

ICG-PTWS Steering Committee Meeting, 27 June – 1 July 2016

MINUTES

29 June 2016 – PM

ACTIVITY	SUMMARY AND ACTIONS/DECISIONS
<p>Opening Welcome Logistics and Safety Reporting and Rapporteurs</p>	<p>NOAA NWS Pacific Region Director Ray Tanabe welcomed the Group on behalf of the USA.</p> <p>Chair indicated she expected the meeting to help focusing and prioritising activities of the PTWS, given time and resources of the SC and PTWS are limited. Two key questions is how to get input of countries to the set of priorities and performance indicators, and then what else can we do to get more resources for the PTWS.</p> <p>Members of WGs and TTs and officers of SC should have a framework enabling them to deliver and get things done.</p> <p>The list of Participants is under ANNEX I</p>
<p>Minutes of the SC Virtual Meeting held on 31 August 2015</p>	<p>SC reviewed and endorsed the Minutes of the SC Virtual Meeting held on 31 August 2015. They noted some of the actions are pending and will be discussed at this meeting.</p>
<p>ICG/PTWS 26th Session Recommendations follow up</p>	<p>SC reviewed the ICG/PTWS-XXVI Summary Report.</p> <p><u>Rec XXVI-1</u>: SC discussed about possible changes to the SC ToRs after the report of the Task team on Future Goals and Performance Monitoring.</p> <p><u>Rec XXVI.3</u>= SC agreed to incorporate the Circular Letter together with the announcement of the next ICG session.</p> <p><u>Nominations of WGs/TTs/SCs</u> SC decided to circulate and email to TNCs to request nominations to WGs/TTs (including regional) informing them on the current membership, chairs, vice-chairs and ToRs)</p> <p><u>Governance:</u> Dr Ken Gledhill (New Zealand) indicated PTWS has a complex structure and not while not all WGs are performing at their optimum, TTs are very active.</p> <p><u>Actions:</u></p> <ol style="list-style-type: none"> 1. Secretariat to include in the announcement of the 27th session the circular letter indicated under Rec XXVI.3 2. Secretariat to circular an email to TNCs to request nominations to WGs/TTs

