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Assessment of Tsunami Preparedness in East Coast of India through Mock drill conducted on 26 September, 2015

by

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HYDERABAD, INDIA

www.incois.gov.in

01 JULY, 2016

DOCUMENT CONTROL SHEET

Earth System Science Organization (ESSO)
Ministry of Earth Sciences (MoES)
Indian National Centre for Ocean Information Services (INCOIS)

ESSO Document Number: ESSO/INCOIS/ASG/TR/08(2016)

Title of the report: Assessment of Tsunami Preparedness in East Coast of India through Mock drill conducted on 26 September, 2015

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Originating unit

Advisory Services and Satellite Oceanography Group (ASG), INCOIS

Type of Document:

Technical Report (TR)

Number of pages and figures: 34, 9

Number of references:

Keywords:

Tsunami, Mock drill, Tsunami Early Warning System, Disaster Management

Security classification:

Open

Distribution:

Open

Date of publication:

01 July, 2016

Abstract (100 words)

The 2004 Indian Ocean tsunami resulted in catastrophic losses of life and property and demonstrated how destructive the tsunamis can be. In India, the tsunami took away nearly 16,000 lives of the people living in the coastal areas and caused lot of damage to the property. The reason for such a great loss to lives and property is due to lack of awareness and preparedness to tsunamis. Keeping this in view and to avoid further future losses, the Government of India has established the Indian Tsunami Early Warning System at INCOIS, Hyderabad under the Ministry of Earth Sciences.

While a tsunami cannot be prevented, its impact can be mitigated through community and emergency preparedness, timely warnings, effective response, and public education. The Tsunami drills evaluates the ability of warning centre and disaster offices to respond to a tsunami. The drills not only emphasize the testing of communications from warning centre to its stakeholders, but also provide an opportunity for testing national/state/local chains of command and decision-making, including the alerting and evacuation of people from selected coastal communities.

INCOIS in collaboration with MHA and NDRF has conducted tsunami mock drill on 26 September, 2015 to East coast of India. Disaster Management Organisations of Andhra Pradesh, Odisha, Puducherry, Tamil Nadu and West Bengal participated in the drill. They took the drill to community level and executed evacuations at different villages. The drill enhanced the tsunami awareness and preparedness among the coastal people and was very successful. The core objectives of drill were exercised, it was observed few communication lags between ITEWC and DMOs, and need to be rectified at both ends.

Contents

1. Introduction

The tsunamis, though infrequent, are significant natural hazards that can cause great destruction and loss of life within minutes on shores near and far. The 2004 Indian Ocean tsunami resulted in catastrophic losses of life and property and demonstrated how destructive the tsunamis can be. In India, the tsunami took away nearly 16,000 lives of the people living in the coastal areas and caused lot of damage to the property. The reason for such a great loss to lives and property is due to lack of awareness and preparedness to tsunamis. Keeping this in view and to avoid further future losses, the Government of India has established the Indian Tsunami Early Warning System (ITEWS) at Indian National Centre for Ocean Information Services (INCOIS), Hyderabad under the Ministry of Earth Sciences. The centre is operational since October, 2007. The 24x7 tsunami warning centre is having all necessary computational and communication infrastructure that enables reception of real-time data from wide range of sensors, analysis of the data, generation and dissemination of tsunami advisories following the Standard Operating Procedure (SOP).

The characteristics of a tsunami such as fast-onset and unpredictability regarding when the next tsunami will hit and where, make Tsunamis unique from other natural hazards. However, when it does happen, it impacts in severe way with little notice and therefore little time to prepare. This puts a tremendous responsibility on countries like India where 26% of population live within 100 Km from the shoreline, to prepare ahead of time through planning, development of agreed-upon Standard Operating Procedures and practice through drills.

While a tsunami cannot be prevented, its impact can be mitigated through community and emergency preparedness, timely warnings, effective response, and public education. The Tsunami drills evaluates the ability of warning centre and national/state/local disaster offices to respond to a tsunami. The drills not only emphasize the testing of communications from warning centre to its stakeholders, but also provide an opportunity for testing national/state/local chains of command and decision-making, including the alerting and evacuation of people from selected coastal communities. They also provide a prospect to promote emergency response plans and tsunami preparedness.

As part of improving awareness and preparedness of the administration and the general public, Ministry of Home Affairs (MHA) intended to conduct tsunami mock drill to the coastal states of India. In this regard, MHA requested Indian Tsunami Early Warning Centre (ITEWC), INCOIS to conduct the tsunami mock drill to the states on east coast of India on 26 September, 2015.

In collaboration with MHA and National Disaster Response Force (NDRF), INCOIS has conducted tsunami mock drill on 26 September, 2015 to East coast of India. Disaster Management Organisations (DMOs) of Andhra Pradesh, Odisha, Puducherry, Tamil Nadu and West Bengal participated in the drill. INCOIS has issued Notification Messages for the mock scenario to pre-designated points of contact (disaster management officials of east coast of India) by E-mail, SMS & Fax.

In preparation to the tsunami mock drill INCOIS organized a tsunami Standard Operating Procedure (SOP) workshop on August 26, 2015 at INCOIS, Hyderabad for the disaster management authorities, NDRF battalions, Indian Navy and Coast guards of east coast states. A total of 51 members from DMOs, NDRF, Indian Navy, and Coast Guard participated in the workshop. Tabletop exercise was conducted to the participants to familiarize them with the tsunami bulletins and to coordinate the mechanism with DMOs and the line departments.
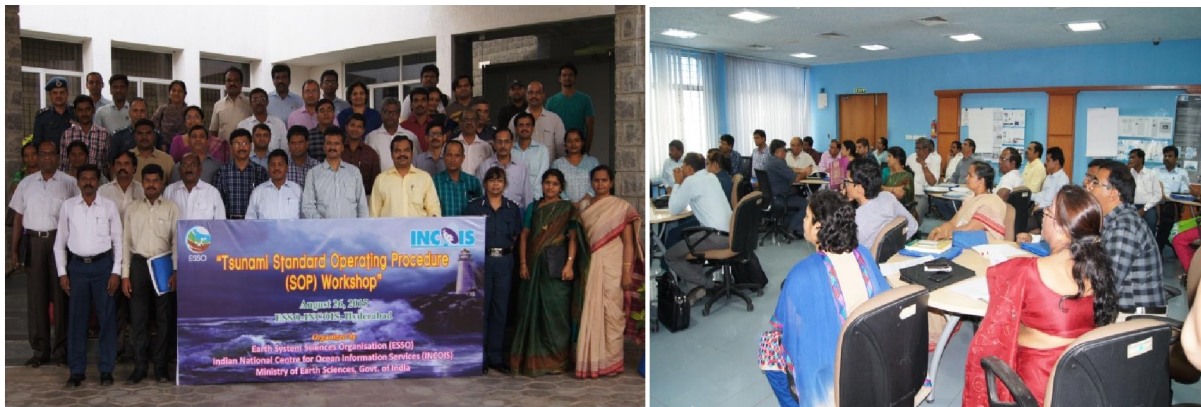
Figure-1: Tsunami SOP Workshop at INCOIS on August 26, 2015

Andhra Pradesh state has conducted a tsunami sensitization workshop in collaboration with INCOIS at their field level prior to this mock drill.

2. Objectives

i. Validate the Warning Centre dissemination process for issuing Tsunami Bulletins to various disaster management organizations and other participating agencies.

ii. Evaluate the processes and procedures of agencies receiving and confirming Tsunami Bulletins.

iii. Evaluate the process of dissemination of bulletins/messages by the disaster management organizations to other responsible agencies within their area or to the public.

iv. Hone the organizational decision making process about public warnings and evacuation.

v. Identify proper communication methods that would be useful to notify and instruct the public.

vi. Record and assess community preparedness: the response time, methodology adopted, the arrangements made and conduct of evacuation of public from vulnerable areas.

Mock drill Scenario:

Magnitude	:	9.0 Mw
Latitude	:	12.65 N
Longitude	:	93.50 E
Depth	:	10 km
Origin Time	:	0930 IST (0400 UTC)
Date	:	September 26, 2015
Region	:	Andaman Islands, India

a) The tsunami drill took place for a duration of 4 hours i.e. from 0930 to 1330 IST.

b) The scenario replicated a major earthquake in Andaman Islands, India that can generate a devastating Tsunami affecting east coast of India within 2 - 2.5 hours from the occurrence of earthquake at 0930 IST.

c) Indian Tsunami Early Warning Centre (ITEWC), INCOIS, Hyderabad has issued notification messages through Email, Fax, and SMS.

