

**Strengthening Tsunami Warning and Emergency Responses:
Training Workshop on the Development of Standard Operating Procedures for Indian
Ocean and Southeast Asian Countries**

**12-16 May 2008
Bangkok, Thailand**

SESSION PLAN

	DAY 1 – SESSION 1 TSUNAMI WARNING AND MITIGATION OVERVIEW	Min	SPEAKER
1.1	Opening Ceremonies	45	IOC, UNESCO, UNESCAP, ITIC
1.2	Introduction and Course Logistics	15	Elliott
1.3	End-to-End Tsunami Warning and Emergency Response – Overview <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Components of the end-to-end tsunami warning followed by response by public officials and the public • <u>Topics</u> <ul style="list-style-type: none"> ○ Requirements and activities of tsunami warning centres ○ Requirements and activities of tsunami disaster management and emergency response organizations and the public sector during an alarm • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ A Global Tsunami Reduction Strategy: Building Effective Tsunami Warning and Mitigation Systems ○ From Commitments to Action: Advancements in Developing an Indian Ocean Tsunami Warning and Mitigation System, IOC, 2006 	30	Kong
1.4	Earthquake and Tsunami Science for Tsunami Warning <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Learn the difference between tsunami and normal sea wave ○ Learn key science information for tsunami warning decision-making • <u>Topics</u> <ul style="list-style-type: none"> ○ Mechanism of tsunami source ○ Fault type and source dimension ○ Propagation speed ○ First motion; Push and Pull ○ Energy of the tsunami; Deep and Shallow Sea 	60	Fauzi

	<ul style="list-style-type: none"> ○ Tsunami Simulation ○ Other sources and their frequency; volcano, landslide • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint and CD • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ PTWS Operational Users Guide, Annex I, 2007 ○ Understanding Tsunamis (2006), P.Liu and L. Kong ○ DVD: TsunamiTeacher 		
1.5	Tsunami Hazards in the Indian Ocean and Southeast Asia <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Not often but potential and possible tsunami zones • <u>Topics</u> <ul style="list-style-type: none"> ○ Seismicity in all Indian Ocean and western Pacific, including all marginal seas ○ Seismicity along Indonesia include inland earthquakes ○ Seismicity in the Arabian Sea; Makran region • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Reference List of scientific papers 	30	Cunneen
1.6	End-to-end Tsunami Warning – Stakeholders, Roles and Responsibilities, and their Linkage <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Participants will have a holistic view of tsunami warnings. They will understand the types of warnings, the stakeholders in tsunami warning, inter-dependencies and relationships and how each relates to SOPs.</p> • <u>Topics</u> <ul style="list-style-type: none"> ○ Types of warning ○ Stakeholders ○ Relationships- stakeholders ○ Relationships- SOPs • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ NZ Tsunami Risk Management Programme - Diagram 	30	Coetzee
1.7	Lessons Learned from Past Tsunami Use of timelines for assessing information flow effectiveness <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Every tsunami is unique and has unique challenges ○ Necessity for preparedness ○ How to provide alerts for tele-tsunamis? ○ TWC Alerts - evacuate or just clear the beach? • <u>Topics</u> <ul style="list-style-type: none"> ○ 2007 Solomon Tsunami ○ 2007 Sumatra Tsunami ○ 1998 Papua New Guinea Tsunami ○ 1993 Okushiri Tsunami ○ 2006 Java Tsunami ○ 2006 Kuril Tsunami • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> ○ PowerPoint • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ Lessons Learned 	60	McCreery
1.8	Interim IO Tsunami Advisory Service – Standard Operating Procedures	15	McCreery