30 June 2016

ACTIVITY	SUMMARY AND ACTIONS/DECISIONS
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<p>Regional Working Groups Reports</p>	<p><u>WG-South China Sea:</u> Mr. H Y MOK (China), Chair of the WG-SCS presented the report of the WG-SCS, followed by Dr Ye YUAN (China) who reported on the establishment of the South China Sea Tsunami Advisory Center (SCSTAC), as Chair of the respective Task Team.</p> <p><u>WG-South East Pacific:</u> Ms Patricia ARREAGA (Ecuador) presented on behalf of the South East Pacific (SEP-WG) by videoconference. SC inquired about the sharing of the newly added sea level stations in the region that seems to be not available in the IOC Sea Level Monitoring Facility (SLMF). SEP responded that they are exploring how to address technical telemetry problems that have delayed to share the new stations through the IOC SLMF but they do understand the importance and are committed to share data for tsunami warning purposes.</p> <p>SEP-WG inquired about the possibility of the region (and Ecuador) to be piloting a PTWS Tsunami Ready initiative. Laura Kong (ITIC) answered that PTWS is exploring the subject and there might be possibilities to develop tests for Tsunami Ready. One aspect of that is to make sure there is national funding available to invest in the process.</p> <p><u>South West Pacific WG</u> Mr 'Ofa FA'ANUNU (Tonga) presented the report of the South West Pacific (SWP-WG)</p> <p>The Chair informed the SC that the main problem for the SWP-WG has been that with the available resources it has not been able to meet as from 2012, and requested that the SWP-WG will review the existing Governance structure taking into consideration other tsunami response groups that have been formed in the SWP e.g. PIMOS (Pacific Island Marine and Ocean Services – PIMOS) for better efficiency use of resources and report back to the next ICG/PTWS meeting. SWP-WG indicated it will be meeting at Honiara, Solomon Islands, on August 22-23, 2016. The Chair informed the SC that during the Pacific Leaders Meeting in October 2015, the Leaders endorsed the 'Nuku'alofa Ministerial Declaration for Sustainable Weather and Climate Services for a Resilient Pacific'. The declaration has the following with respect to Tsunami “We the Ministers of Pacific Meteorological Services RECOGNISE that the region is also highly prone to tsunami with several countries having recently experiencing locally generated tsunami, requiring rapid detection and prompt dissemination of tsunami warnings to coastal communities and therefore the need to strengthen early warning systems for this Hazard”.</p>
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	<p>The SC recommended that the SWP-WG discuss the following in its Solomon Islands Meeting, August 22-23, and report back to WG2, WG3 and the 27th session of the ICG/PTWS:</p> <ol style="list-style-type: none"> (1) Development of a competency framework/model for tsunami warning (including training requirements) (2) Review of the Tsunami Ready Checklist for use in the SWP and (3) Discuss a plan/strategy on how to improve warnings of local events. <p>SC was pleased to note the series of in-country trainings on tsunami warning and response focusing on the PTWS Enhanced Products carried out in the SWP. It expressed particular appreciation to US NWS for its support to ITIC in leading these trainings and requested for its continued assistance for completion of trainings in the remaining countries of Fiji, Kiribati and Tuvalu. At the same time it urged countries to explore opportunities for national and donor funding to ensure training and other capacity building needs</p> <p><u>Central America -WG</u></p> <p>The Secretariat presented the report of CA-WG with three highlights: LIDAR acquisition by Costa Rica for both coasts, Honduras continued commitment including through the TEMPP project and Nicaragua initiative for the Central America Tsunami Advisory Center (CATAC) with the support of JICA (Japan).</p>
<p>Technical Working Groups Reports</p>	<p><u>WORKING GROUP 1: HAZARD ASSESSMENT</u></p> <p>Dr Francois SCHINDELE (France), Vice-Chair of the WG1 presented the report of the WG1 on behalf of Vasily TITOV, Chair of WG1.</p> <p>SC inquired how the progress reported contributes to the tasks defined in the ToRs of the WG1? Mr Schindele indicated it responds only partially to the ToRs.</p> <p>A discussion ensued about the nature of the global tsunami hazard assessment reported in the Global Assessment Report on Disaster Risk Reduction 2015 (GAR 2015) of UNISDR and the evaluation of them from a scientific point of view. The meeting opined that the Tsunami Programme of IOC should coordinate with UNISDR for future reports of the same kind.</p> <p>SC reflected on if there is a need to continue this WG after ICG 27th and indicated that there are several elements of the WG1 ToRs that could be covered by TOWS. SC suggested WG1 Chair and Vice-Chair to discuss with Regional WGs about the future of WG1 and the needs to be covered.</p> <p><u>WORKING GROUP 2: TSUNAMI DETECTION, WARNING AND DISSEMINATION</u></p>

Dr Ken GLEDHILL (New Zealand), Chair of WG2 reported that the Task Teams under WG2 have done a lot of progress. However, there are several elements of the ToRs under which no real activity has taken place. He went over the membership and indicated some have retired, some should be deleted and requested SC to nominate a Vice-Chair. He reported on recommendations put forward to the SC from the TT on Enhanced Products and TT on Seismic Data sharing on the South West Pacific, as below.

SC appointed Dr.Chip McCreery (USA) as Vice-Chair of WG2.

The SC recognized the leadership, efforts and support of the Vanuatu Meteorology and Geo-Hazards Department (VMGD) and IRD (Institute of Research for Development), New Caledonia, in encouraging seismic data sharing for tsunami detection in the South-West Pacific (SWP) region through the establishment of the Oceania Regional Seismic Network (ORSNET);

The SC endorsed ORSNET as the vehicle for seismic data sharing in the SWP including providing data to the Tsunami Service Providers (TSPs), **and encouraged** VMGD and IRD to continue to source funding for the running of ORSNET and to support other SWP countries in their NTWS efforts;

The SC recommended that the SWP Seismic Data Sharing Task Team continue with the tasks focused on overseeing the progress of ORSNET in the next intercessional period (2017 – 2019).

The SC encouraged Tsunami Service Providers (TSPs) to implement Common Alerting Protocols (CAP) for the tsunami messages disseminated to facilitate use by a range of systems that support Member States tsunami warning systems.

The SC recommended that TOWS-WG considers including CAP as a required format produced by TSPs as part of international tsunami notification standards.

The SC recommended TOWS-WG ensures that international tsunami-related projects are linked into current IOC activities to prevent overlap and duplication of effort. E.g. The Global Earthquake model (GEM)¹, The Global Tsunami Model (GTM)² and the International GNSS Service³ project on the use of GNSS (continuous GPS) stations for tsunami detection.

