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**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION  
(of UNESCO)**

**Twentieth Session of the International Co-ordination Group  
for the Tsunami Warning System in the Pacific (ICG/ITSU)**

3 – 7 October 2005

**REPORT OF THE CHAIRMAN**



## 1. INTRODUCTION

The 26 December 2004 Sumatra tsunami destroyed suddenly the lives of more than 200.000 people in the Indian Ocean region. More than 10 countries were affected by the dangerous waves, 4 very affected. No warning systems for tsunamis were in place and all of the affected countries were unprepared.

The entire world realized what a tsunami is, and that the phenomena could occur at any time and impact anywhere along numerous coastlines.

This event definitively changed the activities of the ITSU Officers, several member states representatives and Directors of Tsunami Warning Centers. Providing a comprehensive overview of all activities performed in 2005 is really a challenge, and for those who are interested about all these issues, I suggest to connect to the <http://ioc.unesco.org/indotsunami> web site.

What is important now to ITSU is to analyze the consequences of the 26 December 2004 tsunami for the Pacific Tsunami Warning System.

The 26 December event was a lesson for the world and for ICG/ITSU : major earthquakes are definitively unpredictable, the location, the size and the date. The conclusion is that major earthquakes can occur in every sea and ocean : currently and probably during the next decade there is no way to predict them. This is the first conclusion that everybody must accept and report.

The second lesson was given by a small girl who informed her parents about the risk of tsunami when she saw the sea receded and argued that large waves would come – she saved hundreds of people. This shows that mitigation works, based on education and preparedness. Since the 26<sup>th</sup> of December, the people in the entire world who have access to the media know the meaning of the word tsunami, what is a tsunami and how dangerous its waves can be. This knowledge should not be forgotten but included in natural hazard mitigation programmes: this is a challenge for ITSU and for every IOC Member State.

The third lesson is that, before December 26, the only ocean protected by a tsunami warning system was the Pacific. Consequently, ICG/ITSU was the only structure with substantial expertise on tsunami warning systems. IOC's Member States of the Pacific Ocean have accumulated substantial knowledge and expertise in natural disaster management and on prevention measures to deal with the risk of tsunamis. In particular, invaluable experience and knowledge has been acquired on how to assess the tsunami risk at the national and local level, how to promote awareness and preparedness, and how to build national and regional tsunami warning systems. The Master Plan, the Tsunami Glossary and the Great Waves are the 3 most famous brochures on tsunami and tsunami warning systems.

Consequently, IOC was mandated to coordinate the implementation of the tsunami warning system in the Indian Ocean. Without the excellent work done by the ITSU Member States and experts during the past 40 years, and especially during the last 10 years when the modern detection systems, modelling software, historical database, Master Plan and other products were developed, IOC and Unesco would not be leading that coordination process. Since April 1<sup>st</sup>, the PTWC and JMA have the mandate to provide an interim tsunami advisory information for the Indian Ocean.

I take the opportunity to address my deep thanks first to all the Member states that are supporting the ITSU program for many years, both financially and through providing their expertise. I want to thank especially all ITSU Officers including Charles McCreery, Vice-Chairman and director of PTWC; the director of ITIC Laura Kong; the IOC Technical Secretary Peter Pissierssens, and also Masahiro Yamamoto, Director of the JMA tsunami warning center, for all the work done and their commitment to support the

implementation of the Indian Ocean Tsunami Warning System. They gave numerous presentations during many meetings (Kobe, Phuket, Paris, Mauritius, Perth and others), made reports, developed and maintained web sites and attended conferences. They have also participated in the assessment visit process to the Indian Ocean countries. The Officers are contributing one of the Tsunami technical experts in the team consisting of experts from ISDR, WMO, and IOC.

Since 26 December, the activities related to the establishment of the Indian Ocean Tsunami Warning and Mitigation System (IOTWS) has occupied most of the Officers and Secretariat's time. But we did take the opportunity to update several ITSU documents such as the Communications Plan of the Tsunami Warning System in the Pacific, and the English version of the Great Waves.

France offered to UNESCO a part-time secondment for 6 month of the ITSU Chairman.

I want to stress the importance of active participation of every Member States in ITSU activities. The efficiency of the Pacific warning system is based upon the involvement of every Member State in the region. The enhancement of the sea-level network is a key issue in every region to build an efficient tsunami warning system.

The other issue of importance is the nomination of National Contact Points who will assume responsible for participation in ITSU activities. This National Contact point must be active not only in the operation of the national warning centre but also in the creation of a National Tsunami Coordination Committee, dealing with the different actors and components of the warning system.