	<ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <ul style="list-style-type: none"> ○ Understand the service and meanings of messages from PTWC and JMA • <u>Topics</u> <ul style="list-style-type: none"> ○ Monitoring networks (seismic and sea level) ○ Timing of the issuance ○ Criteria of the information ○ Accuracy of tsunami travel time ○ Cancellation procedure; advise ○ Assessment of 12 sep 2007 • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> ○ IO Tsunami Advisory Service Users Guide, 2007 ○ IOTWS 12 September 2007 Indian Ocean Tsunami Event – Post-Assessment of IOTWS Performance, IOC Information Series 77, 2008 		
1.9	Pacific Tsunami Advisory Service, including South China Sea Interim Service – Standard Operating Procedures <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand the service and meanings of messages from the PTWC, WC/ATWC, and JMA NWPTAC • <u>Topics</u> <ul style="list-style-type: none"> ○ Warning and Watch; definition, 3 hours, 6 hours ○ NWPTAC: tsunami height information ○ Tsunami travel time ○ Cancellation • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> PTWS Operational Users Guide, 2007 	15	McCreery
1.10	National Tsunami Warning Centres – Overview on Standard Operating Procedures - Daily Operations, Flow Charts, Timelines <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Identify the routine and emergency activities of TWC, and how these are most efficiently described through written, pre-decided standard operating procedures in order to carry out rapid, efficient, and responsible tsunami warning response. • <u>Topics</u> What are SOPs What activities are typically covered by SOPs Examples • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> NTWC SOP Guidance Manual, Flow Charts, and Timelines 	30	Kong
1.11	Discussion: TWC SOPs <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Provide opportunity for clarification on points discussed today and for questions to be answered • <u>Topics</u> Based on participants • <u>Methodology (PowerPoint, CD, DVD, Other)</u> Question-and-Answer, Group Discussion 	30	McCreery Kong

	DAY 2: SESSIONS 2 and 3		
	DAY 2 MORNING - PLENARY		
2.1	Tsunami "End to End" Emergency Response – Overview on Standard Operating Procedures, including evacuation considerations <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand the role of SOP's in enabling a public coastal evacuation Learn the various communication methods to alert the public Understand the principles of a public coastal evacuation • <u>Topics</u> “End to End” Concept of Operations SOP definition How to Alert the Public Coastal Evacuation Principles and “All Clear” • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint DVD: 2005 Padang Tsunami Simulation 	30	Yanagi
2.2	Warning Dissemination and Public Alerting mechanisms and technologies – Message Scheduling and Message Content, Warnings through GTS, RANET, and other existing reliable methods <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Describe effective and reliable methods for timely dissemination of tsunami warnings to authorities and for dissemination to remote and rural communities • <u>Topics</u> <ul style="list-style-type: none"> • What is the time order of information that should be given for tsunami warnings by TWC? • What should be contained in each message? • What communication methods are being used and what are their timeliness and reliability? • Examples • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> <ul style="list-style-type: none"> • PTWS Operational Users Guide (2007), Section 4.9 PTWC Product Dissemination Services • RANET Information and Communication technology (ICT) Crib • RANET Alert Watch (RAW) SMS 	30	Fauzi
2.3	Warning Dissemination and Public Alerts – Potential roles of the Media – Japan example <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Collaboration with mass media for quick dissemination of warning and not to generate unnecessary rumor/panic • <u>Topics</u> Quick broadcasting immediately after an earthquake Communication system between NTWC and media 	15	Yamamoto

	<p>Effective dissemination system</p> <p>Public education through media</p> <p>Example of live earthquake reporting by several NHK station</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>Powerpoint</p> <p>DVD showing actual TV broadcasting during an earthquake</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> 		
2.4	<p>Summary: Public Alerting – Options Analysis</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>A view on what make warnings effective, the options for public alerting and how to decide which to use/what combination to use.</p> <ul style="list-style-type: none"> • <u>Topics</u> <p>Effective warning systems characteristics</p> <p>Effective warning message contents</p> <p>Public Alert options</p> <p>Target population for successful warnings</p> <p>Options assessment</p> <p>Limitations</p> <ul style="list-style-type: none"> • <u>Methodology:</u> <p>PowerPoint</p>	15	Coetzee
2.5	<p>Use of Exercise in Tsunami Preparedness: Exercise Development / Regional and National Exercises and Post-Exercise Evaluations, Exercise Pacific Wave 06 (EPW06) and Exercise Pacific Wave 08 (EPW08)</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Learn the importance of stakeholder groups to conduct routine tsunami training exercises</p> <p>Understand the different types of exercises</p> <p>Learn post-exercise results of EPW 06</p> <ul style="list-style-type: none"> • <u>Topics</u> <p>Goal of tsunami training exercises</p> <p>Five types of exercises</p> <p>Conduct and results of EPW06</p> <p>EPW08 Plans</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>PowerPoint</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Exercise Pacific Wave '06 Summary</p> <p>Exercise Pacific Wave '08 planning</p> <p>Tabletop Exercise Development Steps</p>	45	Yanagi Coetzee
2.6	<p>Tsunami Preparedness - Education and Awareness</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Learn the importance of education and awareness.</p> <p>Understanding concept of preparedness; learn different type off awareness and education tools and format</p> <ul style="list-style-type: none"> • <u>Topics</u> <p>Issues in education and awareness</p> <p>Education format and activities</p> <p>Outreach and public policies</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>PowerPoint</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Hard copy examples</p> <p>CD to be distributed containing NZ, Indonesia, Hawaii/USA, and other example materials</p> <p>ITIC Tsunami Awareness materials DVD and summary handout</p>	45	Kodijat

