This document contains a report on the activities of the Indonesia Tsunami Early Warning System (InaTEWS) since ICG/IOTWS-VIII, directed towards development of the capability to act as a Regional Tsunami Service Provider (RTSP) within the IOTWS. It also contains details of the performance of InaTEWS during October 12, 2011 to October 28, 2012 against the Performance Indicators set forth by ICG/IOTWS. The ICG is requested to consider and comment on this report.

Content of the report:

1. Introduction
2. RSTP Indonesia performance
3. RTSP Indonesia development since last ICG
4. RTSP Indonesia plans
1. Introduction

InaTEWS has been launched since 2008. It is responsible to give earthquake information and tsunami early warning affecting to Indonesia. Regional Tsunami Service Provider (RTSP) is extended to global role of InaTEWS. The development of RTSP capability was completed prior to the commencement of the RTSP based IOTWS on October 12, 2012 and RTSP Indonesia has been providing full IOTWS service level 2 services since that date, along with RTSP India and RTSP Australia.

Currently RTSP Indonesia’s services consist of:

- RTSP tsunami bulletin notification messages. This notification issued to NTWCs by sms, email, fax and GTS. The notification inform that RTSP Indonesia has updates a detail tsunami bulletin on RTSP password protected web.
- RTSP password protected web, url address [http://rtsp.bmkg.go.id](http://rtsp.bmkg.go.id), containing the detail information about earthquake information and tsunami information bulletin, threat maps with threat status for Indian ocean coastal forecast zone, threat table for each CFZ.
- RTSP Public bulletin web site
- RTSP earthquake compare web site among USGS, RTSP Indonesia, RTSP India and RTSP Australia.
- RTSP user guide for NTWCs
- RTSP Indonesia’s tsunami modeling and threat assessment capability is based on pre-run scenarios from TSUNAWI Model
Figure 1. Dissemination system from RTSP Indonesia perspective
Currently RTSP Indonesia infrastructure facility consist of:
• 2 Computer servers for RTSP Web site (main and backup), including pre calculation database inside

• 2 Sms servers (long number)

• 1 Email server (email sender)

• 1 GTS server

• Fax sender

• 1 Computer Client to send message

2. RTSP Indonesia Performance

RTSP Indonesia’s performance statistics for the period since the commencement of the IOTWS RTSP service are contained in the ICG Agenda Item 7.6 report “RTSP Task Team Report on RTSP performance October 12, 2011 until October 28, 2012, along with those for the other RTSPs.

Performance Indicators:

Target 10 minutes. Result = 22 minutes
RTSP Indonesia Performance: Earthquake Bulletins were issued for 28 events including IO area and Outside IO area, with an average elapsed time of 22 minutes from the earthquake time, just outside the target of 10 minutes. For IO area only, result=10 minutes (target 10 minutes)

The reasons are:

• Currently the stations used in InaTEWS is not dense enough or sufficient to detect all earthquake around the world.

• It is take time for SEISMIC DATA to proceed s to InaTEWS due to long distance from Indonesia, so that the longer time is needed to get earthquake parameter (concerning outside Indian Ocean).

PI 2: Probability of Detection of Indian Ocean Earthquakes ≥ Mag 6.5
Target 100%. Result = 100%
RTSP Indonesia Performance: All 4 IO events with magnitude ≥ 6.5 were detected, giving a 100% result for this PI. [Note: Detection means issuing at least an Earthquake Bulletin for the event.] In addition there were 24 non-IO events with magnitude ≥ 6.5 during the report period. Of all 41 events compare with usgs, RTSP Indonesia detected 24 i.e. 59%.The missed events were assessed by RTSP Indonesia as having magnitude under 6.5. RTSP Comparison: RTSP India and RTSP Indonesia also detected 100% of the IO events,

PI 3a, 3b, 3c: Accuracy of Initial Earthquake Parameters Compared with Final USGS Estimates
3a Magnitude: Target 0.3. Result = 0.2
3b Depth: Target 25km. Result = 28km
3c Location: Target 30km. Result = 15km
RTSP Indonesia Performance: Magnitude differences (0.2) were better than the target, depth differences (28km) were just over the target, and location differences (15km) were significantly better than target.

PI 4: Elapsed Time of Issuing First Tsunami Threat Assessment Bulletin after Earthquake
Target 20 minutes. Result = 30 minutes
RTSP Indonesia Performance: Threat Assessment Bulletins were issued for 15 events, with an average elapsed time of 30 minutes from the earthquake time, just outside the target of 20 minutes. For 11 events a single “No Threat” bulletin was issued, and for 4 events a total of 9 “Threat” bulletins were issued.

PI 5: Probability of Detection of Tsunamis Above Threat Threshold
Target 100%. Result = 100%
[Note: Only one event generated tsunami waves above the 0.5m threshold: Magnitude 8.6, Off West Coast of North Sumatra, 08:38UTC, 11 April 2012. PI 5 and PI 6 figures are based on that single event. This event was unusual in its “strike-slip” earthquake geometry, generating tsunami waves of much lower amplitude than the subduction earthquakes tsunami models are based on. The highest reported wave was 1.1mamplitude.]
RTSP Indonesia Performance: result for this PI was 100%.RTSP India and RTSP Australia also achieved 100% for this PI

PI 6: Accuracy of Tsunami Wave Height Predictions
Target: Factor of 2. Result = Factor of 15
[See note in PI 5 above.]
RTSP Indonesia Performance: Indonesia’s prediction for the CFZ that reported the highest wave amplitude (1.1m) was 15.5, a factor of 15. This significant over-prediction is explained in the note under PI5 above.

PI 7: RTSP Participation in communication tests – Target 100%, result 100%

3. RTSP Indonesia development since last ICG

Since ICG-VIII in Melbourne, May 2011, RTSP Indonesia has:

1. Participated as an RTSP (and NTWC) in all 4 IOTWS Communications Tests conducted since then. Reports of the tests are available on the IOC website, and a summary report of all 5 tests conducted since March 2011 is available in the agenda item 4.2 Working Group 2 report at this ICG.
2. Participated in the NTWC Training Workshop, Jakarta, September 2011, providing training in IOTWS services and in development of Standard Operating Procedures (SOPs) 4 to representatives from Indian Ocean NTWCs, Disaster Management Organizations and Media Organizations.
3. Participated as an RTSP (and NTWC) in the 12 October 2011 IOWave11 Tsunami Warning Exercise. A report of this exercise is available in agenda item 5 at this ICG.
4. Commenced Service Level 2 operations as an RTSP, along with India and Indonesia, immediately following the IOWave11 exercise on 12 October 2011.
5. Started providing public bulletins for providing information to the public, the url address. 
http://rtsp.bmkg.go.id (InaRTSP Public bulletin icon)

4. **RTSP Indonesia PLANS**

1. December 2012: Participate in IOTWS Communication Test 6, and all subsequent 6-monthly Communication Tests.
2. On 2013: Improve RTSP Indonesia tsunami modeling by implementing “on fly calculation” modeling (easy wave), which can solve the problem of “out of area simulation”.
3. Improve the layout of the RTSP Indonesia password-protected webpage to adopt on fly calculation modeling.
Annexure-1 InaRTSP public bulletin

Annexure-2 InaRTSP public bulletin cont.
Annexure-3 InaRTSP public bulletin cont.

Annexure-4 InaRTSP EQ compare.
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Annexure-4 InaRTSP EQ compare.