Detailed bulletins were placed on password protected INCOIS website to test the web-access during the drill. In order to avoid unnecessary panic, both the notification messages as well as the detailed bulletins were clearly marked as TEST.

Table 1: Tsunami Mock Drill Timeline on September 26, 2015

Date	Notification Time (IST)	Bulletin #	Bulletin Type	Detail
26-Sep-2015	0930		Earthquake occurs	Test START UP Message
26-Sep-2015	0935	1	Type-I EQ Bulletin (8.8 M)	Qualitative Information on Tsunami Potential
26-Sep-2015	0940	2	Type-II EQ + Scenario Results (9.0 M)	WARNING for Andaman & Nicobar Islands and ALERT for Andhra Pradesh, Tamil Nadu, Puducherry and Odisha
26-Sep-2015	0950	3	Type-III EQ + Scenario Results (9.0 M) + WL Obs	Confirmed tsunami Observation by Port Blair Tide gauge and Updated WARNING for Andaman & Nicobar Islands, Andhra Pradesh, Tamil Nadu, Puducherry and Odisha, and ALERT for West Bengal and Kerala
26-Sep-2015	1045	4	Type-III Supplementary 01	Additional water level observations at various tide gauges viz., Aerial Bay, Nancowry and Sabang (Indonesia).
26-Sep-2015	1145	5	Type-III Supplementary 02	Additional water level observations at various tide gauges viz., Ko Miang (Thailand) and Paradip
26-Sep-2015	1245	6	Type-III Supplementary 03	Additional water level observations at various tide gauges viz., Chennai and Colombo (Sri Lanka).
26-Sep-2015	1330	7	Final Bulletin	Final Threat Passed bulletin including all water level observations from all tide gauges, viz., Port Blair, Aerial Bay, Nancowry, Sabang, Ko Miang, Paradip, Chennai, Colombo, Padang (Indonesia) and Male (Maldves) .

3. Participation in the drill

All eastern coastal States/Union Territories of India participated in this mock drill and public were evacuated from several locations which included 11 villages in Andhra Pradesh (Suryalanka, West Pattapupalem, Chinnapattapupalem, Patha Meghavaram, Barripeta, Pallipalem, CM Lanka, PM Lanka, Kanuru, Tallepalem and Vadapalem), 6 villages in Odisha (Chandipur, Tikayat Nagar, Belada, Kanamana, Nuagaon and Baidalpur), 2 villages in Puducherry (Keezhaiyur and Pattinacherry), 1 villages in Tamil Nadu (Poombuhar) and 3 villages in West Bengal (Digha, Dwarirjangal and Kakdwip). The participant agencies have taken the drill down to different levels, involving their field units, local officials, line departments and public, as appropriate. Authorities executed village/community level evacuation in Puducherry and Odisha. A host of last-mile communication systems such as SMS-based alerts, megaphones, public alert system, door-to-door alerting, etc were used by the local authorities to alert coastal population. The details of village level participation in the drill are given as Appendix-A

4. Findings

4.1. Objective-1: ITEWC message dissemination

ITEWC issued the test messages in accordance with the test timeline, consisting of the test commencement message followed by 7 test notification messages to disaster management organisations of east coast of India via E-mail, Fax and SMS. In the mock drill, most DMOs agreed that notifications issued by the ITEWC were timely.

Recommendations:
Issues to be followed up against Objective-1:
- State/District/Mandal/Block level DMOs contact list to be updated

4.2. Objective-2: DMOs message reception and access of INCOIS website

Refer to Appendices B, C, D and E; the Email, Fax, SMS messages received and Web access by each national recipient, as reported in their Test Logs. The results are based on feedbacks received from recipients.

4.2.1. Email reception:

ITEWC Email messages were received by most of the recipients. For most of the email notifications, the   delay times are between 0 - 6 minutes and only a few messages were delayed longer than this. The maximum delay was 59 minutes for startup message to Pudukkottai Dist, Tamil Nadu.

Email Notifications

- All messeges received
- No messages received
- Few messages received

13%
10%
77%
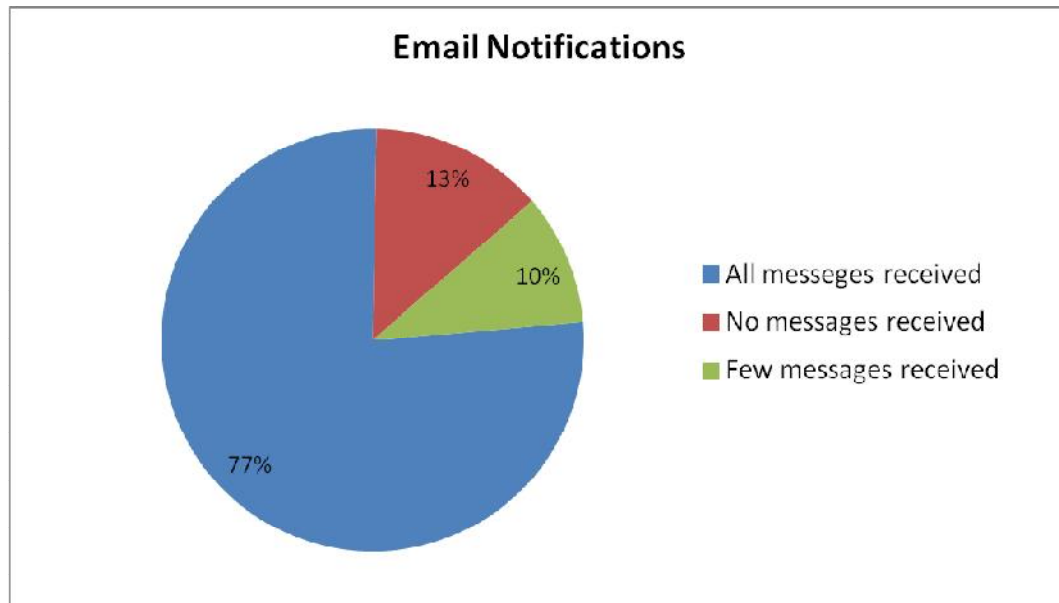
Figure-2: Status of Email notifications received by the recipients

Prakasam, East Godavari, West Godavari Districts of Andhra Pradesh and SEOC of West Bengal have not received any email notification. They need to send their Email addresses to ITEWC for verification and inclusion in dissemination list.

4.2.2. Fax reception:

 ITEWC Fax messages were received by very few recipients. For most of the fax messages, delay times are between 0 - 30 minutes and only a few messages were delayed longer than this. The maximum delay was 4 hours for notification message 1 to Tiruvelveli Dist, Tamil Nadu.

Recipients of Nellore, Prakasam, Srikakulam, East Godavari districts of Andhra Pradesh, Ponneri Gummidipoondi, Thiruvottiyur, Agasteeswaram, Thoothukudi, Pudukkottai,   Ramanathapuram, Thanjavur districts of Tamil Nadu, Bhograi, Balasore districts of Odisha, Purba Medinipur, North 24 Parganas, South 24 Parganas districts of West Bengal and NDRF 4th Battalion reported that they

