REPORT FROM TSP-INDONESIA

This document contains a report on the activities of the Indonesian Tsunami Early Warning System (InaTEWS) since ICG/IOTWS-IX, carrying out the responsibilities of a Tsunami Service Provider within the IOTWS. It also contains details of the performance of InaTEWS during the period November 1, 2012 to February 28, 2015 against the Performance Indicators set forth by ICG/IOTWS. The ICG is requested to consider and comment on this report.
TSP INDONESIA REPORT

10th Session of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System

(ICG/IOTWS-X)

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This document contains a report on the activities of the Indonesia Tsunami Early Warning System (InaTEWS) since ICG/IOTWS-IX, directed towards development of the capability to act as Tsunami Service Provider (TSP) within the IOTWS. It also contains details of the performance of InaTEWS during November 2012 to February 2015 against the performance indicator set forth by ICG/IOTWS. The ICG is request to consider and comment on this report.

Content of the report:

1. Introduction
2. TSP Indonesia services
3. TSP Indonesia Dissemination System
4. TSP Indonesia Infrastructures
5. TSP Indonesia Performance
6. TSP Indonesia development since last ICG
7. TSP Indonesia development plans
1. Introduction

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

2. TSP Indonesia Services

Currently TSP Indonesia’s services consist of:

- TSP bulletin notification messages. This notification issued to NTWCs by sms, email, fax and GTS. The notification inform that TSP Indonesia has updates a detail tsunami bulletin on TSP password protected web.
- TSP exchange bulletin. This bulletin consist of a combination of textual bulletins in agreed formats. The availability of exchange bulletin on password-protected TSP Indonesia website is made known by sending notification messages to NTWC contacts through GTS, email, fax and SMS.
- TSP password protected web, url address 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.
- TSP Public bulletin web site. This bulletin shall only contain earthquake information, a qualitative tsunami-genesis statement, tsunami wave observations.
- TSP user manuals for NTWCs
- TSP Indonesia’s tsunami modeling and threat assessment capability
3. TSP Indonesia Dissemination System

![Diagram of TSP Indonesia Dissemination System]

Figure 1. TSP Indonesia Dissemination system
Figure 2. Dissemination system from TSPs-NTWCs perspective
4. TSP Indonesia Infrastructures

Currently TSP Indonesia infrastructure facility consist of:

- 2 Computer servers for TSP Web site (main and backup)
- 2 SMS servers (long number)
- 1 Email server (email sender)
- 1 GTS server
- 1 Fax sender
- 1 Computer Client to send messages

5. TSP Indonesia Performance

TSP Indonesia’s performance statistics for the time period since the last ICG/IOTWS-IX to February 2015.

Performance Indicators:


Target 10 minutes. Result = 14.5 minutes

TSP Indonesia Performance: Earthquake Bulletins were issued for 82 events including IO area and Outside IO area, with an average elapsed time of 14.5 minutes. For IO area only, TSP Indonesia’s average was 9.84 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 proceeds to InaTEWS due to long distance from Indonesia, so that the longer time is needed to get earthquake parameter (concerning outside Indian Ocean).

TSP comparison: TSP Australia’s average was 15.6 minutes (134 bulletins), and TSP India’s average was 11.1 minutes (116 bulletins).

KPI 2: Probability of Detection of Indian Ocean Earthquakes $\geq$ Mag 6.5

Target 100%. Result = 91%

TSP Indonesia Performance: 10 out of 11 IO events with magnitude $\geq$ 6.5 were issued, giving a 91% result for this PI. The missed events were assessed by TSP Indonesia as having magnitude under 6.5. Of all 119 USGS final events, TSP Indonesia detected 75 out of 119 (63%).
**TSP Comparison:** For the IO events, TSP Australia detected 9 out of 11 (82 %) and TSP India detected 10 out of 11 (91 %). For all event, TSP Australia detected 107 out of 119 (90 %), and TSP India detected 100 out of 119 (84 %).

**KPI 3a, 3b, 3c: Accuracy of Initial Earthquake Parameters Compared with Final USGS Estimates**

3a Magnitude: Target 0.3. Result = 0.16
3b Depth: Target 30km. Result = 18 Km
3c Location: Target 30km. Result = 16 Km

TSP Indonesia Performance: Average difference in magnitude (0.16) were better than the target, average difference in depth (18 Km) were better than the target, and average difference in location (16 Km) were significantly better than target.

**TSP Comparison:** TSP Australia average difference of 0.18, 28 Km and 21 Km, and those of TSP India at 0.17, 22 Km, and 14 Km.

**KPI 4: Elapsed Time of Issuing First Tsunami Threat Assessment Bulletin after Earthquake**

Target 20 minutes. Result = 13 minutes

TSP Indonesia Performance: Threat Assessment Bulletins were issued for 1 event, with an average elapsed time of 13 minutes from the earthquake time, better than the target for 20 minutes. Nil event for “No Threat” bulletin, and 4 “Threat” bulletins were issued (for 1 event).

**TSP Comparison:** TSP Australia’s average was 19.3 minutes (13 events), and TSP India’s average was 22.1 minutes (7 events).

**KPI 5: Probability of Detection of Tsunamis Above Threat Threshold**

Target 100%. Result = N/A

[Note: During nov 2012 to Feb 2015, No generated tsunami event with wave amplitudes above the 0.5m threshold occurred]

**KPI 6: Accuracy of Tsunami Wave Height Predictions**

Target: Factor of 2. Result = N/A

[Note: During nov 2012 to Feb 2015, No generated tsunami event with wave amplitudes above the 0.5m threshold occurred]

**KPI 7: TSP Participation in communication tests – Target 100%, result 100%**

Five communication tests have been conducted since the last reporting period. During these tests four tsunami notification messages were disseminated to the NTWCs via Email, Fax, GTS and SMS.
6. **TSP Indonesia development since last ICG Meeting**

Since ICG-IX in Jakarta, November 2012, TSP Indonesia has:

1. Participated as TSP (and NTWC) in IOTWS Communication Tests (Dec 2012, June and Dec 2013, June and Dec 2014)
2. Contributed to NTWC SOP Training Workshop in Jakarta, September 2013 and in Hyderabad on June 2014.
3. Participated as TSP (and NTWC) in IOWAVE’14 (Sept 9 and 10, 2014)
4. Participated in the PacWAVE’15 on 4 February 2015 as an NTWC in the Pacific Tsunami Warning and Mitigation System (PTWS)
5. Host of international conference to commemorate the 10th Anniversary of the Indian Ocean Tsunami.
6. Improved the new GUI of the TSP Indonesia password-protected webpage.

7. **TSP Indonesia Development Plans**

1. Improving the ability of SMS dissemination system.
2. Developing the application features to calculate performance indicators automatically on TSP Indonesia password protected web page.
3. Continuing to contribute to the 6 monthly IOTWS communication tests as well as IOWave exercise
Annexure 1:

The new GUI of the TSP Indonesia password-protected webpage. URL Address: http://rtsp.bmkg.go.id