Tsunami Early Warning Services
at Local Emergency Operation Center

Training Manual
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at Local Emergency Operation Center**

**Training Manual
2013**

Capacity Development in Local Communities

Project for Training, Education and Consulting for
Tsunami Early Warning System (PROTECTS)

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Training Manual

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The Training Manual

Introduction

Local 24/7 Emergency Operation Centres (EOC) play a key role in the tsunami warning chain. They are responsible to provide guidance to the communities during a tsunami emergency and to call for evacuation. Operators in the EOC must be able to act quickly and in accordance with previously established SOPs.

The training module "Tsunami Early Warning Services at Local Emergency Operation Centre" was developed to address the training needs of provincial and district/city level EOCs in carrying out and improving the tsunami warning services in the regions. In the chart below, the warning service training for local EOC is indicated by number ①.

Background

Tsunamis may arrive at Indonesian shores within 20-40 minutes after the earthquake that has triggered it. In some locations arrival times can be even shorter. It is vital that individuals, families and institutions have the capacity to react in a quick and appropriate manner to avoid the damaging waves and their impacts. Therefore, local evacuation plans and warning arrangements are needed. To achieve this, it needs the involvement of many stakeholders, from local authorities to different elements in the community.

To strengthen the capacities of local stakeholders five Training Modules have been developed and applied in a number of provinces and districts in Java, Bali and NTB in the frame of the PROTECTS project. The trainings address key elements for local tsunami preparedness and follow a structured approach to build up local tsunami preparedness.

The structured approach is represented in the chart below. The circled numbers on the chart represent the five trainings modules which have been developed within this approach.

Structured Approach in Tsunami Preparedness Capacity Development
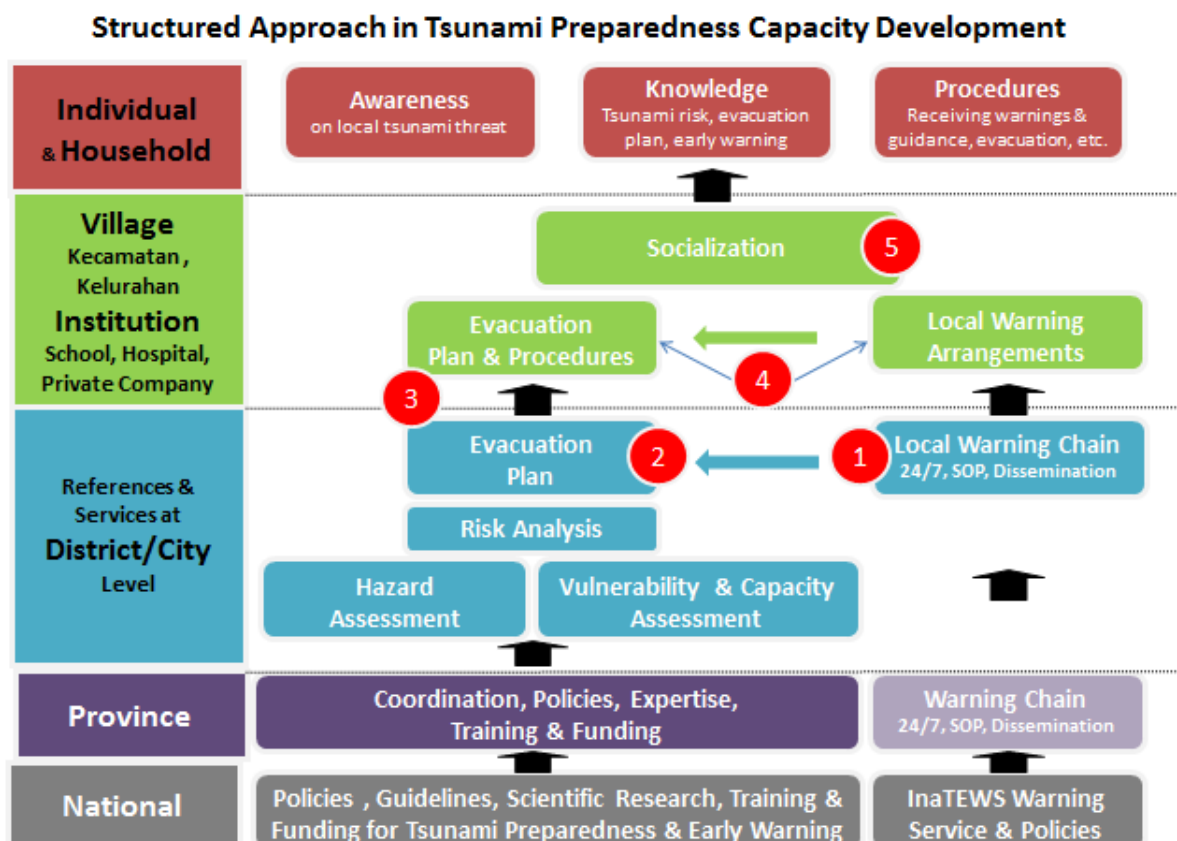
The rationale for this approach is based on the assumption that the chances to survive a near-field tsunami depend very much on the capacities of the affected people to quickly assess the situation and take the right decisions and actions based on basic but solid knowledge of local tsunami risks and preparedness plans, even the case of the failure of warning services or in the absence of guidance from local authorities during an emergency. Therefore people in risk areas need to be aware about local tsunami hazard and risks and understand local warning and evacuation procedures (Red Level).

