSP representatives act as observers.

**Action 6:** WG3 to extend the stock taking to other countries and redraft questionnaire in light of feedback from three pilot countries.

Other WG3 initiatives include regional and national networking with IOI, BMKG Tsunami Early Warning Service Guidelines, and BNPB tsunami road map and technical guidelines. The Disaster Resilient Country Program has been underway. Mrs Harkunti was a key speaker at the symposium on Social Management System (SSSMS 2013), Dec 2013.

Dr Harkunti sought feedback on inviting media representatives to join WG3. Mr Bailey responded that WG membership is via official governmental nomination and non-governmental members cannot join; however, continued interaction with the media is encouraged (e.g. invitations to SOP workshops and to participate in IOWave exercises).

A joint international workshop has been proposed by GIZ in Jakarta for March 2014. The preference of the SG is to hold the workshop in April 2014. The focus of the workshop will be downstream tsunami warning systems. GIZ would fund ICG/IOTWS participants. There is a suggestion of having WG3 meeting in conjunction with the Jakarta workshop. This could be used as an opportunity to increase WG3 membership. It was further suggested that the WG3 document could be finalized for this meeting.

### 4.3 Working Group 2 on Tsunami Detection, Warning and Dissemination

Dr Satheesh Shenoi, Chair of WG2, presented the WG2 report on the 9th December 2013 RTSP meeting to the SG (Annex 3). Actions from this meeting include:

**Action 7:** Secretariat to assess logs after communication tests and follow up on an individual Member State basis.

**Action 8:** Secretariat to request Member States to share SOPs, if there is a url for tsunami warnings, examples of warning products within a formal letter.
Action 9: Dr Hettiarachchi and Mr Elliott work with support of SG on the 10th anniversary educational booklet.

Action 10: Secretariat to evaluate available online resource repositories for information sharing. The repository should include current procedures (NTWC users guide, SOP development), outreach information (BoM 101 Tsunami brochures), FAQs, reports (communication tests, RTSP reports).

Action 11: Biannual RTSP updates on new developments to be distributed in conjunction with communication tests by Secretariat.

Action 12: RTSPs to work off-line on new wording for the public bulletins and then send to PTWS for feedback and broader harmonization.

Action 13: RTSPs to work off-line on formats of bulletins. It is suggested to use a similar format to the Exchange Bulletins (i.e. Type 1-4), but to avoid confusion between the two.

It was noted that tsunami public bulletins should be issued at the same time as tsunami exchange bulletins.

5 RTSP Performance Monitoring
Performance monitoring was discussed at the RTSP meeting on 9 December 2013, which was attended by all of the Steering Group members (Annex 3, Section 2). Performance Indicator 2, probability of detecting IO events greater or equal to M6.5, should be changed to M7.0 when measuring performance. Reporting threshold should remain at M6.5.

6 IOTWS SOP Workshops
The Jakarta SOP Workshop, September 2013 was reported on in the RTSP meeting on 9 December 2013 by Mr Peter Coburn (Annex 3, Section 4).

Action 14: Secretariat to organise SOP workshop in Hyderabad for northern and western Indian Ocean countries. Tentative workshop dates are 16th-20th June 2014.

7 IOWave14 Exercise
Mr Bailey oversaw the formation of a Task Team for the IOWave14 Exercise. Members include Dr Harkunti Rahayu, Mr Peter Coburn (Chair), Mr Karyono, Dr Srinivasa Kumar (Vice-Chair), and Dr Sultan. The exercise date will be in early September 2014. An exercise planning meeting could be held in Indonesia during March or April 2014.

It was suggested that RTSP observers could attend exercises in the three ESCAP pilot countries (Bangladesh, Myanmar and Timor Leste).

RTSPs should test a multiple event scenario once SOP procedures have been reviewed and modified. This will solely involve RTSPs.

8 TOWS Working Group and Task Teams
Dr Kumar reported on the TOWS-WG and Task Teams at the RTSP meeting on 9 December 2013, which was attended by all of the Steering Group members. A new Task Team was established at the TOWS-WG meeting in Paris, 18th-19th February 2013 with Terms of
Reference similar to those of previous iterations. Dr Kumar presented the TOWS-WG Areas of Responsibility map, which generated discussion. It was noted that overlap between the IOTWS and PTWS Areas of Responsibility are in the Banda Sea and the Java Sea. Mr Bailey commented the areas of overlap are interim solutions and which single ICG will be responsible will be decided on in the future. Coastal Forecast Zones in the area of overlap should be consistent amongst the ICGs.