	DAY 2 AFTERNOON TSUNAMI EMERGENCY RESPONSE SESSION		
3.2.1	10 Steps to Enable a Successful Tsunami Emergency Response <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Learn the key components to enable a rapid tsunami emergency response Understand short term and long term planning considerations • <u>Topics</u> Description of 10 Steps Terminologies • <u>Methodology (PowerPoint, CD, DVD, Other)</u> Discussion of Handout • <u>Handouts / Reference Materials</u> 10 Steps Handout Tsunami Planning Template Disaster Management Organizations Glossary 	30	Yanagi
3.2.2	Understanding and acting on TWC Messages <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand international TWC Messages (Pacific and Indian Ocean) Interpret TWC Messages into emergency response actions • <u>Topics</u> Review of IOC Users Guides • <u>Methodology</u> PowerPoint • <u>Handouts / Reference Materials</u> PTWS Operational Users Guide IOTWS Users Guide 	30	Yanagi
3.2.3	DMO Use of Timelines in Emergency Response <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> To introduce the concept & explain how they are developed. Participants will be able to produce Timelines and Flowcharts in the tabletop exercise at the end of the course. • <u>Topics</u> Why Timelines & Flowcharts? Two types of Timelines How to create Timelines What should be in them? How to create Flowcharts Methodology: PowerPoint • <u>Handouts / Reference Materials</u> NZ Tsunami Flowchart 	30	Coetzee
3.2.4	Evacuations: Alerting and Moving People, Inundation maps, Evacuation Routes and Signage, Safe return <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand the concepts and processes to enable a successful tsunami coastal evacuation Identify stakeholder agencies to produce evacuation products • <u>Topics</u> Defining tsunami evacuation zones Facilitating public “buy in” to planning process Signage & maps, examples and variety and standards Threat levels Considerations when determining Evac Zones Show DVD of public evacuation drills 	30	Coetzee, Yanagi

	<ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint DVD • <u>Handouts / Reference Materials</u> Oregon, USA Signage Guidance Sri Lanka Signage Guidance 		
3.2.5	Community-based disaster risk management <ul style="list-style-type: none"> • <u>Objectives/outcomes</u> Understand how communities perceive disaster risks Understand the most common tools in analyzing and implementing community level preparedness and response. Discuss ways and actions on how to link communities with TEWS • <u>Topics</u> Concept and perceptions on risks Reports on how communities were affected by the tsunami (official and survivors reports) Tools and implementation of community level preparedness and response • <u>Methodology</u> (ppt, other media) Inductive Discussion Group exercises • <u>Reference Materials</u> Handout - Community based Disaster Preparedness 	45	Jegillos
3.2.6	Case Studies on experiences in developing and using SOPs - Wakayama, Japan; Bengkulu, Indonesia <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand the timeline differences in reacting to local, regional, distant tsunami scenarios Understand processes to develop SOPs to enact emergency response • <u>Topics</u> Review of Japan and Indonesia • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> Wakayama SOP 	45	Yanagi Fauzi