To provide people in communities at risk with more than thumb rules or general instructions on how to react to a tsunami threat, it is necessary to develop specific local evacuation maps and procedures as well as warning arrangements and communicate them to all community members (Green Level).

Developing such plans at a village or institutional level usually requires references regarding hazard and safe zones and recommended evacuation strategies, as well as the development of local warning services. The responsibility to provide such references, including risk assessments, first level evacuation plans and the setting up of mechanisms for decision making and disseminating warnings lies with district governments (Blue Level).

To build local tsunami preparedness in a consistent and coherent way, national guidelines and policies are required to provide the necessary framework for local actors (Grey Level). The National Guideline on Tsunami Warning Services, as developed by BMKG, provides official information regarding the Indonesian Tsunami Early Warning System (InaTEWS), the warning chain from national to local levels, the sequence and content of warning messages - including recommendations on reaction to local authorities - and a clarification on the roles, responsibilities and procedures of all relevant bodies. Other guidelines by the National Disaster Management Agency (BNPB) are addressing topics like risk assessments, local emergency centres and contingency plans.

About the training "Tsunami Early Warning Services at Local Emergency Operation Centre"

What is the aim of the training?

This training aims to develop the capacity of local authority, in this case the 24/7 EOC as a local tsunami warning service provider, by training several individuals from management and operator level who currently or are going to work at the EOC at the provincial and/or district/city level to implement and improve the tsunami warning service in their jurisdiction.

What are the preconditions for this training?

In line with the abovementioned cascaded approach, the training on Tsunami Early Warning Services will be implemented upon request from the local authorities. The minimum preconditions are that the local authorities have already established an EOC and equipped the unit with the warning receiver system (WRS) from BMKG. Alternatively, local authorities currently setting up 24/7 services and / or applying for WRS to be installed in their jurisdiction may also sent their managers and operators in this training. The individual participants are expected to be those who will play a key role in the management and operation of the tsunami early warning service at their respective EOC. The training will incorporate sessions to examine current or draft SOPs of the 24/7 unit and come up with an action plan for the establishment of a well-functioning tsunami warning service for each participating EOC.

As part of the preparation of each training, all <u>relevant local reference documents</u> regarding local warning chain arrangements, the (agreed) local warning chain, local legal regulation for tsunami warning services (EOC) as well as all local SOPs for the warning service provider (EOC) need to be compiled (should be done involving the participating districts and trainees). Other local references needed are the local tsunami hazard map or risk map and district-level evacuation map.

Who are expected participants of this training?

Ideally each training addresses up to 20 participants at the maximum. The participants are those who currently work at 24/7 EOC as managers or operators and are assigned by their respective provincial/district/city authority. In the training, the host can also invite individuals from other institutions/organizations playing a role in the local warning chain in their respective regions.