**Action 15:** RTSPs to check that PTWC is using the same coastal forecast zones as IOTWS in areas of joint responsibility.

**Action 16:** Mr Jaksa to update the map of IOTWS earthquake source regions to include seismicity north of Timor.

IOTWS RTSPs will issue earthquake information and threat assessment bulletins for all events > M6.5 in the Indian Ocean region and > M8.0 outside of the Indian Ocean region. EQ information bulletins for events between M6.5-8.0 outside the Indian Ocean region will not be sent to the IOC public list server (recently implemented).

Procedures for handling events in quick succession discussed (e.g. 11 April 2012). As a rule of thumb provide forecasts for largest event. Message wording to be evolved by the Task Team and shared with all ICGs. RTSPs should decide how to respond to the possible scenarios and present their procedures to the Task Team.

**Action 17:** RTSP to implement the naming convention for tsunamigenic earthquakes / tsunamis decided on by TOWS (i.e. Flinn Engdahl + year with sequentially numbered events in the same year and region).

After the event name could be decided on in consultation with the country.

Questionnaires should be undertaken in Member States for all threats of >1m forecast to one of the country’s regions.

There was a discussion of inclusion of the Arabian/Persian Gulf and Red Sea in Areas of Responsibility. Mr Elliott mentioned that only a few countries (Iran, UAE, Oman, Yemen, Djibouti and Somalia) in these regions are Members of the IOTWS. All countries have been invited to join previously and declined.

The boundaries of CFZ v5.2 were shown. This includes new zones in Banda Sea area, South Africa and Australia. Coasts of Malaysia, Brunei and northern coast of Indonesia in the Banda Sea area are to be removed from coastal forecast zones.

9 **Indian Ocean Tsunami Information Centre (IOTIC)**

Mr Ardito Kodijat joined the meeting via teleconference to report on development of the IOTIC website since the last ICG. The IOTIC website is accessible online via four URLs including iotsunami.info, iotsunami.org, iotsunami.net, and iotic-ioc.unesco.org. A Google translation feature is utilised. UNESCO emergency funds were used for the website and translation of educational material. The contents of the website need finalisation before a launch is held, which may be as early as March 2013.
Mr Kodijat reported that the IOTIC Terms of Reference have been drafted in consultation with Mr Elliott and the IOC and presented them to the SG for review and endorsement, as per outcomes from the 9th Meeting of the ICG/IOTWS (ICG/IOTWS-IX/3s) to establish IOTIC.

**Action 18:** Steering Group members to send comments on IOTIC website to Mr Bailey.

**Action 19:** Mr Bailey to compile IOTIC website feedback and circulate amongst Steering Group members and Mr Kodijat.

### 10 Outreach, Capacity Building and Media Interaction

Mr Bailey presented a working document on key messages, target audiences, outreach opportunities, and communication tools. Steering Group members contributed feedback, which Mr Bailey incorporated into an updated document (Annex 4).

**Action 20:** Mr Bailey to develop words around the key outreach messages and circulate to the SG for consideration.

### 11 IOTWS Documentation

Mr Bailey commented that the Implementation Plan should be kept up-to-date as a living document with a horizon of two years. The Steering Group agreed to update it within three months of the approval of the action plan at the ICG. The Implementation Plan should include progress, gaps, an action plan, and Key Performance Indicators for each WG.

Mr Elliott noted that there is funding allocated in the budget for a consultant to assist with the Implementation Plan. However, Mr Bailey consulted the WG chairs who advised that they could complete the Implementation Plan between them without employing a consultant.

**Action 21:** WG Chairs to submit Implementation Plan input for their strategic pillars to Mr Bailey by March 2014.

Mr Bailey advised that the Medium Term Strategy should be reviewed at the next SG meeting.

The NTWC Users Guide is a dynamic document. Version 1.2, which combines the RTSP Users Guides into a single document, has been drafted by Mr Chris Lion. Mr Elliott noted that TWFP and NTWC should not be used interchangeably in the Users Guide. It was noted that a separate guide is required for people wanting to access the information.

**Action 22:** RTSPs to update the NTWC Users Guide with a view to finalizing by the end of March 2014.

### 12 IOTWS Databases

Ms Nora Gale reported on the ICG/IOTWS seismic and sea level databases. She noted that the station inventories will be made available on the IOTWS website once completed.