The responsibility of a national tsunami warning centre is to provide, to the national authorities, information about the occurrence of large earthquakes and tsunami at the national and local level. The responsibility of a regional tsunami warning centre is to provide, to the national warning centres or contact points of Member states, the information about the occurrence of large earthquakes that can produce ocean-wide tsunamis. These warning centres use the data received from numerous institutions and countries.

The ICG/ITSU is very pleased to welcome new countries to the Group. El Salvador joined ITSU in 2003. Malaysia, Vietnam and Panama joined ITSU in 2005, bringing the number of ICG/ITSU Member States to 28.

During the inter-sessional period following ITSU-XIX, I kept all National Contacts informed about the progress in the tsunami programme implementation, as well as about the problems we have been facing.

The following IOC Circular Letters were issued during the inter-sessional period:

- CL-2087 (29 October 2003): Follow-up to ITSU-XIX: Request for translation of adopted Tsunami signs in official (and other appropriate languages) (para. 110)
- CL-2089 (4 November 2003): Request to contribute to the IOC Trust Fund in support of the ITSU-XIX Work Plan implementation
- CL-2102 (15 April 2004): UNESCO/IOC ICG/ITSU TRAINING PROGRAMME, 2004 (previously called ITIC Visiting Experts Programme)
- CL-2341 (17 December 2004): Nomination of candidates for the position of ITSU Chair and Vice-Chair
- CL-2165 (25 July 2005): Letter of Invitation to the Twentieth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific (ITSU-XX), 3-7 October 2005, Valparaiso, Chile

Since December 26, I was expecting information from the ITSU member states on new developments of tsunami warning system and tsunami programs. Unfortunately, very little information was received. I assume that this information is provided in the national report and that you will present the major points during the session.

Considering that under different agenda items we will discuss in detail the programme components, my report deals only with general information on what we have accomplished.

Finally, the priority of this ITSU Session, is to examine and identify all actions that must be carried out to obtain an efficient, rapid and accurate Pacific Tsunami Warning System.

## **2. MAIN MEETINGS DURING THE INTERSESSIONAL PERIOD ATTENDED BY THE CHAIRMAN**

The Thirty- seventh Session of the Executive Council was held in Paris in June 2004. The Chairman presented the ITSU-XIX Summary Report for adoption and reported on the progress of the Group's activities.

Dr François Schindelé, ICG/ITSU Chairman, focused the Council's attention on the Recommendations made at ITSU-XIX, namely, (i) the Global Tsunami Data Base (GTDB) and the new Integrated Tsunami Data Base (ITDB) ; (ii) the formation of an *ad hoc* Working Group on a Comprehensive Tsunami Hazard Reduction Programme (TROIKA) ; (iii) the formation of an *ad hoc* Working Group on the Central American Pacific Coast Tsunami Warning System (CAPC-TWS) ; (iv) the formation of an *ad hoc* Working Group on the Tsunami Warning System in the Southwest Pacific and Indian Ocean (SWP-TWS) ; and (v) the ICG/ITSU Programme and Budget for 2004-2005.

Dr Schindelé presented the ITSU Tsunami Hazard Reduction Strategy which is based upon three elements: assessment, mitigation and warning guidance.

He concluded by stressing the insufficiency of resources allocated for ITSU in terms of staff and budget, thereby jeopardizing the Tsunami Warning System's efficiency and effectiveness. He urged Member States to consider this issue when allocating resources.

The Executive Council instructed the ICG/ITSU to identify specific bathymetric needs and priorities that could improve the tsunami programme, and make this information available to IHO for consideration by the appropriate IHO regional hydrographic commissions.

The Executive Council called for close collaboration between ITSU, GLOSS and JCOMM, for example, and invited the Chairpersons of relevant IOC and other programmes to attend ITSU Sessions and identify joint activities that will further the aims of ITSU.

The Executive Council expressed its strong appreciation of and support for the ITSU programme, as one of the IOC programme that specifically protects human life and property, thus having substantial societal importance and therefore direct relevance to GEO.

The Executive Council noted with appreciation the establishment of working groups on a Central America Pacific Coast Tsunami Warning System and on a Tsunami Warning System in the South-west Pacific and Indian Ocean, and encouraged Member States bordering other ocean basins to consider similar initiatives.

The Executive Council expressed satisfaction with the progress achieved by the Group and adopted

## Resolution EC-XXXVII.4.

The Officers Meeting of the ICG/ITSU took place in Hawaii during the second week of December 2004. It was a very productive meeting. The Officers examined the implementation of the decisions made by the Group in Wellington, based on the action sheet and identified actions required for the preparation of ITSU-XX. The report is available as INF-1202 ([http://ioc3.unesco.org/itic/files.php?action=viewfile&fid=290&fcid\\_id=193](http://ioc3.unesco.org/itic/files.php?action=viewfile&fid=290&fcid_id=193) ).