¹ For information on the Global Earthquake Model see <https://www.globalquakemodel.org/>

² For information on the Global Tsunami Model see http://globalsunamimodel.github.io/2015_06_IUGG/GAR_GTM_IUGG_presentation_updated_distr.pdf

³ For information on the International GNSS Service see <http://www.igs.org/>

WORKING GROUP 3: DISASTER MANAGEMENT, PREPAREDNESS AND RESILIENCE

Mr David COETZEE (New Zealand), Chair of WG3, presented the report of the WG.

The SC noted with sadness the passing of Ms Julie Leonard, vice chair of the Working Group, and acknowledged the contribution Ms Leonard made towards capacity building particularly in Central and South America.

SC appointed Dr. Laura Kong (USA) as Vice-Chair of WG3.

The SC noted that the Caribbean system has completed guidelines for a “Tsunami Ready” recognition programme, and that the material is available to PTWS; **It acknowledged** the potential of such programmes for the PTWS;

The SC requested Working Group 3 to investigate the extent to which the Caribbean guidance requires adaptation for the PTWS, taking into account feedback from pilots to be conducted in Ecuador, Honduras, Samoa, Tonga, and Vanuatu and make the changes and report back to ICG-PTWS XXVII in this regard;

The SC requested Working Group 3 to factor the Tsunami Ready conditions into the development of Key Performance Indicators (KPIs) for Disaster Management, Preparedness and Reduction

The SC noted the completion and availability of the USA ASCE 7-16 structural design provisions for tsunami, and that the provisions will be referenced in the International Building Code in 2018; **It recognised the importance** of these provisions for tsunami risk reduction. **The SC encouraged** member states to note the availability of the new provisions and to consider its application in national structural building design codes.

Tsunami Ready

Dr Laura KONG (ITIC) introduced the Tsunami Community Preparedness Recognition Programme in the Caribbean that was endorsed and approved by ICG/CARIBE EWS as Guidelines for the Tsunami Ready Community Performance-Based Tsunami Recognition Programme for the Caribbean and Adjacent Regions.

SC discussed about how to develop it in the Pacific Ocean, such as through a pilot initiative that could inform a decision at the next ICG session. Samoa, Tonga and Vanuatu in the South West Pacific

	<p>and Ecuador and Honduras in the South East Pacific and Central America indicated interested in helping to test the programme.</p> <p>SC decided to request WG3 to investigate the possibility of piloting an experimental Tsunami Ready recognition process in the countries identified above (decision under WG3 above).</p> <p>Mr Ardito KODIJAT (IOTIC) attended this part of the meeting by videoconference. He indicated that there is still confusion to him on how to apply a concept like Tsunami Ready to larger countries like India or Indonesia that have thousands of communities/villages that could be part of an initiative of this nature.</p> <p>World Tsunami Awareness Day Dr Laura KONG (ITIC) reported that following the Sendai Framework for Disaster Risk Reduction adopted at the Third UN World Conference on Disaster Risk Reduction (WCDRR) and under the initiative of Japan, the UN designates the 5th of November of every year as “World Tsunami Awareness Day” (WTAD), through A/RES/70/203 World Tsunami Awareness Day</p> <p>SC requested the Secretariat to inform Member States on the WTAD and on the activities it has planned for WTAD 2016, asking Member States to share with the Secretariat the activities they have planned to commemorate that day. It also requested the Secretariat to share that information with the SC.</p> <p>Ocean Teacher Global Academy (OTGA) Greg REED (IODE consultant) presented on behalf of Claudia Delgado the OTGA</p> <p>SC inquired about the status of OTGA/IODE within IOC and if the trainings are IOC endorsed. Mr Reed responded that the trainings are endorsed by IOC as this is an IOC programme. SC inquired what kind of certificates are provided by IOC. Mr Reed indicated that IOC provides certificates for courses, mostly by participation and sometimes based on exams. Some courses require an assessment, including practical exercises.</p>
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1 July 2016

ACTIVITY	RESPONSIBILITY AND COMMENTS
PacWave Task Team Report	Jo GUARD (New Zealand), Co-Chair of the Task Team on PacWave Exercises reported on the results of PacWave 16 and the plans for PacWave 17.