haven't received any of the messages through Fax. However, ITEWC has disseminated the messages to the same numbers which have been provided by the same authorities. These fax numbers need to be cross checked with the ITEWC database and need to be included in the dissemination list if not available with ITEWC. Few recipients mentioned that they have BSNL line issue on the day of drill.
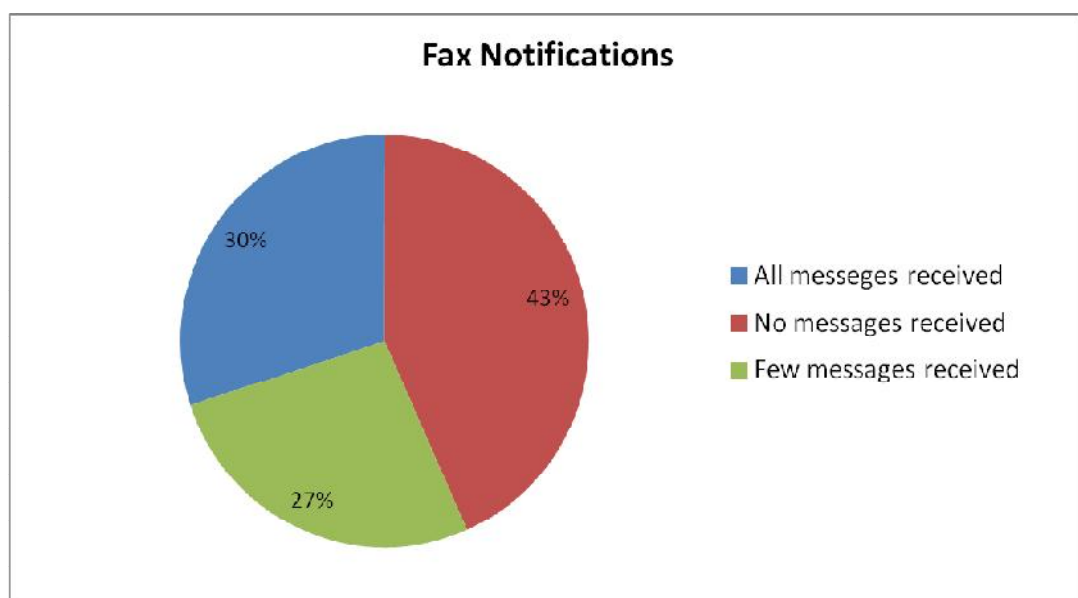
Figure-3: Fax notifications received status

4.2.3. SMS reception:

ITEWC SMS messages were received by most of the recipients who submitted the feedback. For most SMS messages the delay times were between 0 - 10 minutes and only a few messages delayed longer than this. The maximum delay was 1 hour 20 minutes for notification message 1 to NDRF 3rd Battalion, Odisha.

Nellore, Vizianagaram, West Godavari districts of Andhra Pradesh, Bhograi district of Odisha, SEOC of West Bengal and NDRF 10th Battalion in Andhra Pradesh reported that they haven't received any of the messages through SMS, which need to be cross checked with the ITEWC dissemination list.

7
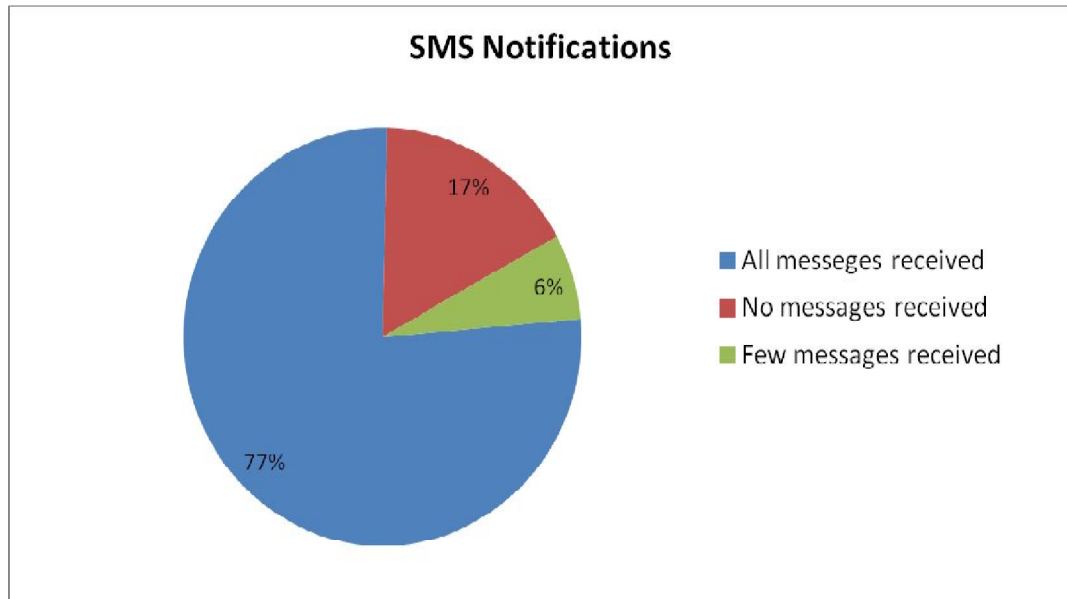
Figure-4: SMS notifications received status

4.2.4. Web access

All recipients were able to access the ITEWC, INCOIS website after each of the test message was disseminated.
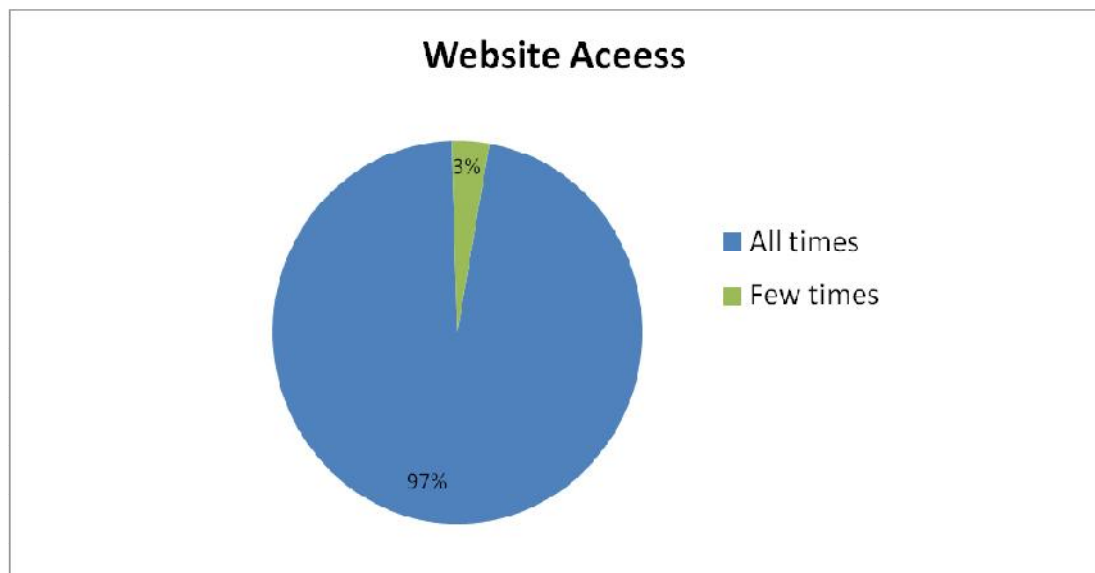
Figure-5: Status of Web access during the drill

The feedback from the participants reveal that Email and SMS are the effective means of communication reaching more number of recipients with very less delay times. Web was accessible for all the bulletins during the drill.

Recommendations:

- Investigate the non-receipt of messages to few DMOs and update the ITEWC dissemination list with latest contact information.

- Recommend the DMOs to establish dedicated Auto-Fax machine at each District/ Emergency operation centre for effective communication

- Check the possibility of sending detailed bulletin information through fax messages to avoid communication failures due to or non-avilability of internet connectivity.

4.3. Objective-3: DMOs messages dissemination process to line departments or public

All coastal states have taken the drill down to community level on September 26, 2015. Disaster management organizations forwarded the tsunami advisories down to their concerned agencies.

Table-2: Actions of Disaster management organizations after receiving ITEWC threat messages

| Location	Actions taken by DMOs after receiving messages
Sub-Collector Office, Tenali, Guntur, Andhra Pradesh	Messages forwarded to mandal level all line departments, local public alerted at 9:41hrs and evacuation started at Suryalanka village at 10:46 hrs
Collectorate, Nellore, Andhra Pradesh	Messages forwarded to all line departments, local public representatives at 9:31 hrs
Collectorate, Prakasam, Andhra Pradesh	Communicated to all line departments at 09:35 hrs and evacuated people at 10:45 hrs
Collectorate, Srikakulam, Andhra Pradesh	Alert the all line departments, siren used at 09:50 hrs and evacuated people at 10:30 hrs
Collectorate, Vizianagaram, Andhra Pradesh	Alerted the villagers at 9:37 hrs and evacuated people at 09:50 hrs
Collectorate, East Godavari, Andhra Pradesh	Informed forwarded and alerted the coastal community at 09:45 hrs
Sub-Collector Office, Narsapur, West Godavari, Andhra Pradesh	Warned low lying are people at 09:02 hrs and transport arrangements made at 10:20 hrs
SEOC, Tamil Nadu	Messages forwarded to concerned Districts
Collectorate, Nagapattinam, Tamil Nadu	Messages conveyed to all teams in Poombhuhar village
Collectorate, Kanniyakumari, Tamil Nadu	Messages forwarded to Pattukkottai and Peravurani Tahsildars
Collectorate, Tirunelveli, Tamil Nadu	Messages forwarded to Tahsildar of Radhapuram