What are the main features of the training?

The training takes 2 days and consists of interactive exercises to help participants understand the basics of tsunami hazards in Indonesia and in their duty area, the concept of InaTEWS, its warning scheme, the warning chain from the NTWC to the community at risk as well as the roles, responsibilities, procedures and technicalities of EOC as a local tsunami early warning service provider. The training also involves hands-on exercise in handling BMKG tsunami warnings to strengthen participants' skills in applying receiving and decision making standard operating procedures so that the guidance for the community can be disseminated in time.

The training is ideally organized in one of the participating EOC to include exercises with the implemented technology and equipment used in EOC daily operations. The training could be hosted by the provincial BPBD and target a number of districts in the respective province.

How to use the Training Module?

The Training Module consists of (a) the hereby presented Training Manual and (b) a Set of Supporting Materials.

The Training Manual contains general information on the training and the training moderation plan as well as a sample schedule. The moderation plan was developed based on the Warning Service Guidebook published by BMKG (2012) and describes briefly the training sessions by their objectives, content, methodology, materials, time needed and, if applicable, outputs. This moderation plans may be adapted further to more detailed session plans based on individual training needs and circumstances

The Set of Supporting Materials provides:

A) Standard and sample materials in the form of power point presentations and hand-outs to be used by the trainer/s. During the training preparation, trainers are responsible to find out about the latest version of the local reference documents (A3).

B) Standard and sample documents for training management purposes.

C) Reference documents to be provided to the participants.

D) Documents to be printed in large size and displayed in the training venue.

The complete Training Module is available in digital form.

About the trainers

The trainers assigned for this training are those with following qualifications:

a) Deep understanding in technical aspects of EOC roles and operations.
b) Experience in practical disaster management and possesses understanding in tsunami preparedness and early warning.
c) Proven capability in knowledge and skill transfer.

Trainer with experience on this module:

a) I Gede Sudiartha   (gede_sudiartha@yahoo.com)
b) M. Ayyub   (ayyub.frd@gmail.com)
c) Revanche Jefrizal   (rivan.kabuik@gmail.com)
d) Dewi Reny Anggraeni   (ewieaja@gmail.com)
e) Henny Dwi Vidiarina   (vidiarina@hotmail.com)
f) Erma Maghfiroh   (erma.maghfiroh@gmail.com)

Moderation Plan

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
30 mins	Registration	▪ Registering participants ▪ Obtaining basic information on participants' perception on their capacity	▪ List of attendants ▪ Pre-training assessment	▪ Coordinate with the host to get 15-30 minutes prior to the opening for the registration and assessment of participants. ▪ Upon registering, participants are provided with pre-training survey form to fill out (5-10 mins). As them to fill it in and return it immediately to the trainers. ▪ The trainers use the information in the preliminary assessment to obtain rough information on participants' perception on their capacity.	▪ Blank list of attendants (provided by the host) ▪ Pre-training survey form (Appendix B.4)	1. Host 2. Trainers	• Completed list of attendants • Completed pre-training survey forms
45 mins	Opening & Orientation	▪ Officially open the training (Host) ▪ Present training objectives ▪ Map participants' expectations & concerns ▪ Introduce training stakeholders	▪ Remarks from Host	▪ Speech from Host & Official opening ▪ Trainer/organizer presents the TOR, focusing on training objectives, including the roles of participants upon the completion of the training. Relate to the importance of preparedness in the light of recent earthquakes, e.g. earthquake on April 11, 2012 in Sumatera ▪ Introduction of participants; methods may vary as appropriate ▪ Participants share their expectations guided by facilitator. Use the last two activities to map level of participants' knowledge & skills.	▪ Flipchart paper ▪ Metaplan	1. Host 2. Trainer	Participants' expectations