### **3. MAIN MEETINGS ATTENDED BY THE CHAIRMAN FOR THE INDIAN OCEAN AND OTHER REGIONS TSUNAMI WARNING SYSTEM IMPLEMENTATION.**

Since the 26 December 2004 tsunami, UNESCO received a clear mandate from the international community to coordinate the establishment of the Indian Ocean Tsunami Warning and Mitigation System during the course of several international and regional meetings, including the World Conference on Disaster Reduction (Kobe, Japan, 18 – 22 January 2005), and the Phuket Ministerial Meeting on Regional Cooperation on Tsunami Early Warning Arrangements (Phuket, Thailand, 28 and 29 January 2005). The ITSU Officers participated actively in those meetings and provided information on the Pacific Tsunami Warning system and the ICG/ITSU activities.

#### **3.1 DEVELOPMENT OF A TSUNAMI WARNING AND MITIGATION SYSTEM FOR THE INDIAN OCEAN**

The first coordination meeting for the development of a Tsunami warning and Mitigation System for the Indian Ocean was held at UNESCO's Paris Headquarters from 3 to 8 March 2005 and established that the system would be based on a coordinated network of national systems and capacities, and that each Member State would be responsible for issuing warnings within their respective boundaries. The Chairman chaired the session on the organizational and practical arrangements for a regional tsunami warning and mitigation system and presented the emerging technologies on tsunami monitoring and detection, and the design of a global tsunami warning and mitigation system.

The second coordination meeting for the development of a Tsunami Warning and Mitigation System for the Indian Ocean was held at Grand-Baie, Mauritius from 14 to 16 April 2005 and reaffirmed that the Indian Ocean Tsunami Warning System (IOTWS) will be a coordinated network of national systems and capacities. It also identified the need for the establishment of an Intergovernmental Coordination Group (ICG) by the IOC Assembly to govern the IOTWS.

The ITSU Chairman presented the Status of the establishment of National Contact points for receiving tsunami advisory information.

The Mauritius Communiqué was adopted and had the following reference to the national contact points:

“1. Invite the countries of the Indian Ocean to complete by July 2005, where necessary with the support of UNESCO/IOC, an assessment of their requirements and capacity needs for an effective and durable national tsunami warning and mitigation system, to be followed by the development of appropriate national strategic plans; “

At, or immediately after the Mauritius meeting, eighteen countries requested IOC assessment visits that were organised from June to August 2005. The Officers (ITSU Chairman, Vice Chairman and ITIC

Director) as well as Masahiro Yamamoto from JMA were the tsunami technical experts in the team consisting of expert from ISDR, WMO, and IOC.

The results of the assessment studies will be used to finalize the capacity building plans for both the national and regional systems.

Finally, the IOC Assembly, during its twenty-third Session (21-30 June 2005), formally established the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS) through Resolution IOC-XXIII-12

### 3.2 DEVELOPMENT OF TSUNAMI WARNING SYSTEMS IN OTHER REGIONS

In 2005, the Chairman was invited by the European Commission to participate in several workshops to present the ITSU activities and the IOC Tsunami Warning and Mitigation program. The European Commission has indicated that it may provide financial support to IOC for the implementation of tsunami warning systems in different regions.

The IOC Assembly formally established the intergovernmental coordination group for tsunami and other coastal hazards for the Caribbean and adjacent regions through Resolution IOC-XXIII-13.

The Assembly formally established the intergovernmental coordination group for the tsunami early warning and mitigation system in the North-East Atlantic, the Mediterranean and connected sea through Resolution IOC-XXIII-14.

The Assembly stressed the need for the IOC to address tsunami warning and mitigation in a global framework and as part of a multi-hazard approach, and established an *ad hoc* Working Group to prepare a framework for a Global Tsunami and other ocean-related Hazards early warning system. Member States and Chairpersons of relevant subsidiary bodies are invited to participate in that Working Group.

### 3.3 SPECIAL ITSU SESSION DURING WESTPAC-VI

During the Sixth Session of WESTPAC (Nha Trang – Vietnam 23-25 May 2005), a special ITSU Session was organized, in response to WESTPAC's request. The ITSU Chairman presented a short report on the ITSU activities, especially since 26 December 2004 M9.3 and 28 March 2005 M8.7 earthquakes and tsunami.