Collectorate, Chennai, Tamil Nadu	Messages forwarded to Tahsildars of Tondiarpet, Purusawalkam, Mylapore and Velachery Talukas at 09:50 hrs
Collectorate, Kancheepuram, Tamil Nadu	Messages forwarded to Tahsilders of Thiruporur, Thirukalukundram, Sholinganallur, Cheyyur
Collectorate, Cuddalore, Tamil Nadu	Messages forwarded to Tahsilders of Cuddalore and Chidambaram
Collectorate, Villupuram, Tamil Nadu	Messages forwarded to Tahsilders of Marakkanam, Vanur and Divisional officers of Villupuram and Tindivanam
Collectorate, Ramanathapuram, Tamil Nadu	Messages forwarded to Tahsilders of Ramanathapuram, Rameswaram, Kadalai, Thiruvadanai and Kilakkarai
Collectorate, Tiruvarur, Tamil Nadu	Messages forwarded to Taluka office Thiruthuraipoondi
Collectorate, Thanjavur, Tamil Nadu	Messages forwarded to Tahsildars of Pattukkottai and Peravurani
DEOC, Karaikal, Puducherry	Far expedition action to all government agencies/organisations at 09:35 hrs
Collectorate, Balasore, Odisha	Messages forwarded to five coastal BDOs and Tahasildars
SEOC, West Bengal	The message was disseminated to the District Officials and up to the elected members of the Gram Panchayats through Voice Call, SMS, e-mail by web based EOC Incident Response Software
District Magistrate, Purba Medinipur, West Bengal	Information forwarded to Coastal Sub-Division & Blocks of Contai, Ramnagar-I and Ramnagar-II
District Magistrate, North 24 Parganas, West Bengal	Information forwarded to the lower level up to SDO, BDO. and evacuation stated at Dwarir Jangle village at 09:50 hrs
District Magistrate, South 24 Parganas, West Bengal	Information forwarded to concern SDO, BDO, BMOH, ADC, Police, Coast Guard, NDRF, DICO, PRI Members, etc.
3rdBattalion NDRF, Odisha	Information forwarded to the team Commanders of the teams deployed for Tsunami mock drill
4th Battalion NDRF, Tamil Nadu	Information passed to DEOCs and the teams which deployed at Poombuhar of Nagapattinam district (Tamil Nadu) and Pattinacherry of Karaikkal District (Puducherry)
10th Battalion NDRF, Andhra Pradesh	Information forwarded to NDRF team commander, observers, DIG NDRF SZ and HQr NDRF

Recommendations:
- Involvement of line departments, NGOs and Welfare societies need to be improved

4.4. Objective-4: Process of decision making about public warnings and evacuation

All coastal states were actively involved in mock drill and taken the drill down to community level. Elapsed time to notify the public is given below:

Table-3: Elapsed Time for Public Notification and Instruction

Location	Making a decision on public warning (From time of receipt of warning)	Formulation/ compilation of public Notification (From time of decision)	Activation of public notification systems (From time of notification formulated)	Total Time (in Minutes)
Suryalanka, Guntur Dist, Andhra Pradesh	Immediate	05	10	15
Chinapattapupale, Prakasam Dist, Andhra Pradesh	15	15	30	60
Pathameghavaram, Srikakulam Dist, Andhra Pradesh	5-10	10-20	5-10	40
Barripeta, Vizianagaram Dist, Andhra Pradesh	-	-	-	70
Pallipalem, East Godavari Dist, Andhra Pradesh	15	15	15	45
CM Lanka and PM Lanka, West Godavari Dist, Andhra Pradesh	2	6	15	23
Poombuhar, Nagapattinam Dist, Tamil Nadu	5	10	10	25
Keezhaiyur, Karaikal, Puducherry	1	10	5	16
District Magistrate, Purba Medinipur, WB	5	5	10	20
Dwarirjagal, North 24 Parganas, WB	5	10	10	25
District Magistrate, South 24 Parganas, WB	10	7	5	22
3rd BN NDRF	5	5	5	15
4th BN NDRF	20	23	25	68
10th BN NDRF	10	10	5	25

Response time is very important factor for disaster management, especially for tsunamis which have very fast onset. From the feedbacks, it was observed that Guntur- Andhra Pradesh, Karaikal-Puducherry and 3rd Battalion-NDRF took very less time (15 minutes) to send

notifications to public. Vizianagaram-Andhra Pradesh and 4th Battalion-NDRF took comparatively long time (68-70 minutes) to send notifications to public. And on an average, the elapsed time for public notification was 33 minutes. ,. It is recommend to the DMOs to reduce elapsed time as much as possible to notify the public, which helps the public to have more time for evacuation.
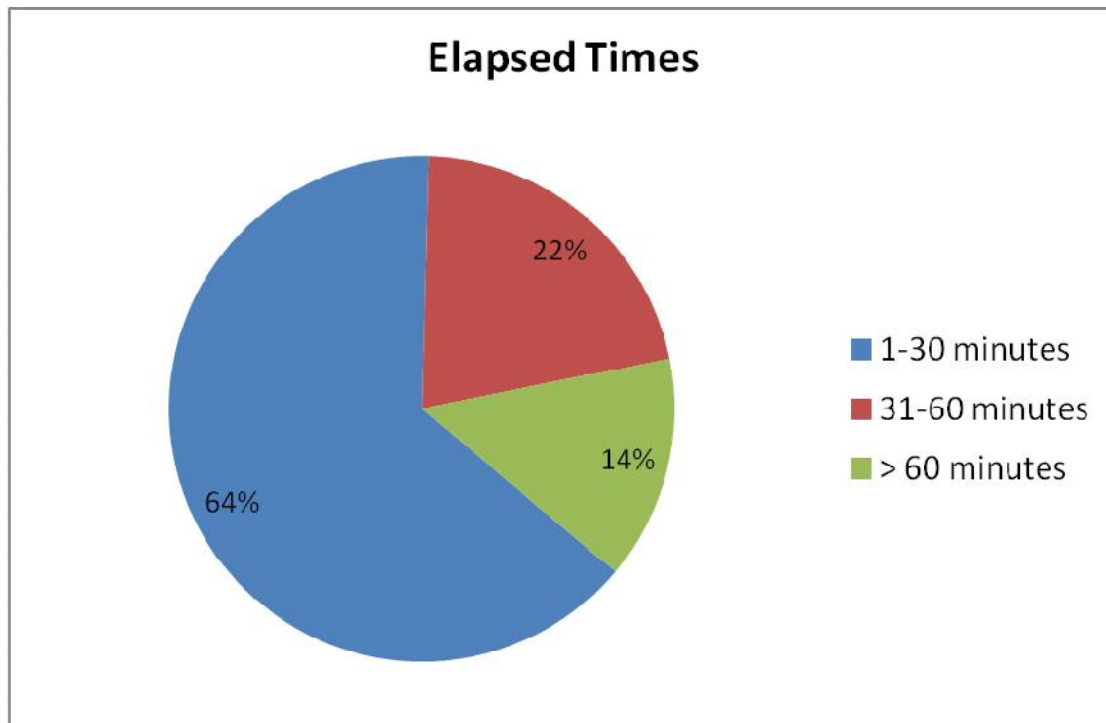
Figure-6: Elapsed Time for Public Notification and Instruction