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
45 mins	Session 1. Earthquake and tsunami hazard in Indonesia	▪ Introduce the basic knowledge regarding earthquake and tsunami hazard in Indonesia ▪ Present earthquake and tsunami hazards for respective areas. ▪ If available, present evacuation plans for respective areas	▪ Setting seismic in Indonesia ▪ Tsunami in Indonesia ▪ Types of tsunami ▪ Warning timeline and short time for evacuation ▪ Earthquake and tsunami hazards & history for respective areas ▪ If available, evacuation plans for respective areas	▪ Introduce the topic. ▪ Present the power point presentation while considering the following variations: ○ Try to engage the participants by asking about their current understanding on certain concept prior to giving explanation. ○ Ask them to read out certain slides for the whole class. ○ Turn off a slide; ask them to explain again what they have just learned. ○ Encourage questions. ▪ Present information on local hazard maps and earthquake & tsunami history for the areas. ▪ Invite participants to share their learning on the consequences for preparedness building. ▪ If there is already an official local evacuation plan, present it and align it with the function of hazard map. ▪ Discuss with the participants the relevance of EOC roles in the evacuation plan.	▪ Standards power point presentation ▪ Indonesia Hazard map ▪ Local hazard maps & historical data	Trainer	
90 mins	Session 2. InaTEWS, sequence and contents of warning	▪ To understand the InaTEWS ▪ To understand the warning services from BMKG	▪ Introduction to to the InaTEWS ▪ Warning Services by BMKG: TEW communication chain, timeline and sequence, level of warnings, warning & guidance, modes of dissemination, warning formats and contents, reaction scheme	▪ Presentation by the Trainer using PPT and big poster. ▪ **Exercise**: The trainer circulates sample warning message "Warning 1" (long format email) and "Warning 2" (long format WRS) to the participants to help them understand the format and contents of the long version messages. The trainer explains the detail. ▪ Take questions from the participants. ▪ Explain the BMKG's Guidebook on Tsunami Early Warning Services.	▪ Power point presentation ▪ Poster: TEW Chain ▪ Poster: timeline & sequence ▪ Poster: Warning level ▪ Sample warning formats	Trainer	

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
45 mins	Session 3. Role and responsibility of local authority and community in the tsunami warning chain	To understand the division of roles in InaTEWS and to understand the tasks of each of the local institutions, private sector and community at risk in tsunami warning.	Role of the Region in InaTEWS (standard): role division in InaTEWS, warning chain from the NTWC to community at risk, roles and responsibilities of different institutions	▪ The trainer displays the slides of "Role division in InaTEWS" from the PPT and presents the concept of warning and guidance and role division between the national and local level by. ▪ The trainer explains the colour scheme (red and green arrows) and asks participants to try explain the poster of "Tsunami Early Warning Chain". The trainer continues by explaining the warning chain further, now from the perspective of regional EOC, with the focus on the red and green arrows and the issue of decision making (from warning into guidance, essentially a decision to call or not to call for evacuation).	▪ Power point Presentation ▪ Poster: warning chain ▪ Poster: main actors in the warning chain	Trainer	
60 mins	Session 4. Local warning chain	To introduce and analyse local warning chain of participating regions	▪ Local warning scheme (current / proposal) ▪ Role of local government in the respective area	▪ Trainer presents the local warning scheme. Give time to participants to try to explain it. ▪ Trainer clarifies the role of each level of regional governments as currently applies or is proposed. ▪ Ask the participants on the feasibility of the scheme: how can they best reach out the village level? Which media should be reached out first? Is time of earthquake affects the choice of channels? Note: Participants may be divided into groups and each may be assigned to work on a specific aspect of the scheme. The group result may be noted as: ▪ Inputs for BPBD on the current/proposed scheme ▪ Indication of level of participants' understanding on the actual warning service provision	▪ Local warning chain	Trainer	Inputs for applicability and implementation of current/ proposed warning chain