	<p>Due to the addition of PacWave16 to the exercise calendar, unforeseen staff shortages at ITIC and the work commitments of the Co-Chairs, the Task Team recommended that PacWave17 be conducted primarily with scenarios from previous exercises; and PacWave19 planning commence as early as possible after PacWave17 to focus on simulating the real events of 2009, 2010 and 2011.</p> <p>SC discussed the option of developing an exercise using scenario and data from real events in 2010 (Chile) and 2011 (Japan) considering they could provide considerable amounts of real data and experiences to compare with, especially evaluating how countries have improved their systems because of these events.</p> <p>The SC decided PacWave 17 will be conducted on 15-17 February 2017 with a maximum of 6 scenarios that will be selected by the Task Team and that represent good coverage of the Pacific Ocean in order to test new enhanced products for NWPTAC, PTWC and SCSTAC.</p> <p>The SC endorsed the following aims for PacWave 17: To test the new NWPTAC, PTWC and SCSTAC Enhanced Products</p> <ol style="list-style-type: none"> 1. Test communications from the NWPTAC, PTWC and SCSTAC Tsunami Service Providers to Countries. 2. Test whether the PTWS PTWC/NWPTAC/SCSTAC Tsunami Service Provider products are interpreted by countries accurately and in a timely manner. 3. Test national and regional communication 4. Test national and regional cooperation. <p>With the following timeline: IOC Circular Letter: August 2016 (to include the list of scenarios) Manual:15 November 2016 Scenarios loaded onto website: At least one month prior to the exercise to be conducted on 15-17 February.</p>
<p>Enhanced Products Task Team Report</p>	<p>Dr Chip McCREERY, Chair of the Task Team on Enhancing Products reported on this agenda item.</p> <p>SC decided that for significant changes and scheduled quarterly updates, WG2 and its Task Team shall communicate to Member States through the IOC Secretariat by means of a Circular Letter at least 3 months in advance.⁴ E.g., general word and format changes to text messages.</p> <p>For country-specific changes, PTWC should implement changes on request and those changes should be included for information in</p>

⁴ Footnote: Recommendation ICG/PTWS-XXVI.1 "Instructs the WG2 Tsunami Detection, Warning & Dissemination and its Task Team on Enhancing Products to review changes to TSPs products and requests the IOC Secretariat to provide Circular Notices on Planned Changes to PTWS TSPs Products to TNCs and TWFPs three months in advance of operational implementation".

	<p>the same Circular Letter above.⁵ E.g., changes to polygons and forecast points.</p> <p>For “emergency” changes, WG2 and its Task Team could approve immediate implementation as decided by the WG, and these should be immediately communicated to Member States through email sent to TNC/TWFPs by the IOC Secretariat. Criteria for deciding on the “emergency” nature should be included in the message sent through email. E.g., unforeseen issues with existing products.</p>
Task Team on Future Goals and Performance Monitoring	<p>Mr. Rick Bailey (Australia), Chair of the Task Team for Future Goals & Performance Monitoring, reported on the development of a draft Framework for the measurement and assessment of the goals, performance and activities of the ICG.</p> <p>The SC requested:</p> <ul style="list-style-type: none"> a) Task Team Chair to finalise the Framework design (by August) b) Chairs of technical Working Groups to provide information on the 2-4 year Outcomes, associated Outputs/Activities and Key Performance Indicators for the Goals of their respective elements (by September) c) Chairs of Regional Working Groups to review information provided by technical Working Group Chairs to ensure regional and national considerations included (by October) d) Task Team to develop Status Report template to document progress and status of ICG activities and PTWS implementation (by November) e) Task Team to review and revise National Report template upon acceptance by SC to ensure relevant information on status and performance is collected for input to the PTWS Status Report (by November) f) IOC Secretariat to circulate revised National Report template to Member States to complete and submit reports (by December) g) Regional Working Groups to review framework and required input for National Reports (by end January) h) Member States to submit National Reports to ICG (by end January) i) Task Team to complete draft Framework and draft PTWS Status Report to submit for consideration by Member States at ICG-XXVII (by end February)
Task Team on Evacuation Planning and Mapping	<p>Dr Laura KONG (ITIC Director) Chair of the Task Team on Evacuation Planning and Mapping reported on the progress of the Tsunami Evacuation Maps, Plans, and Procedures (TEMPP) Project, which is piloting the PTWS new course on tsunami evacuation maps for two communities, Cedeno on the Pacific and Sambo Creek on the Caribbean in 2015-2016. Panama, Costa Rica, Nicaragua, El Salvador, Guatemala, and Mexico have also been invited to attend the trainings. Five trainings (ComMIT, tsunami</p>