	DAY 2 AFTERNOON TSUNAMI WARNING CENTRES SESSION (Note switch in order of Agenda items)		
3.1.2	TWC Operations – Tsunami Event Activity Timelines: Cases 3 and 4 - Receiving international bulletins and issuing national alerts <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Review NTWC tsunami operations for centres which will not carry out seismic evaluations Contribute and add to procedures and provide national examples • <u>Topics</u> Activities, time frame of action, and actions and procedures Local and distant earthquake cases – differences Document different implementations of activities by countries • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint Group Discussion and Contribution to Handout • <u>Handouts / Reference Materials</u> NTWC SOP Handout 	45	Kong, McCreery, Yamamoto, All
3.1.3	TWC Operations – Active seismic monitoring and real-time earthquake source characterization <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Learn TWC seismic operations procedures • <u>Topics</u> Seismic network Real time data processing system Definition and criteria of different alert levels / warnings Re-calculations of seismic parameters Development of SOP • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> NTWC SOP (Guidance and Samples), NTWC SOP Handout PTWS Operational Users Guide, Annex II: Earthquake Source Characterization TWC Operations Manual example (PTWC Operations Manual) 	45	Yamamoto
3.1.4	TWC Operations - Sea level monitoring, tsunami confirmation and wave forecast <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Learn TWC sea level and wave forecast operations procedures • <u>Topics</u> Sea Level network Real time data processing system Tsunami Travel Time calculation Tsunami Database by tsunami simulation Definition and criteria of different alert levels / warnings Cancellation based on non-danger Development of SOP • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> NTWC SOP (Guidance and Samples), NTWC SOP Handout PTWS Operational Users Guide, Annexes IV Sea Level 	45	McCreery

	Measurement, and V Methods of Tsunami Travel Time Calculation by PTWC, WC/ATWC, and JMA TWC Operations Manual example (PTWC Operations Manual)		
3.1.1	<p>Fundamental TWC SOPs for a Timely Tsunami Warning</p> <p>TWC Operations – Tsunami Event Activity Timelines: Cases 1 and 2 – Centres with real-time seismic processing</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Review NTWC tsunami operations for centres which carry out seismic evaluations Contribute and add to procedures and provide national examples • <u>Topics</u> Activities, time frame of action, and actions and procedures Local and distant earthquake cases – differences Consider all actions to be taken by NTWC, including <ul style="list-style-type: none"> – Evaluation of international message; – Uncertainties in estimated tsunami travel time, severity of tsunami, estimation of tsunami threat if no database / historical data available (such Abe formula), – Confirmation of tsunami – uncertainties with limited data (in time and space), collection of eyewitness information (non-tsunami) – Instructions for NDMO versus the public – Cancellation uncertainties and they affect evacuation (e.g, still keep away from the beach) – All clear – who and what does it mean – Post-tsunami TW operations survey - re-evaluation of SOP – Post tsunami survey, for science and social science data collection • Document different implementations of activities by countries • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint and Handout Group Discussion and Contribution to Handout • <u>Handouts / Reference Materials</u> NTWC SOP (Guidance and Samples), NTWC SOP Handout TWC Operations Manual example (PTWC Operations Manual) PTWS Operations Manual (v0.88, Nov 2007) JMA Manual on Operations and Systems for Tsunami Warning Service (March 2007) WC/ATWC Users Guide (2007) 	45	McCreery, Yamamoto, Kong All

	DAY 3 – SESSIONS 4 and 5 TWC AND TER, MEETING SEPARATELY		
	DAY 3 – TSUNAMI WARNING CENTRES MORNING (Note switch in order of Agenda items)		
4.1.1	Breakout and Group Discussion: Fundamental TWC SOPs for a Timely Tsunami Warning TWC Operations – Tsunami Event Activity Timelines: Distant and Local Earthquake and Tsunami evaluation <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Continue from Day 2 Session 3.1.1 and 3.1.2 to review NTWC tsunami operations for centres which carry out seismic evaluations Contribute and add to procedures and provide national example • <u>Topics</u> <ul style="list-style-type: none"> ○ Tsunami Threat threshold criteria – seismic magnitudes, expected tsunami wave height, and other considerations ○ Tsunami confirmation and monitoring ○ Re-evaluation of earthquake parameters, esp for special situations (tsunami earthquakes, landslide-generated tsunamis) ○ Information and alert dissemination – content, message scheduling, and how alerts are broadcast to different customers ○ TWC warning upgrade/downgrade and cancellation • <u>Methodology (PowerPoint, CD, DVD, Other)</u> Breakout Group discussion and report back Contribution to Handout • <u>Handouts / Reference Materials</u> NTWC SOP Handout, NTWC SOP (Guidance and Samples) 	90	Kong. McCreery, Yamamoto, All
4.1.2	PANEL: National Tsunami Warning Centres – Earthquake Monitoring and Warning Issuance – Case Studies on present operations - India, Indonesia, Malaysia <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Learn and exchange of information on real time processing system and standard operational procedure at each national tsunami warning center • <u>Topics</u> Real time seismic data processing procedure including the introduction of the algorithm Real time sea level data and DART data processing procedure Products of the system Decision making process Items to be implemented in near future Long term strategy to maintain the system Staff education procedure • <u>Methodology (PowerPoint, CD, DVD, Other)</u> 	45	India, Indonesia, Malaysia, Yamamoto