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
45 mins	Session 5. Role of 24/7 EOC	To know in more detail the roles of the EOC in the warning chain	▪ The roles of local government in providing warning service ▪ The required legal and institutional conditions for warning service provision	▪ Start the session by reviewing the role of local government. ▪ Explain the three tasks involved: receiving, decision making, and dissemination of warning and how this function is carried out by a 24/7 EOC. ▪ Explain to the participants that along this training the class will clarify the existing resources and rooms for improvement in their respective EOC and will come up with list of take aways for follow up.	• Power point Presentation • Flipchart	Trainer	
45 mins	Session 6. Receiving warnings from BMKG	To know the technology and mechanism for receiving tsunami warnings from BMKG	▪ Technology used in receiving warnings ▪ The availability and use of WRS ▪ The SOP of receiving warning	▪ Ask the participants to share the technology/ equipment used in their current work and the steps they take while receiving warning, if ever. Check availability and practical application of WRS in the participating EOC, identify challenges the EOC face in managing the WRS. ▪ The trainer presents the WRS system. ▪ Discuss current channels to receive warnings, particularly when WRS is not available/functioning. ▪ The trainer facilitates discussion on the current/proposed SOP, identify rooms for improvement.	▪ National and local warning chain scheme ▪ Local SOP ▪ WRS Guidebook	Trainer	Notes for follow up: ▪ Technology in place and what are still needed ▪ SOP to be developed/ refined ▪ Actions to take
30 mins *To be conducted at the end of Day 1*	Evaluation of Day 1	To know how participants have perceived the first day of the training	Evaluation on the training content, methodology, trainers' team, participants' engagement and logistics	Write down aspects where feedback is sought. The option of methods: ▪ Use *smiley evaluation*. ▪ Use metaplan to collect feedback: one colour for things that have been going well, and another colour for things that need improvement. ▪ Lead a brainstorming session on things that have been going well and things that need improvement.	▪ Flipchart for smiley evaluation ▪ Markers	Trainer	Feedback on Day 1 to address for Day 2

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
30 mins *To be conducted in the beginning of Day 2*	Review of Day 1	▪ To remind the participants of what they have learnt ▪ To observe the level of participants' learning ▪ To inform participants on the agenda of day 2 and improvement plan in response to evaluation of Day 1	▪ Review on concepts and issues of day 1 ▪ Present evaluation and feedback from Day 1 ▪ Agenda of day 2	▪ Preparation: a) Prepare a small note on topics and concepts that you expect participants to remember. b) Manage the feedback of day 1. Plan some improvement for today, including ones related to participants' roles and contribution (e.g. initiative in raising questions, time discipline). ▪ Lead a brainstorming on what participants remember from day 1. Write down on a *flipchart*. ▪ Facilitate participants to recall all topics and concepts. Help them to share what they remember; reserve yourself from repeating your materials. ▪ Relate the result of the review with the agenda of Day 2. ▪ Go back to the feedback provided on day 1. Inform participants on the plan for improvements and ask for participants' contribution as necessary.	▪ Result of evaluation of Day 1 ▪ Notes on improvement plan ▪ Notes for *review* ▪ Training program agenda	Trainer	

60mins	Session 7. Decision making	To understand and analyse the EOC procedures in decision making (DM)	▪ The principles of DM
			▪ Local SOP for DM
			▪ The EOC mandate and delegation of authority for DM
				▪ Facilitate discussion on DM by focusing on:
				  o SOP as the mechanism for DM
				  o SOP has to be in line with BMKG recommendation and standard reaction scheme
				  o The need for coordinated approach between the province and the district/city.
				▪ Examine the participants' SOP: where they receive warning from, if they have SOP, if they are solid. Compare with sample SOP.
				▪ Discuss the issue of delegation of authority and legal foundation for such procedures. If such legal basis is not yet provided, put in the homework chart.
					▪ National and local warning chain scheme
					▪ Local SOP
					▪ Examples of legal basis
						Trainer	Notes for follow up:
							