⁵ Footnote: TS 105 (Users Guide for the Pacific Tsunami Warning Center Enhanced Products for the Pacific Tsunami Warning System) states “Member States are encouraged to review the polygons and recommend changes in boundaries or names to make the polygons more useful for their purposes”

	<p>seismic sources and inundation modelling, evacuation mapping, SOPs, and exercises) are planned, with the 1st two completed. TEMPP collaborators are IOC, New Zealand, and NOAA Caribbean Tsunami Warning Program (Christa von Hillebrandt-Andrade, Carolina Hincapie), and Pacific Marine Environmental Laboratory (PMEL, Diego Arcas, Marie Eble), both of whom joined by videoconference. Dr. Arcas provided a summary of the ComMIT modelling tool, which now has additional features to support inundation modelling for evacuation mapping. Dr. Kong then presented the Agendas for the remaining three trainings, and invited the Group to provide comments. Following, there was an extensive discussion on training topics, and the resources required. This is summarized within the ITIC Training Report).</p> <p>The SC also noted with appreciation the progress that has been made with regards to the establishment of a training programme for the creation of Tsunami Evacuation Maps, Plans, and Procedures (TEMPP) under the lead of Dr Laura Kong, Director of ITIC.</p> <p>The SC noted continuing challenges by countries in obtaining adequate bathymetric and elevation data sets for inundation modelling and evacuation mapping, but that provisional evacuation maps can be established that should not require detailed inundation modelling.</p> <p>The SC emphasized the importance that every tsunami-vulnerable community should have an evacuation map and plan. It encouraged Member States to make this a highest priority action to save lives.</p>
<p>ITIC Training Report</p>	<p>Dr Laura KONG (ITIC Director) provided a report on activities of ITIC Training Program (ITP) including trainings delivered in 2015 and 2016. She also reported on ITIC's efforts to develop a Pacific deep-ocean and coastal impact tool in collaboration with NOAA PMEL, in response to requests for tsunami decision support assistance from several Pacific Island countries and the IOC Secretariat. The concept is after from tools used by the Solomon Islands (Australia BOM-developed), and in New Zealand (GNS-developed), and it is intended to be user-friendly and flexible so that other data layers, such as from additional inundation modelling or country threat polygons and criteria could be added. An introduction on the tool concept was done by Chris Moore (PMEL) via videoconference. The tool is planned to be available in 2017.</p> <p>SC noted that the ITIC-PMEL Pacific coastal impact tool would be useful for hazard assessment and evacuation mapping and planning, and could be an offline tool for situational awareness during events.</p> <p>SC noted the availability of ITIC courses, which include topics of end-to-end systems, SOPs, PTWC enhanced products, awareness,</p>

	<p>evacuation mapping, and ComMIT modeling. SC encouraged countries to put training funds into their national budgets if training is a priority.</p> <p>SC was pleased to note the series of in-country trainings on tsunami warning and response focussing on the PTWS Enhanced Products carried out in the region. It noted a desire to centralise trainings such as ITIC trainings (Awareness, SOPs, TEMPP, ComMIT, through ITP-International and ITP-Hawaii), and standardise and formalise training that supports tsunami warning center staff competency certification within the PTWS;</p> <p>SC requested the Secretariat to inquire with the IOC Training capacity in Oostende, Belgium and with the World Meteorology Organisation about options to establish a more formal training framework for PTWS;</p> <p>The SC noted the central role that the ITIC has played in developing guidance, organizing and conducting regional and in-country trainings for PTWS countries, notably Tonga, Solomon Islands, Colombia, Cook Islands, Peru, Vanuatu, and Fiji in 2015-2016 and regionally for the South China Sea, Latin America, and the Pacific Islands in 2013-2014;</p> <p>The SC expressed particular appreciation to US NWS for its support to ITIC in leading these trainings and requested for its continued assistance for completion of trainings in the remaining countries of Fiji, Kiribati and Tuvalu to strengthen their tsunami warning and emergency response operations</p> <p>The SC noted that the US NWS cannot routinely fund ITIC travel in support of this capacity building service.</p> <p>The SC urged countries to explore opportunities for national and donor funding, in consultation with ITIC and the Secretariat, to ensure training and other capacity building needs are met on an on-going basis</p> <p>The SC also noted with appreciation the progress that has been made with regards to the establishment of a training programme for the creation of Tsunami Evacuation Maps, Plans, and Procedures (TEMPP) under the lead of Dr Laura Kong, Director of ITIC.</p> <p>The SC noted continuing challenges by countries in obtaining adequate bathymetric and elevation data sets for inundation and evacuation mapping, but that provisional maps can be established that should not require detailed inundation modelling</p> <p>The SC emphasized the importance that every tsunami-vulnerable community should have an evacuation map and plans. It encouraged Member States to make this a highest priority action to save lives.</p>
<p>PTWS preparations confirmation venue/host</p>	<p>XXVII and of</p> <p>Secretariat reported on status of discussion with Panama and France and indicated that SC needed to look into this and decide on the venue. Panama and France were invited to present their</p>