Table-4: Information of evacuated villages in the mock drill

Districts/ Organisation	What areas evacuated (name of the village/ town)	What time did the evacuation occur in each area (IST)	People were moved to	Number of people that evacuated in each area?
Guntur, Andhra Pradesh	Suryalanka Village, Bapatla Mandal	10:46 AM	K.Rosaiah Sivaleela College	250
Nellore, Andhra Pradesh	West Pattapupalem, Mypadu	10:30 AM	Cyclone shelters	342
Prakasam, Andhra Pradesh	Chinapattapupalem, Kothapatnam	11:00 AM	Cyclone shelters Madanur	500
Srikakulam, Andhra Pradesh	Pathameghavaram, M.Sunnapalli &Maruvada	10:35 AM	Cyclone shelters	288
Vizianagaram, Andhra Pradesh	Barripeta H/o Pathivada, Poosapatirega	10:47 AM	Cyclone shelters	559
East Godavari, Andhra Pradesh	Pallipalem, Sakinetipalli Mandal	11:38 AM	Cyclone shelters	216
West Godavari, Andhra Pradesh	CM Lanka, Narsapur	9:25 AM	Cyclone shelters	200
West Godavari, Andhra Pradesh	PM Lanka, Narsapur	9:25 AM	Cyclone shelters	250
Krishna, Andhra Pradesh	Kanuru	10:00 AM	Inland safer place	980
Krishna, Andhra Pradesh	Tallapalem	10:00 AM	Inland safer place	1010
Nagapattinam, Tamil Nadu	Poombuhar village, Sirkali Taluka	10:45 AM	Tsunami shelter	2000
Karaikal, Puducherry	Keezhaiyur (North)	10:20 AM	High Scholl, TRP	450
Karaikal, Puducherry	Pattinacherry	09:49 AM	Tsunami relief centre	300
Balasore, Odisha	Chandipur	10:20 AM	Cyclone shelters	110
Bhadrak, Odisha	Baidalpur	10:30 AM	Cyclone shelters	130
Kedrapara, Odisha	TikayatNagar	10:30 AM	High land area	250
Jagatsinghpur, Odisha	Nuagaon	10:50 AM	High land area	210
Puri, Odisha	Belada	10:55 AM	Cyclone shelters	80
Ganjam, Odisha	Kanamana	10:35 AM	High land area	200
North 24 Parganas, West Bengal	Dwarirjagal Village of Sandeshkhali-II	10:50 AM	MPCS at BDO office compound	153
			Total	**8,478**

Around 8,478 people were evacuated to safe places during mock drill.

Recommendations:
- To involve NGOs and Welfare association members and local people in tsunami training programs on methods of Evacuation, Rescue Operations and shelter management

4.5. Objective-5: Communication methods for public notification and instruction

Disaster management organisations in different states used different modes of communications to share the tsunami information and notify the public. Most of the participated organisations forwarded message to their line departments for further action.

Table-5: Method of communication used for notifying public

Location/ District	Communication methods used for notify public
Suryalanka, Guntur Dist, Andhra Pradesh	Local TV Channel, Public Announcement System (PAS), Police, Door-to-door and Media
West Pattapupalem Nellore Dist, Andhra Pradesh	Telephone, SMS, Police, Door-to-door and Tom-Tom
Chinapattapupale, Prakasam Dist, Andhra Pradesh	Telephone, SMS, Website, Siren, PAS, Public call centre, Police, Door-to-door and Tom-Tom
Pathameghavaram, M.Sunnapalli,Maruvada, Srikakulam Dist, Andhra Pradesh	SMS, Website, Siren, PAS, Public call centre, Police, Door-to-door
Barripeta, Vizianagaram Dist, Andhra Pradesh	Telephone, SMS, Siren, PAS, Public call centre, Police, Door-to-door and Tom-Tom
Pallipalem, East Godavari Dist, Andhra Pradesh	Telephone, public radio, TV, Siren, PAS, Police and Door-to-door
CM Lanka and PM Lanka, West Godavari Dist, Andhra Pradesh	Telephone, SMS, Public radio, TV, Siren, PAS, Police, Door-to-door and Red cross volunteers
Kanuru & Tallapalem Krishna Dist, Andhra Pradesh	Telephone, Police, Mega phone and Siren
Poombuhar, Nagapattinam Dist, Tamil Nadu	PAS, SMS, Public call centre, Public radio broadcasts, Public call centre, Siren, and Door-to-door
Keezhaiyur and	Telephone, SMS, Public radio, TV, website, Siren, PAS, Police,

Pattinacherry Karaikal, Puducherry	Door-to-door and VHF
Chandipur, Balasore Dist, Odisha	Telephone, SMS, PAS and Door-to-door
Baidalpur, Bhadrak Dist, Odisha	PAS and Door-to-door
TikayatNagar, Kedrapara Dist, Odisha	PAS and Door-to-door
Nuagaon, Jagatsinghpur Dist, Odisha	PAS and Door-to-door
Belada, Puri Dist, Odisha	PAS and Door-to-door
Kanamana, Ganjam Dist, Odisha	PAS and Door-to-door
Dwarirjagal, North 24 Parganas, West Bengal	Telephone, Siren, PAS and Police
South 24 Parganas, West Bengal	Telephone, SMS, Website, PAS, Police and Door-to-door

It was observed that most of the organisations used different mode of communications like Telephone, SMS, Public radio, TV, website, Siren, Public Alert System, Police, Door-to-door, Mega phone, VHF, etc for their last mile connectivity

Recommendations:

- Last-mile Communication Plan including all modes of dissemination is required

- The communication network/infrastructure need to be improved to avoid communication gaps

- Dedicated tsunami Siren systems to be installed in the most vulnerable regions

4.6. Objective-6: Community preparedness

Feedbacks indicate that participants at community level involved passionately in the drill. All Districts/Organisations are having their own SOPs to deal tsunamis. It was observed that most of the organisations coordinated with their related Disaster Managements Organisations and Media during event. Response time was varying from 15-70 minutes to notify the public. Different modes of communications were used for alerting local communities. Around 8,478 people were evacuated to shelters/safe places during the drill.

Recommendations:

- DMOs should be encouraged to prepare evacuation routes and maps at the village level

- The stakeholders should be regularly trained/oriented on their role and responsibilities especially the local administrative officers at village and block levels

- Local community (near-source regions) should be well trained to react to natural signs

- Tsunami mock drills should be conducted frequently to enable all the stake holder as well as civilians to act appropriately during tsunami

5. Summary of the drill

- The Tsunami mock drill was very successful which enhanced the awareness and preparedness among the coastal people of East Coast of India

- The core objectives were exercised, performance evaluated and reported upon

- The communication between the ITEWC and Disaster Management Organisations with local communities was tested and understood

- Few communication lags were observed between ITEWC and DMOs, and need to be rectified at both ends

- Most recipients agreed that the execution of the drill was very satisfactory and requested to conducts regular Mock drills to improve awareness as well as preparedness among the public

5.1. State-wise Summary

5.1.1. Andhra Pradesh

- As per feedbacks received, 11 villages participated (Suryalanka, West Pattapupalem, Chinnapattapupalem, Patha Meghavaram, Barripeta, Pallipalem, CM Lanka, PM Lanka, Kanuru, Tallepalem and Vadapalem) in the mock drill from 9 coastal districts of Andhra Pradesh
- Feedbacks are not received from Krishna and Visakhapatnam districts. However, Krishna district information was taken from 10 Bn of NDRF
- In West Godavari district, low lying people were warned at 09:02 hrs and evacuations started at 09:25 hrs which was initiated prior to the start of mock drill.

Field Photos of Andhra Pradesh

Figure-7: Mock drill photos of Andhra Pradesh

5.1.2. Odisha

- 6 villages (Chandipur, Tikayat Nagar, Belada, Kanamana, Nuagaon and Baidalpur) were participated in the mock drill from 6 coastal districts of   Odisha
- Feedback received only from Balsore district and remaining districts feedbacks not received. However, all districts information taken from 3rd Bn of NDRF

Field Photos of Odisha

Figure-8: Mock drill photos of Odisha

5.1.3. Puducherry

- 2 villages (Keezhaiyur and Pattinacherry) participated from Puducherry Union Territory
- As per feedback, Puducherry DMOs received all Email, Fax, SMS messages timely
- All existing communication channels were used during the drill

Field Photos of Puducherry

Figure-9: Mock drill photos of Puducherry

5.1.4. Tamil Nadu

- 1 village (Poombuhar) participated in the mock drill from 13 coastal districts of Tamil Nadu
- Feedback received from all coastal districts and most of them reported that Fax messages were not received
- Large number of people evacuated (around 2000) out of all districts

Field Photos of Tamil Nadu

Figure-9: Mock drill photos of Tamil Nadu

5.1.5. West Bengal

- 3 villages (Digha, Dwarirjangal and Kakdwip) participated in the mock drill from 3 coastal districts of West Bengal
- Fax messages from ITEWC were not received by any of the districts
- Field photos are not available from this state