							▪ SOP to be developed / refined
							
							▪ Legal basis to be proposed
							
							▪ Actions to take

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
90 mins	Session 8. Dissemination	To understand ways and procedures to disseminate warning and guidance messages to communities at risk and concerned institutions.	▪ Content of messages ▪ Target recipients ▪ Dissemination technology, including the use of WRS ▪ SOP ▪ Special arrangement with media ▪ Siren protocol	▪ Trainer asks the participants to share on their dissemination SOP, focusing on: the message content, different recipients (check with the local warning chain), the communication technology used (including the WRS), relations with local media. ▪ Trainer presents sample SOP and discuss aspects to consider in developing warning dissemination SOP, including realistically applicable guidance. Share good examples of short and clear message contents on guidance. ▪ Explain the siren protocol. ▪ Take questions from participants. ▪ Lead discussion on what to be improved in the participating EOC related to warning dissemination (write down on *flipchart*) ▪ Remind the participants on the real situation, where operators have to perform different functions simultaneously, as follow-up warning messages are received from BMKG, decisions need to be taken, and dissemination must take place. Meanwhile, feedback starts to come in, at least in the form of information queries from the community and media. Discuss. Write down ideas on how to manage such situation. ▪ Wrap up.	▪ Slides on "Function 3: warning dissemination" ▪ SOP and local warning chain ▪ Fact sheets on communication from Tsunami-Kit	Trainer	Notes for follow up: ▪ Technology in place and to acquire ▪ List of potential intermediaries for dissemination in respective areas ▪ SOP to be developed/refined ▪ Actions to take
45 mins	Session 9. Routine task in EOC	To know the routine activities of EOC to be done by staff.	▪ Handover of task ▪ Log book ▪ Trouble shooting	▪ Ask the participants on the kinds of routine activities they do in each EOC. ▪ List all of them, and ask whether they have SOP in implementing them. ▪ Discuss needs for additional activities/SOP, if any.	EOC guideline Reading material for trainer	Trainer	Notes for follow up: Improvement on routine activities/ SOP

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
60 mins	Session 10. Table Top Exercise	Improve understanding on the warning message content and build capacity on decision making procedure	▪ Structure and content of early warning messages 1-4, the long format (WRS / email) ▪ Decision making procedures	**Table Top Exercise** ▪ The trainer team divides up the participants into groups of 2-3 persons and assigns each group into a district listed among the recipients of warning messages used in the exercise. ▪ The trainer provides clear instruction to the participants and creates a sense of competition among the groups by introducing time pressure. ▪ The trainer presents the first message (email or WRS) on the available laptop; ask groups to read it and make decision for their respective district. ▪ The trainer takes time needed for the groups until they announce their decisions. This is followed by checking if the participants remember important details from the messages, i.e. the earthquake location and magnitude, warning level, and warning type (Warning 1, 2, 3 or 4). ▪ When all have made decisions, the trainer comments briefly on the results. ▪ Go to the second round. Make sure that groups who previously received e-mail format now receive WRS format, and the other way round. ▪ At the end, assess the performance of groups in two rounds and decide based on the speed and accuracy which group is the best. ▪ Discuss lessons.	▪ Trainer instruction for this table top exercise ▪ Sample warning messages 1-4 in WRS and e-mail formats (digital) ▪ Print out / poster of decision making SOP ▪ Minimum (2) Laptop ▪ Pin board / Flipchart to record results.	Trainers	

Time	Topic	Objective(s)	Content	Methodology	Materials	PIC	Output
60 mins	Session 11. Action plan development	To develop action plan as a follow up of the training	Action planning	▪ Facilitator highlights the notes on necessary follow ups from previous sessions. ▪ Explain the action plan template, give examples. ▪ Ask participants to work in individual EOC group and draft their plan. ▪ Facilitator monitors the groups; ensure solid planning and record on the items to be done. ▪ Action plans may be displayed in the room for other groups to observe and learn from. ▪ Action plans are going to be typed and circulated for joint reference (EOC, BPBD).	Action plan template Notes from previous sessions	Trainer, representative from BPBD	Action plan for each participating EOC
30 mins	Evaluation	To know what went well and what need improvement	Evaluation checklist	▪ For training organization evaluation, have the participants fill out the questionnaire. ▪ Have a brief reflection on the training. One option is to identify what information is retained by the participants and what learning they obtained. Write them down in a flipchart. ▪ Conclude by highlighting how participants can learn and practice further through references and further contacts with the project and the resource people. Emphasize the importance of the network established during the training.	Questionnaire	Trainer/Host	▪ Written feedback from participants on the training. ▪ List of points of information and learning from the training.
30 mins	Closing	To officially close the training	▪ Training Report ▪ Impressions from participant ▪ Speech from the host ▪ Certificate distribution	▪ Training Report done by organizing committee or trainers ▪ Remarks by rep/s of participants. ▪ Speech and official closing of the training by the host. ▪ Distribution of certificates.	Certificates	Organizing committee	