**Action 23:** RTSPs to display maps of the utilised real-time seismic and sea level stations on their websites.
Mr Elliott reported on the Secretariat’s progress with archiving non-statutory documents with consistent document title and code nomenclatures and utilising document lists.

**Action 24:** Secretariat to implement the new referencing system for ICG/IOTWS non-statutory documents.

Mr Elliott referred to the UNESCO IOC Tsunami National Contact (TNC) Form stating that the TNC is defined as the person designated by an ICG Member State government to represent his/her country in the coordination of international tsunami warning and mitigation activities. Mr Elliott has examined the number of TNC attending ICG meetings and found there to be 3, 4, and 6 attendees at the last three ICGs. Mr Elliott proposed to include TNC responsibilities (e.g. expected to attend ICG meetings and liaise with the Secretariat) in the definition.

Mr Elliott stated that the TWFP definition includes reference to a 7x24 contact person, or other point of contact. The majority of TWFPs are individuals who work for NTWCs. The Steering Group agreed that it is preferable to have NTWCs listed as the TWFPs, not individuals. However, it was noted that some NTWCs do not operate 7x24.

**Action 25:** Mr Elliott and Mr Bailey to develop a proposal on TNC and TWFP definitions, expectations and formalisation process to present to the TOWS-WG.

13 Miscellaneous Issue

Mr Elliott commented on the Global Disaster Alert and Coordination System (GDACS), which is providing heads-up tsunami warning messages to emergency responders. Currently for tsunamis they are issuing threats with estimations of maximum wave heights for the entire world over the GTS.

**Action 26:** Mr Bailey to refer the issuing of tsunami threat information by GDACs to TOWS-WG.

**Action 27:** Secretariat to follow up with Oman on hosting of ICG/IOTWS-X back to back with the Oman Tsunami Symposium.

14 Programme and Budget

Mr Elliott presented the 2013-2014 programme and budget. Programme activities include SOP and coastal hazard workshops, intersessional WG meetings, GLOSS sea level analysis, and ESCAP projects, and the 10th Session of the ICG/IOTWS. The agreed activities for 2014 are within the remaining budget. Mr Elliott confirmed that unspent funds will carry over to next year.

Mr Kodijat presented the IOTIC programme and budget for 2013-14 from the ICG meeting with newly committed funds. Funds come from the UNESCO Emergency Fund, UNESCAP, and UNESCO/IOC contributions.
15 Close of Meeting

Mr Bailey closed the Steering Group meeting closed at 4:00 pm on Wednesday 11\textsuperscript{th} December 2012.

16 Summary of Recommendations and Actions

16.1 Recommendations to the ICG

Recommendation 1: The ICG and the Executive Secretariat to oversee the coordination of change to the IOTIC ToR.

16.2 Steering Group Actions

Action 1: Mr Rick Bailey and Dr Sam Hettiarachchi to draw up draft Terms of Reference for an Inter-ICG Task Team on risk assessment to present at the next TOWS-WG meeting.

Action 2: Secretariat to develop running log of SG action items.

Action 3: Dr Hettiarachchi to work with WG2 and WG3 chairs to develop material on tsunami risk assessment, preparedness and management relating to ‘Disaster Resilience in the Built Environment’.

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# Annex 1

**IOTWS Steering Group Meeting**  
10-11 December 2013  
Perth, Australia

**PROVISIONAL AGENDA**

## Tuesday 10th December

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- Approval of Agenda  
- Matters arising from report of previous meeting | Rick Bailey |
| 2.   | Chair's Report | Rick Bailey |
| 3.   | Secretariat Report  
- Activities since ICG-IX, Jakarta  
- UNESCAP Projects | Tony Elliott |
| 4.   | WG Reports  
- WG1  
- WG3 | Sam Hettiarchachi  
Harkunti Rahayu |
| 4. (cont) | WG Reports (continued)  
- WG2  
1. Outcomes of RTSP meeting, 9th December  
2. IOTWS Communications Tests  
3. Other matters | Satheesh  
Shenoi/Srinivas  
Kumar/Peter Coburn |
| 5.   | RTSP Performance Monitoring | Rick Bailey |
| 6.   | IOTWS SOP Workshops  
- Report on Jakarta SOP Workshop, September 2013  
- Venue and dates for 2014 SOP workshop | Tony Elliott |
| 7.   | IOWave14 Exercise  
- Formation of Task Team  
- Exercise date  
- Exercise planning | Srinivas Kumar |
| 8.   | TOWS Working Group and Task Teams  
- Task Team on Disaster Management and Preparedness  
- Task Team on Tsunami Watch Operations  
- IOTWS Area of Responsibility | Rick Bailey/Srinivas  
Kumar/Tony Elliott |
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<td><strong>9.</strong> Indian Ocean Tsunami Information Centre (IOTIC)</td>
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| **13.** Miscellaneous Issues                                            | Tony Elliott                                                  |
| Global Disaster Alert and Coordination System (GDACS)                    |                                                                 |
| RIMES                                                                    |                                                                 |
| Oman Tsunami Symposium, December 2014                                   |                                                                 |
| Venue and dates for ICG/IOTWS-X                                          |                                                                 |
| 10th Anniversary of 2004 Indian Ocean tsunami                            |                                                                 |
| **14.** Programme and Budget                                             | Tony Elliott                                                  |
|                                                                           |                                                                 |
| **15.** Close of Meeting                                                 | Rick Bailey                                                  |
|                                                                           |                                                                 |
Annex 2