Appendix A: List of Coastal Districts and Village level participation in drill

S. No.	State	District	Village (Taluk/ Mandal)
1	Andhra Pradesh	Guntur	Suryalanka, H/O Adavi (Bapatla)
2		Nellore	West Pattapupalem, Mypadu (Indukurpeta)
3		Prakasam	Chinnapattapupalem, H/o Madanur (Kothapatnam)
4		Srikakulam	Patha Meghavaram (Santabommali), M.Sunnapalli and Maruvada
5		Vizianagaram	Barripeta H/oPathivada (Pusapatirega)
6		East Godavari	Pallipalem (Sakhinetipalli)
7		West Godavari	CM Lanka and PM Lanka (Narasapuram)
8		Krishna	Kanuru and Tallepalem (Machilipatnam)
9		Visakhapatnam	Vadapalem, H/o Tanthadi (Atchutapuram)
10	Odisha	Balasore	Chandipur (Balasore Sadar)
11		Kedrapada	Tikayat Nagar (Rajnagar)
12		Puri	Belada (Sadar)
13		Ganjam	Kanamana (Chhatrapur)
14		Jagadsingpur	Nuagaon (Kujanga)
15		Bhadrak	Baidalpur (Basudevpur)
16	Tamil Nadu	Nagapattinam	Poombuhar (Sirkali)
17		Tiruvallur	
18		Kanyakumari	
19		Thoothukudi	
20		Tirunelveli	
21		Chennai	
22		Kanchepuram	
23		Cuddalore	
24		Pudukottai	
25		Viluppuram	
26		Ramanathapuram	
27		Thanjavur	
28		Tiruvayyur	
29	Puducherry	Karaikal	Keezhaiyur and Pattinacherry (Karaikal)
30	West Bengal	Purba Medinipur	Digha
31		North 24 Parganas	Dwarirjangal (Sandeshkhali-II Division)
32		South 24 Parganas	Kakdwip

Out of 32, feedback received only from 25 districts. Feedback not received from Krishna, Visakhapatnam, Kedrapada, Puri, Ganjam, Jagadsingpur, Bhadrak districts.

Note: In addition to above district list, messages sent to all east coast State Emergency Operation Centres (SEOC) and NDRF of 2nd Bn, 3rd Bn, 4th Bn and 10th Bn.

Appendix B: Summary of Email messages received by the recipients

Bulletins Districts/Organisations	0930 Test Start	0935 B1	0940 B2	0950 B3	1045 B4	1145 B5	1245 B6	1330 B7
Guntur, AP	0930	0936	0940	0952	•	1155	1246	1330
Nellore, AP	0928	0935	1020	1032	1119	1158	1307	1339
Prakasam, AP	•	•	•	•	•	•	•	•
Srikakulam, AP	0930	•	0942	0952	1045	1157	1322	1400
Vizianagaram, AP	0930	0935	0946	0954	1047	1146	1248	1332
East Godavari, AP	•	•	•	•	•	•	•	•
West Godavari, AP	•	•	•	•	•	•	•	•
SEOC, TN	0930	0935	0940	0950	1045	1145	1245	1330
Nagapattinam, TN	0932	0938	0941	0952	1048	1146	1248	1333
Tiruvallur, TN	0932	0938	0941	0952	1048	1146	1252	1336
Kanniyakumari, TN	1001	1005	1006	1013	1052	1156	1251	1335
Thoothukudi, TN	0933	0938	0941	0950	1048	1145	1245	1331
Tirunelveli, TN	0930	0936	0941	0950	1045	1145	1245	1331
Chennai, TN	0930	0935	0940	0950	1045	1145	1245	1330
Kancheepuram, TN	•	•	•	•	•	1146	1248	1333
Cuddalore, TN	0929	0935	0940	0949	1045	1144	1244	1330
Pudukkottai, TN	1029	1029	1028	1027	1050	1146	1245	1331
Villupuram, TN	0929	0935	0940	0949	1045	1145	1245	1330
Ramanathapuram, TN	0931	0939	0941	0951	1046	1145	1246	1331
Tiruvarur, TN	0932	0938	0941	0952	1048	1146	1248	1333
Thanjavur, TN	0930	0936	0941	0950	1046	1145	1246	1331
Karaikal, PD	0931	0940	0945	1002	1046	1145	1246	1330
Balasore, OD	0930	0936	0940	0950	•	1145	1245	1330
SEOC, WB	•	•	•	•	•	•	•	•
Purba Medinipur, WB	0930	0937	0941	0950	1046	1145	1245	1334
North 24 Parganas, WB	0931	0936	0940	0950	1046	1145	1245	1333
South 24 Parganas, WB	0930	0936	0940	0950	1045	1145	1245	1330
NDRF 3rd Battalion, OD	0930	0935	0940	0950	1045	1145	1245	1330
NDRF 4th Battalion, TN	0935	0938	0945	0957	1046	1148	1250	1339
NDRF 10th Battalion, AP	0931	0936	0940	0949	1045	1145	1244	1330

Note: Above table indicates list of Feedback received from various DMOs & NDRF Battalions.

(AP- Andhra Pradesh; TN- Tamil Nadu; PD- Puducherry; OD- Odisha and WB- West Bengal)

Appendix C: Summary of Fax messages received by the recipients

Bulletins / Districts/Organisations	0930 Test Start	0935 B1	0940 B2	0950 B3	1045 B4	1145 B5	1245 B6	1330 B7
Guntur, AP	●	●	●	●	1048	●	●	●
Nellore, AP	●	●	●	●	●	●	●	●
Prakasam, AP	●	●	●	●	●	●	●	●
Srikakulam, AP	●	●	●	●	●	●	●	●
Vizianagaram, AP	●	●	0946	1220	●	●	●	●
East Godavari, AP	●	●	●	●	●	●	●	●
West Godavari, AP	1009	1010	1022	1057	1115	1157	1311	1421
SEOC, TN	1000	1000	1000	1000	1045	1147	1245	1332
Nagapattinam, TN	0945	0940	1115	1116	1116	1200	1255	1339
Tiruvallur, TN	0930	●	●	0950	1045	1145	1305	1347
Kanniyakumari, TN	●	●	●	1231	1231	1231	●	●
Thoothukudi, TN	●	●	●	●	●	●	●	●
Tirunelveli, TN	1330	1330	1037	1059	1059	1153	1250	1335
Chennai, TN	0932	0938	0949	0952	1048	1158	1246	1337
Kancheepuram, TN	0932	●	1044	1106	1107	1213	1310	1350
Cuddalore, TN	●	●	1131	1131	1131	●	●	●
Pudukkottai, TN	●	●	●	●	●	●	●	●
Villupuram, TN	1000	1001	1001	1001	1104	1217	1318	1345
Ramanathapuram, TN	●	●	●	●	●	●	●	●
Tiruvarur, TN	0945	●	1115	1116	1116	1200	1255	1339
Thanjavur, TN	●	●	●	●	●	●	●	●
Karaikal, PD	0931	0938	0954	0959	1048	1152	1245	1332
Balasore, OD	●	●	●	●	●	●	●	●
SEOC, WB	0934	0938	0941	0951	1047	1146	1245	1332
Purba Medinipur, WB	●	●	●	●	●	●	●	●
North 24 Parganas, WB	●	●	●	●	●	●	●	●
South 24 Parganas, WB	●	●	●	●	●	●	●	●
NDRF 3rd Battalion, OD	●	●	●	1046	1048	●	●	●
NDRF 4th Battalion, TN	●	●	●	●	●	●	●	●
NDRF 10th Battalion, AP	0937	0939	0942	●	1116	1152	1301	1333

Note: Above table indicates list of Feedback received from various DMOs & NDRF Battalions.