	Information Sharing Panel and Group Discussion		
4.1.3	PANEL: National Tsunami Warning Centres – Receiving International bulletins and Warning Issuance - Case Studies on present operations - Kenya, Maldives, Philippines <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Learn and exchange information on the action plan after receiving information from international centers Identify the items to be implemented in future • <u>Topics</u> The current procedure at each national center Receiving and monitoring seismicity and sea level Products of the system Decision making process Items to be implemented in near future Long term strategy to maintain the system Staff education procedure Request items to be modified/upgraded in future • <u>Methodology (PowerPoint, CD, DVD, Other)</u> Information Sharing Panel and Group Discussion 	45	Kenya, Maldives, Philippines, Yamamoto
	DAY 3 – TSUNAMI WARNING CENTRES AFTERNOON		
4.1.6	SOP Guidance - How to Guidance, including Analysis Processes, Flow Charts and Checklists in SOP <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Add response time to SOPs activities discussed in the morning • <u>Topics</u> Time frame of actions – strategies for timely response using the best available science • Reference SOPs – TWC Operations Manual (details and used in non-alarm situations) • Quick-Reference SOPs - Flow Chairs, Checklists • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint and Handout • <u>Handouts / Reference Materials</u> NTWC SOP Handout, NTWC SOP (Guidance and Samples) Flow Charts (PTWC and others) Checklists (PTWC and others) 	45	McCreery
4.1.4	Tsunami Event Case Studies – Successes and Continuing Challenges	45	Kong, Yamamoto,
4.1.5	TWC and DMO interactions, Hawaii example between PTWC, Tsunami Advisor Scientists, Emergency Management for distant and local threat cases <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Using past tsunami events as a means for assessing and improving – successes, failures, and limitations • <u>Topics</u> Review and analyse actual events and their timelines Information flow from TWC, including interactions with media, and the requirements for different customers • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint and Handout Group Discussion • <u>Handouts / Reference Materials</u> 	60	McCreery

	Lessons Learned -Pacific and Indian Ocean tsunamis (2 docs) Example press releases – Japan		
5.1.1	Breakout and Group Discussion: Using Templates to Create TWC SOPs (Roles & Responsibilities, Routine Operations, Ensuring Data Quality Control and Telecommunications Reliability, and other requirements) <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Identify and discuss non-evaluation activities of TWC • <u>Topics</u> Concept of Operations - Roles & Responsibilities Routine Operations Ensuring Data Quality Control and Telecommunications Reliability Training • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint and Handout Group Discussion • <u>Handouts / Reference Materials</u> Types of Documents to Support Global TWS, NTWC, and TER Operations NTWC SOP (Guidance and Samples) TWC Operations Manual example (PTWC Operations Manual) PTWS Operations Manual (v0.88, Nov 2007) JMA Manual on Operations and Systems for Tsunami Warning Service (March 2007) WC/ATWC Users Guide (2007) 	60	Small Groups
	DAY 3 – TSUNAMI EMERGENCY RESPONSE		
4.2.1	Tsunami Emergency Response – Distant Tsunami Threat – Case Studies on present operations – New Zealand, Hawaii <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand distant tsunami timelines and processes Understand how SOPs implement rapid notification and implementation of evacuation steps Identify stakeholder group actions within SOPs • <u>Topics</u> Tonga Eq May 2006: ‘One that went wrong’ Ex Pacific Wave Scenario 2006 New Zealand SOPs Hawaii SOPs • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> Hawaii Distant Tsunami SOP 	60	Coetzee Yanagi
4.2.2	Tsunami Emergency Response – Local Tsunami Threat – Case Studies on present operations – Shizuoka, Japan; Padang, Indonesia <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand local tsunami timelines and processes Learn how SOPs implement rapid notification and implementation of evacuation steps Identify stakeholder group actions within SOPs • <u>Topics</u> 	90	Yanagi Kodijat