	<p>offers in detail for the SC to decide on the venue and date of the 27th session.</p> <p>Mr Arnulfo SANCHEZ, TNC Panama, accompanied by representatives of Foreign Affairs, TWFP (University of Panama), Smithsonian Institute for Tropical Ecosystems and Lyon’s Club presented Panama’s offer via videoconference.</p> <p>Mr.Francois SHINDELE, TNC France, presented on behalf of France.</p> <p>The SC considered the options, noted the interest of France to host the meeting in the context of the 50th Anniversary of the Centre Polynésien de prévention des tsunamis, as well as the increased commitment of SWP countries with the system and accordingly decided to accept the offer of France to host the 27th session in Tahiti on 28-31 March 2017, with a scientific Symposium on the 27th March 2017. It deeply thanked the offer of Panama for hosting this session and requested the Secretariat to inform Panama of the decision and to consider the possibility of hosting the 28th session in 2019.</p> <p>A Draft Provisional Agenda for the PTWS XXVII is available under ANNEX II.</p>
<p>Review and Adoption of Summary Report</p>	<p>Members of the SC, Secretariat, as above.</p>

ICG-PTWS Steering Committee Meeting, 27 June – 1 July 2016

ANNEX I - List of Participants

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ANNEX II- DRAFT AGENDA ICG/PTWS XXVII

**Twenty-seventh Session of the Intergovernmental Coordination Group for the Pacific Ocean
Tsunami Warning and Mitigation System
(ICG/PTWS-XXVII)**

Tahiti, France

28-31 March 2017

PROVISIONAL AGENDA

1. WELCOME AND OPENING OF SESSION

2. ORGANIZATION OF THE SESSION

2.1. ADOPTION OF AGENDA

2.2. DESIGNATION OF THE RAPPORTEUR

2.3. CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

3. REPORT ON INTERSESSIONAL ACTIVITIES

3.1. CHAIRMAN'S REPORT

3.2. SECRETARIAT REPORT

3.3. REPORT FROM SYMPOSIUM: "XXXXXXX"

3.4. TOWS-WG REPORT

3.5. WARNING & ADVISORY SERVICES REPORT

3.5.1. PTWC

3.5.2. NWPTAC

3.6. ITIC'S REPORT

3.7. NATIONAL PROGRESS REPORTS

3.8. WORKING GROUP REPORTS

3.9. REPORT OF THE TASK TEAM ON FUTURE GOALS AND PERFORMANCE
MONITORING

3.10. REPORT OF THE TASK TEAM ON EVACUATION PLANNING AND MAPPING

3.11. REPORT OF PACIFIC WAVE EXERCISE 2016 AND 2017

3.12. STATUS OF PROGRESS IN OTHER ICGS

3.13. REPORTS FROM UN AND NON UN ORGANISATIONS

4. POLICY MATTERS

4.1. FUTURE GOALS AND PERFORMANCE MONITORING – PTWS STATUS REPORT

4.2. EVACUATION PLANNING AND MAPPING

4.3. PACIFIC WAVE EXERCISE 2019

4.4. TSUNAMI READY RECOGNITION

4.5. ENHANCING PTWS TSUNAMI WARNING PRODUCTS

4.6. TRAINING

4.7. SOUTH CHINA SEA TSUNAMI ADVISORY CENTER

4.8. PTWS GOVERNANCE AND STRUCTURE

4.9. FINANCES AND RESOURCES

5. PROGRAMME AND BUDGET FOR 2018–2019

6. NEXT SESSION

6.1. CONFIRMATION OF DATE AND PLACE OF ICG/PTWS-XXVIII

6.2. TARGET DATE FOR ICG/PTWS-XXIX

7. ELECTIONS OF OFFICERS

8. ANY OTHER BUSINESS

9. ADOPTION OF DECISIONS AND RECOMMENDATIONS

10. CLOSURE