(AP- Andhra Pradesh; TN- Tamil Nadu; PD- Puducherry; OD- Odisha and WB- West Bengal)

Appendix D: Summary of SMS messages received by the recipients

Bulletins / Districts/Organisations	0930 Test Start	0935 B1	0940 B2	0950 B3	1045 B4	1145 B5	1245 B6	1330 B7
Guntur, AP	0930	0937	0941	0951	1046	1145	1246	1331
Nellore, AP	●	●	●	●	●	●	●	●
Prakasam, AP	0930	0936	0940	0950	1046	1146	1245	1331
Srikakulam, AP	0930	0935	0940	0950	1045	1157	1306	1400
Vizianagaram, AP	●	●	●	●	●	●	●	●
East Godavari, AP	0933	0940	0944	0954	1049	1148	1248	1334
West Godavari, AP	●	●	●	●	●	●	●	●
SEOC, TN	0930	0935	0940	0950	1045	1145	1245	1330
Nagapattinam, TN	0931	0936	0941	0951	1046	1145	1246	1331
Tiruvallur, TN	0932	0937	0941	0951	1047	1146	●	1336
Kanniyakumari, TN	0942	0942	0946	0955	1050	1148	1255	1332
Thoothukudi, TN	0933	0937	0941	1001	1047	1146	1246	1331
Tirunelveli, TN	0931	0936	0941	0951	1045	1145	1245	1330
Chennai, TN	0930	0935	0940	0950	1045	1145	1245	1330
Kancheepuram, TN	0931	0935	0940	0949	1045	1144	1245	1330
Cuddalore, TN	0931	0937	0941	0951	1047	1145	1245	●
Pudukkottai, TN	0939	0939	0944	0955	1048	1147	1249	1332
Villupuram, TN	0930	0937	0941	0951	1046	1145	1245	1331
Ramanathapuram, TN	0931	0939	0941	0951	1046	1145	1246	1331
Tiruvarur, TN	0930	0935	0939	0949	1046	1145	1246	1331
Thanjavur, TN	0930	0935	0941	0949	1045	1144	1255	1339
Karaikal, PD	0931	0936	0952	1000	1042	1152	1245	1332
Balasore, OD	0930	0937	●	0951	1046	1145	1245	1331
SEOC, WB	●	●	●	●	●	●	●	●
Purba Medinipur, WB	0932	0938	0941	0950	1048	1145	1245	1337
North 24 Parganas, WB	0931	0937	0946	0951	1046	1146	1246	1331
South 24 Parganas, WB	0930	0937	0941	0951	1046	1145	1245	1330
NDRF 3rd Battalion, OD	0931	0940	0941	0951	1046	1145	1248	1331
NDRF 4th Battalion, TN	1050	1055	1100	1101	1102	1150	1252	1342
NDRF 10th Battalion, AP	●	●	●	●	●	●	●	●

Note: Above table indicates list of Feedback received from various DMOs & NDRF Battalions.

(AP- Andhra Pradesh; TN- Tamil Nadu; PD- Puducherry; OD- Odisha and WB- West Bengal)

Appendix E: Summary of INCOIS Website access by each recipient

Bulletins / Districts/Organisations	0930 Test Start	0935 B1	0940 B2	0950 B3	1045 B4	1145 B5	1245 B6	1330 B7
Guntur, AP	Y	Y	Y	Y	Y	Y	Y	Y
Nellore, AP	Y	Y	Y	Y	Y	Y	Y	Y
Prakasam, AP	Y	Y	Y	Y	Y	Y	Y	Y
Srikakulam, AP	Y	Y	Y	Y	Y	Y	Y	Y
Vizianagaram, AP	Y	Y	Y	Y	Y	Y	Y	Y
East Godavari, AP	Y	Y	Y	Y	Y	Y	Y	Y
West Godavari, AP	Y	Y	Y	Y	Y	Y	Y	Y
SEOC, TN	Y	Y	Y	Y	Y	Y	Y	Y
Nagapattinam, TN	Y	Y	Y	Y	Y	Y	Y	Y
Tiruvallur, TN	Y	Y	Y	Y	Y	Y	Y	Y
Kanniyakumari, TN	Y	Y	Y	Y	Y	Y	Y	Y
Thoothukudi, TN	Y	Y	Y	Y	Y	Y	Y	Y
Tirunelveli, TN	Y	Y	Y	Y	Y	Y	Y	Y
Chennai, TN	Y	Y	Y	Y	Y	Y	Y	Y
Kancheepuram, TN	Y	Y	Y	Y	Y	Y	Y	Y
Cuddalore, TN	Y	Y	Y	Y	Y	Y	Y	Y
Pudukkottai, TN	Y	Y	Y	Y	Y	Y	Y	Y
Villupuram, TN	Y	Y	Y	Y	Y	Y	Y	Y
Ramanathapuram, TN	Y	Y	Y	Y	Y	Y	Y	Y
Tiruvarur, TN	Y	Y	Y	Y	Y	Y	Y	Y
Thanjavur, TN	Y	Y	Y	Y	Y	Y	Y	Y
Karaikal, PD	Y	Y	Y	Y	Y	Y	Y	Y
Balasore, OD	Y	Y	Y	Y	Y	Y	Y	Y
SEOC, WB	N	N	Y	Y	Y	Y	Y	Y
Purba Medinipur, WB	Y	Y	Y	Y	Y	Y	Y	Y
North 24 Parganas, WB	Y	Y	Y	Y	Y	Y	Y	Y
South 24 Parganas, WB	Y	Y	Y	Y	Y	Y	Y	Y
NDRF 3rd Battalion, OD	Y	Y	Y	Y	Y	Y	Y	Y
NDRF 4th Battalion, TN	Y	Y	Y	Y	Y	Y	Y	Y
NDRF 10th Battalion, AP	Y	Y	Y	Y	Y	Y	Y	Y

Note: Above table indicates list of Feedback received from various DMOs & NDRF Battalions.

(AP- Andhra Pradesh; TN- Tamil Nadu; PD- Puducherry; OD- Odisha and WB- West Bengal)

Appendix F: Summary of Feedbacks received from participated Districts/organisations:

S.No	Location	Receipt of Notifications from INCOIS (Email, SMS, Fax)	Do you have a formal SOP for tsunami response	What actions were taken after receiving messages	Did your organization issue tsunami warning messages to public	Assessment of the elapsed time until the public were notified	Were any areas evacuated	Whether the drill contributed to the improvement of planning related to public warnings	Remarks
1	Guntur, Andhra Pradesh	Email, SMS, Fax	Yes	Message pass on to All line departments, Local Public Alerted at 9:41AM and Evacuation started at 10:46	Yes. By Local TV Channel, Public Announcement System (PSA), Police, Door-to-door and Media	15 minutes	Yes. Suryalanka Village, Bapatla Mandal at 10:46 AM. 250 people evacuated to Rosaiah Sivaleela Degree College.	Yes. All line Departments Revenue, Police, Marine Police, Fire, Medical and Health, Municipality, Panchayat-Raj, R&B, RWS, I&PR and Media, Local Elected Representatives, Red-Cross, NCC, Cadets actively participated.	The event went on very peaceful, successful and satisfaction mode
2	Nellore, Andhra Pradesh	Email, SMS	Yes	Message pass on to All line departments, Local Public Representatives at 9:31	Yes. By Telephone, SMS, Police, Door-to-door and Tom-Tom	-	Yes. West Pattapupalem, Mypadu at 10:30 AM. 342 people evacuated.	Yes	Trainings required on method of Evacuation, Rescue Operations and also shelter management.
3	Prakasam, Andhra Pradesh	SMS	Yes	Communicated to all line departments at 09:35 and Evacuated people at 10:45	Yes. By Telephone, SMS, Website, Siren, PAS, Public call centre, Police, Door-to-door and Tom-Tom	60 minutes	Chinapattapupalem, Kothapatnam Mandal at 10:45 AM. 500 people evacuated.	Yes	This type of Mock drill will be helpful to actual needy Community.
4	Srikakulam, Andhra Pradesh	Email, SMS	Yes	Alert the all line departments, siren used at 09:50 and Evacuated	Yes. By SMS, Website, Siren, PAS, Public call centre, Police, Door-to-door	40 minute	Pathameghavaram at 10:35 AM, M.Sunnapalli and Maruvada at 10:40 AM.	Yes	For this mock drill, people of nearby villages have also participated