	<p>Shizuoka local tsunami operations Indonesia local tsunami operations Samoa local tsunami operations</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint, handout • <u>Handouts / Reference Materials</u> Shizuoka Evacuation Poster Tsunami Characteristics and Recommended Actions Earthquake Preparedness in Shizuoka 		
4.2.3	<p>SOP Guidance Manual – Explanation of Templates, Distant and Local Threats</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Learn that separate SOPs are to be developed for local and distant tsunami threats Understand template guidelines to design SOP processes • <u>Topics</u> Overview of SOP templates • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> General Review of Templates 	30	Yanagi
4.2.4	<p>Creating SOPs - How to Guidance, including Response Processes, Flow Charts and Checklists in SOPs</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand concepts of Response Processes Learn how to transform Response Processes into Flow Charts and Checklists • <u>Topics</u> 24/7 arrangements Thresholds Templates Activation of Public Alert Systems Evacuation procedures All Clear procedure Review of tsunami planning templates Case Study: City of Galle, Sri Lanka. Flow Chart Process • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> Case Study: City of Galle, Sri Lanka 	30	Coetzee, Yanagi
5.2.1	<p>Breakout Groups: Using Templates to Create General Roles and Responsibilities for SOPs</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Identify agency general roles and emergency response actions Identify agency gaps in implementing necessary actions Identify critical decision making points Identify communication pathways between agencies • <u>Topics – Division of Breakout Groups</u> Breakout Group A: Countries that experience local tsunamis within 0-1 hour wave travel time from a known earthquake source region Breakout Group B: Countries that experience regional tsunamis within 1-3 hours wave travel time from a known earthquake source region 	60	Yanagi

	<p>Breakout Group C: Countries that experience distant tsunamis of 3+ hours wave travel time from a known earthquake source region</p> <p>Review Roles and Responsibilities Matrix Template</p> <p>Review Emergency Response Matrix Template</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>PowerPoint</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Roles and Responsibilities Matrix Template</p> <p>Emergency Response Matrix Template</p>		
5.2.1	<p>Breakout Groups: Using Templates to Create Evacuation Checklists for SOPs</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Identify steps to enable a successful evacuation</p> <p>Review existing evacuation procedures and processes</p> <p>Identify gaps in evacuation procedures</p> <p>Identify information and resource needs</p> <ul style="list-style-type: none"> • <u>Topics</u> <p>Tsunami Planning Template</p> <p>Tsunami Occurrence List Template</p> <p>Tsunami Evacuation Checklist Template</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>PowerPoint</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Tsunami Evacuation Checklist Template</p> <p>Tsunami Occurrence Checklist Template</p>	120	Yanagi

	DAY 4 – SESSIONS 5 and 6 TWC AND TER, MEETING SEPARATELY, FOLLOWING SAME AGENDA		
5.1.2	TWC: Creating SOPs: Timeline-driven SOPs <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand how timelines drive TWC key response actions • <u>Topics</u> Review Case study timelines to highlight <ul style="list-style-type: none"> ○ Key points where TWCs are required to respond ○ What information customers want ○ When do customers want the information • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> Lessons Learned – Pacific and Indian Ocean tsunamis (2 docs) NTWC SOP Handout, Checklists 	30	McCreery, Kong, Yamamoto
5.1.3 5.1.4	TWC: Break out Groups: Using Templates to Develop Timeline of Processes and Actions as SOPs, followed by Presentation of Break out Group SOPs <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Develop a TWC Timeline of detection, alarming, evaluation, decision-making, messaging, dissemination, and cancellation • <u>Topics</u> <ul style="list-style-type: none"> ○ Identify timeline actions based on number of minutes after earthquake occurrence ○ Identify types of actions to be undertaken within the timeline ○ Identify appropriate processes and techniques within the timeline • <u>Methodology (PowerPoint, CD, DVD, Other)</u> Template fill in • <u>Handouts / Reference Materials</u> Timeline Template NTWC SOP Handout, Flow Charts, Checklists 		McCreery, Yamamoto, Kong
5.2.2	TER: Creating SOPs: Timeline-driven SOPs <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Understand how scenario driven timelines are used to coordinate agency actions • <u>Topics</u> Show sample Aceh, Indonesia timeline • <u>Methodology (PowerPoint, CD, DVD, Other)</u> PowerPoint • <u>Handouts / Reference Materials</u> Case Study: Aceh, Indonesia Timeline 	30	Yanagi
5.2.3 5.2.4	TER: Break out Groups: Using Templates to Develop Timeline of Processes and Actions as SOPs, followed by Presentation of Break out Group SOPs <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Develop a Tsunami Response Timeline of Actions and Agencies Responsible • <u>Topics</u> Identify timeline actions based on number of minutes after earthquake occurrence 	270	Yanagi, Coetzee