IOC-UNESCO
ICG/IOTWS Steering Group Meeting
10-11 December 2013
Perth, Australia

MEETING PARTICIPANTS

Officers

Mr Rick BAILEY
Head of Tsunami Warning & Ocean Services
Bureau of Meteorology, Melbourne
700 Collins Street
Docklands
GPO Box 1289
Melbourne VIC 3001
Australia
Tel: 61 3 9669 4103
Fax: 61 3 9669 4495

Dr. T. Srinivasa KUMAR
Head, Advisory Services & Satellite Oceanography Group INCOIS
Indian National Centre for Ocean Information Services
"Ocean Valley"
P.B No.21
IDA Jeedimetla P.O
Hyderabad 500 055
India
Tel: +91 40 23895006
Fax: +91 40 23892910

WG Chairs

Dr Sam HETTIARACHCHI
Professor
University of Moratuwa, Department of Civil Engineering
Moratuwa
Sri Lanka

Dr Harkunti RAHAYU
Institut Teknologi Bandung (Bandung Institute of Technology)
Campus
Jl. Ganesha no. 10
Bandung 40132
West Java
Indonesia

Dr Satheesh SHENOI
Director
Indian National Centre for Ocean Information Services
India
Tel: +91 40 23895000
Fax: +91 40 23895001

WG Vice Chairs

Dr Mark LEONARD
Research Scientist
Geoscience Australia
Cnr Jerrabomberra Ave and Hindmarsh Drive
Symonston
Canberra ACT 2609
Australia
Tel: +61 2 6249 9111

RTSP Members

Mr Karyono -
Head of Earthquake Management Operation Subdivision, BMKG
Badan Meteorologi Klimatologi dan Geofisika
Jl. Angkasa I No. 2 Kemayoran Jakarta 10720
Indonesia
Tel: +6221-4246321
Fax: +6221-4246703

Dr Masturyono -
Director of Research
Indonesian Meteorogical Climatological and Geophysical Agency
Head Office
Jl. Angkasa 1 No.2
Kemayoran
Jakarta Pusat 10720
Jakarta
Indonesia

Mr Daniel JAKSA
Co-Director, Joint Australian Tsunami Warning Centre
Observers

Mr Peter COBURN
Systems Manager, JATWC
Bureau of Meteorology, Melbourne
700 Collins Street
Docklands
GPO Box 1289
Melbourne VIC 3001
Australia
Tel: +61 3 9669 4866
Fax: +61 3 9662 1222

Dr. Yuelong MIAO
National Manager Tsunami Warning Services
Australian Bureau of Meteorology
700 Collins Street
Docklands
GPO Box 1289
Melbourne VIC 3001
Australia
Tel: +61 3 9669 4110
Annex 3

Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System
Working Group 2 Report to Steering Group
10 December 2013, Perth, Australia

1 Terms of Reference

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 reported 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 warning systems in the Indian Ocean, including ongoing development and benchmarking of tsunami detection, verification and forecast systems

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

9. Service, including development of guidelines for Standard Operating Procedures (SOPs)

10. 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.

2 Performance of RTSPs

All three RTSPs are functioning as expected since 12 October 2011 and are providing services at SL1 and SL2.

All three RTSPs have plans to further improve on the services.
For example, RTSP Australia plans to include the M7.0 pre-run MOST model scenarios, and deploy two additional tsunameters off Indonesia. It is also planning to activate RTSP Australia public webpage and RTSP Australia Public Bulletins and to undertake implementation of w-phase based estimation of EQ magnitude. A pilot inundation modeling (Port Kembla, 2014-15) and real-time running of MOST models using actual earthquake details (2015) are also planned.