				people at 10:30			Total 288 people evacuated to cyclone shelters.		in large number which has given immense applause by the people for organising awareness drills.
5	Vizianagaram, Andhra Pradesh	Email, Fax	Yes	Alerted the villagers at 9:37 and Evacuated people at 09:50	Yes. By Telephone, SMS, Siren, PAS, Public call centre, Police, Door-to-door and Tom-Tom	70 minutes	Barripeta H/o Pathivada, Poosapatirega mandal at 10:47 AM. Total 559 people evacuated to cyclone shelters.	Yes	This Mock drill useful for creating awareness and alertness and preparedness.
6	East Godavari, Andhra Pradesh	SMS	Yes	Alerted the coastal people at 09:50.	Yes. By Telephone, public radio, TV, Siren, PAS, Police, Door-to-door	45 minutes	Pallipalem, Sakinetipalli Mandal at 11:38 AM. Total 216 people evacuated to cyclone shelters.	Yes	The conduct of mock drill so satisfactory as planned by the dist. administration.
7	West Godavari, Andhra Pradesh	Fax	No	Warned low lying are people at 09:02.	Yes. By Telephone, SMS, Public radio, TV, Siren, PAS, Police, Door-to-door and Red cross volunteers	23 minutes	CM Lanka and PM Lanka at 9:25 AM. Total 450 people evacuated to cyclone shelters.	Yes	Conduct of mock drill are useful to the low lying are people.
8	SEOC, Tamil Nadu	Email, SMS, Fax	Yes	Messages forwarded to concerned Districts	No	-	-	Yes	
9	Nagapattinam, Tamil Nadu	Email, SMS, Fax	Yes	Messages conveyed to all teams in Poombhuhar village	Yes. By PAS, SMS, Public call centre, Public radiobroadcasts, Public call centre, Siren, and, Door-to-door	25 min	Poombuhar village,Sirkali Taluka at 10:45 Am. Total 2000 people evacuated to Kaveeripoompattinam tsunami shelter	Yes	It helped in ensuring timely dissemination and reception of information which in turn leads to improved planning in issued public warning and response activities

10	Tiruvallur, Tamil Nadu	Email, SMS	-	-	-	-	-	-	-
11	Kanniya kumari, Tamil Nadu	Email, SMS	Yes	Forwarded messages to Pattukkottai and Peravurani Tahsildars	No	-	-	-	-
12	Thoothu kudi, Tamil Nadu	Email, SMS	-	-	-	-	-	-	-
13	Tirunel veli, Tamil Nadu	Email, SMS	Yes	Messages forwarded to Tahsildar of Radhapuram	No	-	-	Yes. It helped in ensuring, testing timely dissemination and reception of information which in turn leads to improved planning in issuing public warning and response activities	Timely communication through FAX may be ensured
14	Chennai, Tamil Nadu	Email, SMS, Fax	Yes	Forwarded messages to Tahsildars of Tondiarpet, Purusawalkam, Mylapore and Velachery Talukas	No	-	-	-	Mock drill conducted in letter and spirit at District and Taluk level. This has ample opportunity to the stakeholders how to react at the time of real tsunami
15	Kanche epuram, Tamil Nadu	SMS, Fax	-	Messages forwarded to Tahsilders of Thiruporur, Thirukalukun dram, Sholinganallu r, Cheyyur	-	-	-	-	This mock drill drills is a good experience to the District Administratio n. Nice cooperation from our subordinates to accomplish this task effectively.

16	Cuddalore, Tamil Nadu	Email, SMS, Fax	Yes	Messages forwarded to Tahsilders of Cuddalore and Chidambaram	No	-	-	Yes	-
17	Pudukkottai, Tamil Nadu	Email, SMS	-	-	-	-	-	-	-
18	Villupuram, Tamil Nadu	Email, SMS	Yes	Messages forwarded to Tahsilders of Marakkanam, Vanur and D.O. of Villupuram & Tindivanam	No	-	-	Yes	-
19	Ramanathapuram, Tamil Nadu	Email, SMS, Fax	Yes	Messages forwarded to Tahsilders of Ramanathapuram, Rameswaram, Kadalai, Thiruvadanai, Kilakkarai	No	-	-	Yes	-
20	Tiruvarur, Tamil Nadu	Email, SMS, Fax	Yes	Messages forwarded to Taluka office Thiruthuraipoondi	No	-	-	Yes	-
21	Thanjavur, Tamil Nadu	Email, SMS	Yes	Messages forwarded to Tahsildars of Pattukkottai and Peravurani	No	-	-	Yes	-
22	Karaikal, Puducherry	Email, SMS, Fax	Yes	Far expedition action to all government agencies/organisations	Yes. By Telephone, SMS, Public radio, TV, website, Siren, PAS, Police, Door-to-door and VHF	16 minutes	Keezhaiyur (North) at 10:20 AM. Total 450 people evacuated to High Scholl, TRP.	Yes	-
23	Bhograi, Odisha	Email	Yes	To Public	Yes. SMS	No evacuation	-	Yes	-
24	Balasore, Odisha	Email, SMS	Yes	Messages forwarded to five coastal BDOs (Bhograi, BzaliaPalo,	Yes. By Telephone, SMS, PAS, Door-to-door	-	-	Yes	-

				Remuna, Sadar & Bahanaga) and Tahasildars					
25	SEOC, West Bengal	Fax	Yes	The message was disseminated to the District Officials and up to the elected members of the Gram Panchayats through Voice Call, SMS, e-mail by web based EOC Incident Response Software	No	-	-	Yes. Evaluation of these districts DM Plan have been done	1. Through this mock drill, verified that our plans are in satisfactory order. 2. Our usage of Web based EOC DSS in this drill has shown the effectiveness of this solution to enhance our planning and response time during such events.
26	Purba Medinipur, West Bengal	Email, SMS	Yes	Forwarded information to Coastal Sub-Division & Blocks of Contai, Ramnagar-I and Ramnagar-II	No	20 minutes	-	Yes	-
27	North 24 Parganas, West Bengal	Email, SMS	Yes	Forwarded information to the lower level up to SDO, BDO.	Yes. By Telephone, Siren, PAS, Police	25 minutes	Dwarirjagal Village of Sandeshkhali-II at 10:50 AM. Total 153 people evacuated to MPCS at BDO office compound.	Yes	-
28	South 24 Parganas, West Bengal	Email, SMS	Yes	Forwarded information to concern SDO, BDO, BMOH, ADC, Police, Coast Guard, NDRF, DICO, PRI Members, etc.	Yes. By Telephone, SMS, Website, PAS, Police, Door-to-door	22 minutes	only Mock Evacuation done	Yes	-

| 29 | NDRF 3rf Battalion, Odisha | Email, SMS, Fax | Yes | Forwarded information to the Team Commanders of the Teams deployed for Tsunami mock drill | Yes. By PAS, Door-to-door | 15 minutes | Chandipur at 10:20 AM & 110 people moved to Cyclone shelters. Baidalpur at 10:30 AM & 130 people moved to Cyclone shelters. Tikayat Nagar at 10:30 AM & 250 people moved to safe distance from coast. Nuagaon at 10:50 AM & 210 people moved to High land area. Belada at 10:55 AM & 80 people moved to Cyclone shelters. Kanamana at 10:35 AM & 200 people moved to safe distance from Coast. | Yes. the mock drill provides real time insight to the Tsunami threat. It was the first time experience for the villagers and the drill contributed to the improvement or the development of planning related to public warnings and other response activities | 1. Improvement required on coordination among the various Stakeholders. 2. Communication network/infra structure is to be improved 3. The stakeholders should be regularly trained/oriented on their roles 4. Need to have Tsunami warning siren code device linked up with ITEWS and people should be made aware. 5. Dissemination of Tsunami warning message to public via bulk texts messages. 6. Culture of self-evacuation to be practiced. |
| 30 | NDRF 4th Battalion, Tamil Nadu | Email, SMS | Yes | Information Passed to DEOCs at Nagapattinam (TN) and Karaikkal (Puducherry) and the teams deployed at Poombuhar of Nagapattinam district (TN) and Pattinacherry | Yes. By Telephone, SMS, Sirens, PAS, Door-to-door | 25 minutes | Poompuhar, Nagapattinam Dist at 09:49 AM & 2700 people evacuated to Tsunami relief centre. Pattinacherry, Karaikkal Dist at 09:49 AM & 300 people evacuated to Tsunami relief centre. | Yes. With the excellent co-ordination from the local district administration. | - |

				of Karaikkal District (Puducherry)					
31	NDRF 10th Battalion, Andhra Pradesh	Email, Fax	Yes	Forwarded information to NDRF team commander, observers, DIG NDRF SZ and HQr NDRF	Yes. By Telephone, Police, Mega phone and Siren	25 minutes	Kanuru, Krishna Dist at 10:00 AM & 980 people moved to Inland safer place. Tallapalem, Krishna Dist at 10:00 AM & 1010 people moved to Inland safer place.	Yes	Such type of drill should be frequent to make enable all the stakeholder as well as civilians to perform action during Tsunami.