	<p>Identify types of actions to be undertaken within the timeline</p> <p>Identify appropriate agencies to enact the actions within the timeline</p> <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>Template fill in</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Timeline Template</p>		
6.1	<p>Table Top Exercise – Background and Scenarios for Day 5</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Use of Exercises to improve TWC and TER SOPs for distant and regional responses to tsunami</p> <ul style="list-style-type: none"> • <u>Topics</u> <p>Table Top Exercise General Instruction</p> <p>Assign discussion groups</p> <ul style="list-style-type: none"> • <u>Methodology</u> <p>PowerPoint and discussion</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Exercise General Instruction</p>	30	Coetzee
	DAY 5 – SESSIONS 6 and 7, PLENARY		
6.2	<p>Table Top Exercise Set-up according to Stakeholder Warning and Response Groups</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Provide instructions on how Table Top will be run</p> <ul style="list-style-type: none"> • <u>Topics</u> <p>Provide scenario and background</p> <p>Identify arrangements for information flow, decision-making, and response / feed-back</p> <ul style="list-style-type: none"> • <u>Methodology</u> <p>PowerPoint</p> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> <p>Exercise General Instruction</p>	30	Coetzee
6.3 6.4	<p>Table Top Exercise – Stakeholder Break out Group discussions, followed by Stakeholder Responses, according to timeline</p> <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> <p>Carry out a Table Top Exercise</p> <ul style="list-style-type: none"> ○ Apply a tsunami warning scenario to pre-developed time lines, flowcharts and SOP's ○ Identify and describe the individual actions taken by each respective stakeholder in response to the tsunami warning ○ Demonstrate the above through report-back to the plenary <ul style="list-style-type: none"> • <u>Topics</u> <ul style="list-style-type: none"> ○ Participants will be presented with a scenario simulation and a flow of simulated exercise 'injects' to which they will respond through group discussion. ○ Participants will be required to take in account and apply the knowledge and preparation they have developed in the course of the workshop to demonstrate an appropriate response to the scenario. ○ Group discussions will take place in the morning and the Exercise will take place in the afternoon. <ul style="list-style-type: none"> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <p>Exercise Controllers to provide time/information/data to each</p>	240	Coetzee, McCreery, Kong

	Stakeholder Group for their response. <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> Exercise Scenario, including messages, data, and other information 		
6.5	Table Top Exercise – Evaluation and Next Steps <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> Post-Exercise Evaluations Conduct Day 5 Table Top Exercise evaluation Receive comment from tutors and peers on the reports • <u>Topics</u> Discussion on Day 5 Table Top Exercise Post-Exercise Evaluations – why, who, what, how Evaluation Surveys Next Steps • <u>Methodology</u> Lecturers will comment on the report-backs provided by the Exercise discussion groups. The quality and comprehensiveness of the report-backs will provide an over-all impression on the level of achievement by the groups. • <u>Handouts / Reference Materials</u> EPW06 Evaluation Form City of Torrance Operation ‘Back on Track’ Participant Critique City of Torrance Operation ‘Back on Track’ Exercise Evaluation 	60	Coetzee, Kong
6.6	Summary Discussion <ul style="list-style-type: none"> • <u>Objectives / Outcomes</u> • <u>Topics</u> • <u>Methodology (PowerPoint, CD, DVD, Other)</u> <ul style="list-style-type: none"> • <u>Handouts / Reference Materials</u> 	30	All
7	Closing Ceremonies	30	Elliott