RTSP India reported on the addition of 80 seismic GNSS stations spread over India and the plans to install 36 GNSS stations together with strong motion sensors in Andaman and Nicobar Islands. Also reported on undertaking inundation modeling at 8 locations. RTSP India also agreed to transmit sea level data on GTS in addition to the current practice of reporting the data on IOC web site.

RTSP India have completed the preparation of new version of coastal forecast zones (v5.2) including the Banda and Sulu seas and, recently, exchanged them with other two RTSPs. The new version of Coastal Forecast Zone (CFZ) includes 799 Coastal Forecast Zones. The modeling domain also has been increased and is being run for 25 hours.

RTSP Indonesia has made progress in running tsunami model on fly using the actual parameters of EQ. RTSP Indonesia is also developing a ‘one button concept’ to disseminate messages faster to NTWC, AEIC and RTSP on the occurrence of EQ event.

The performances of all three RTSPs were as expected as per the targets. However, at times, one or more RTSP did not issue 2nd bulletin for some of the events for which they estimated the initial magnitudes just below the threshold level of 6.5. However, that does not mean that the RTSPs have failed to detect the event. In all cases the RTSPs have detected the event but at times, did not issue tsunami bulletins because the initial magnitude estimated by them fell short of 6.5. This issue needs to be addressed appropriately to avoid confusion that may arise while reporting the statistics.

3 IOTWS Communications Tests

Three communication tests – 13 June, 12 Dec 2012 and 12 June 2013. On an average 17-20 countries participated in the tests. Email was found to be the most successful medium (success rate 80-90%). Though the SMS receipts showed a dramatic fall in June 2013 test, their success rate hovered around 60-70 %. Success rate of communication through GTS also remained at about 70-80%.

Communication through Fax appeared to be the most ineffective among the four due to the issues with un-updated contact numbers. Web access results have been good in last two tests at 80-90%, though the Web reporting by NTWCs remained low at 40-50%.

It is necessary to assess the logs after communication tests and follow-up on with individual member states to resolve the issues with communication systems.

4 IOTWS SOP Workshop, Jakarta, September 2013

32 participants from 9 countries including 11 participants from NTWC, 13 from DMO and 8 from media participated in the workshop.

The tabletop exercises were conducted to acquaint the NTWCs with RTSP SOPs.
NTWCs are requested to come up with their SOPs and share that with RTSPs.

The media recommended a regulatory framework for handling tsunami warnings and formal arrangements for the delivery of tsunami warnings from NTWCs to media.

Next workshop to be held in the first/second half of 2014 in Hyderabad (tbd) mainly aiming at northwestern MS.

Workshop in Jakarta highlighted the need to continue with face-to-face NTWC training.
Annex 4

Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System
Preliminary Notes for Future Outreach Programmes

Key Messages:
- Benefits of international collaboration
- “End-to-end”
- Built on 3 pillars: 1. Identification of areas at risk and mitigation, 2. Establishment of state-of-the-art Indian Ocean capability to forecast tsunami threat, 3. “Resilience” - Developing and maintaining community education and preparedness – “last mile”
- Warning sovereign responsibility
- Capacity building
- Where and how to get information

Target Audiences:
- General public
- Media
- Disaster managers
- NTWCs
- Governments… national (parliament, departments…), state, provincial, local
- UNESCO and IOC Sec
- IOC MS representatives
- Intergovernmental organizations… UNDP, UNISDR, WMO, IMO….
- IGOs and NGOs, NPOs… Red Cross/Crescent
- Scientific and educational organizations (universities, schools, IUGG, societies, ….)

Outreach Opportunities:
- 10th Anniversary IOT 2004
- IOWave14 and national drills
- Oman Tsunami Symposium
- SOP training and workshops
- UNISDR Disaster Reduction Day
- IOTIC launch?
- IOC EC/Assembly
- UNESCO (General Conference, Exec Board Meetings……)
- UNESCAP (Disaster Risk Committee, Ministerial gathering)
- IORA

Communication Tools:
- IOTIC
- Enhanced IOTWS focused web site
- 10 years after 4-page brochure and power point
• IOWave footage/documentary
• Compilation document
• Agreed set of key messages
• FAQs
• IOC web site itself
• RTSP Public web pages… content and links… branding?
• TNCs and NTWCs and DMOs
• Media
• Social media