Sample Schedule

Programme Agenda
Tsunami Early Warning Services at Local Emergency Operation Center

Day I

08.30 – 09.00	Registration & Kit distribution
09.00 – 09.45	Opening & Training Orientation
09.45 – 10.30	Earthquake & tsunami hazards in Indonesia
10.30 – 10.50	*Coffee break*
10.50 – 12.20	InaTEWS, warning sequence & content
12.20 – 13.20	*Lunch*
13.20 – 14.05	Roles & responsibility of local authority & community
14.05 – 15.05	Local warning chain
15.05 – 15.35	*Coffee break*
15.35 – 16.20	Roles of 24/7 EOC in TEWS
16.20 – 17.05	Receiving warning
17.05 – 17.30	Day-end evaluation

Day 2

08.30 – 09.00	Review
09.00 – 10.00	Decision making
10.00 – 10.20	*Coffee break*
10.20 – 11.50	Warning dissemination
11.50 – 12.35	Routine tasks of EOC
12.35 – 13.35	*Lunch*
13.35 – 14.35	Table Top Exercise
14.35 – 15.35	Action planning
15.35 – 16.05	*Coffee break*
16.05 – 16.30	Evaluation
16.30 – 17.00	Closing

Set of Supporting Materials

A. Training Materials – For Trainers
1. Power Point Presentations
2. Digital file of warning segment maps (use one that fits the audience)
3. Local reference documents (use one that fits the audience)
   - Local warning chain (as agreed)
   - Local regulations regarding local tsunami early warning services/EOC
   - Local SOPs for warning service provider
   - Local hazard map
   - Local evacuation plan(s)
4. Video clip explaining tsunami hazard
5. Hand-out: sample warning messages (Warning 1 in e-mail; Warning 2 in WRS long version)
6. Information on EOC routine tasks
7. Trainer's instruction for Table Top Exercise
8. Digital file with sample messages for Table Top Exercise

B. Training Management Documents – For Training Organizer
1. Sample TOR
2. Sample participant invitation letter
3. Training preparation checklist
4. Participant self-assessment form
5. Training evaluation form
6. Sample certificate for participants
7. Blank list of attendants
8. Training documentation outline

C. List of Reference documents – For Participants
   (In print/digital formats)
1. InaTEWS Warning Service Guidebook (digital/print for all participants)
2. WRS Guidebook (digital/2 print copies for each EOC)
3. Media Guidebook (digital/1 print copy for each EOC)
4. Introduction: InaTEWS – Monitoring and Warning Service - Tsunami-Kit (digital)
5. Guidebook: Dissemination of Tsunami Early Warning at the Local Level in Indonesia - Tsunami-Kit (digital)
6. All Fact Sheets in "Our Experience" and "Info" of the (blue) Element "Dissemination and Communication" – Tsunami-Kit (digital)
7. 1 set of posters (A1 size) as listed in Appendices D
8. Local reference documents (as available, find ones that fit the audience):
   - Local warning chain (as agreed)
   - Local regulations regarding local tsunami early warning services/ EOC
   - Local SOPs for warning service provider
   - Local hazard map
   - Local evacuation plan(s)

Tsunami-Kit DVD for all participants.

D. List of displays – To be displayed in the training room
2. Tsunami early warning chain in Indonesia
3. Warning and advice from BMKG
4. Time line and warning sequence
5. Roles of main actors in the warning chain
6. The 3 functions of local EOC

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Project for Training, Education and Consulting for
Tsunami Early Warning System (PROTECTS)

Capacity Development in Local Communities

Federal Ministry
of Education
and Research