The Southeast Asian seas Tsunami Warning System was discussed in details, focusing on the needs of enhancement of real-time sea-level network in that region, as in the South-West Pacific. Both regions are included in the Pacific Tsunami Warning System, but when a major earthquake occurs in those regions, the Pacific Tsunami Warning Center cannot confirm that a tsunami is generated, due to the lack of sea-level data. This issue must be discussed during ITSU XX.

### 3.4 WMO PRESS CONFERENCE

IOC was invited by Mr Jarraud, WMO Director, to participate to a press conference organized by WMO on Reducing Disaster risk through early warnings. Dr. Schindelé presented the IOC activities on that issue, and respond to questions concerning the PTWS and the 26 December 2004 earthquake and tsunami (Genève Palais des Nations January 5<sup>th</sup> 2005,).

### 3.5 CTBTO

The Comprehensive Test Ban Treaty Organization invited the ITSU Chairman to the plenary session of its Working Group B (Vienna – Austria, February 21 2005). The ITSU Chair presented a Keynote lecture and provided information on the ITSU Group, the characteristics of the tsunami phenomena and the strategy of the Pacific Tsunami Warning System. As a result the CTBTO offered to IOC to send to PTWC and NWPTAS data of seismological and hydroacoustic stations to improve the rapidity to detect major earthquakes in the Pacific and in the Indian Ocean.

This cooperation must be reinforced in the near future to improve the earthquake detection and evaluation in the Pacific and other marginal seas.

### 3.6 FRANCE

The French Regional Authorities of Alpes-Maritimes organized an International Conference for a Tsunami Warning Network in the West Mediterranean Region (February 25 2005). The ITSU Chair presented the ICG/ITSU Tsunami Warning System in the Pacific and participated to the Panel ‘Needs of a Tsunami warning network in the Mediterranean region’.

Numerous Workshops, meetings and Symposiums were organized in France. The ITSU Chairman was always invited to present the ICG/ITSU activities, the PTWS and the scientific explanations of the 26 December earthquake and tsunami.

### 3.7 JCOMM (Joint WMO/IOC Technical commission for Oceanograph and Marine Meteorology) MANAGEMENT COMMITTEE

The Chairman participated in the JCOMM management Committee (Paris, 9-12 February 2005) presenting the status report of the ICG/ITSU activities and described the strategy of a tsunami warning system. He focused on the role of GLOSS as a global sea-level network for a tsunami monitoring and warning system. One of the conclusions of this meeting, in addition to the cooperation between WMO and IOC, is that future tsunami warning systems must be developed as part of a more comprehensive natural marine hazards warning system, encompassing storm surges, tropical cyclones extreme waves, etc.

### 3.8 GLOSS-IX ( Global Sea Level Observing System)

At the 9<sup>th</sup> Session of the Group of Experts for GLOSS (Paris, February 24-25 2005), the Chairman presented the need for a comprehensive global real-time sea-level network that can detect and monitor tsunamis, in particular in the Indian Ocean. François Schindelé and Mark Merrifield introduced the discussion on ITSU-GLOSS coordination. The principal question was whether GLOSS could and should evolve in the direction of providing tsunami and storm-surge warning capabilities, based essentially on existing sea-level monitoring capabilities.

The Session adopted a Communiqué concerning the contribution by GLOSS and its core network of sea level stations to tsunami and multi-hazard warning systems, that says:

*“By operational, GLOSS envisions a network operating on a 24/7 basis to provide data with sufficient frequency of sampling and sufficient timeliness of reporting to meet the needs of the broad community of users of sea level data,*



*The Communiqué Relating to Support for Tsunami and Multi-Hazard Warning Systems within the Context of the Global Earth Observation System of Systems (GEOSS) was adopted on 16 February 2005 at the Third Earth Observation Summit in Brussels. This Communiqué notes that disaster reduction is a high-priority area that will be addressed in the GEOSS Ten-Year Implementation Plan and within the framework of the International Strategy for Disaster Reduction. Given this Communiqué, as well as considering the developing UN International Early Warning Programme, GLOSS is interested in making the operational capability of its Core Network available as a basic element of GEOSS, especially to meet the needs for disaster reduction.*

*In so doing, GLOSS can contribute to the realization of effective tsunami warning systems in the Indian Ocean, Caribbean and Mediterranean Seas, and other regions of the world, as an integral part of a multi-hazard aspect of GEOSS.*

*In this context, GLOSS is prepared to work with the International Coordinating Group for the Pacific Tsunami Warning System (ICG/PTWS) and others as appropriate – as the capability for tsunami warning expands to the globe – to define requirements for new GLOSS stations and/or upgrades to existing GLOSS Stations.”*

The operation and maintenance part of the GLOSS network, in the Pacific must be coordinated by ITSU and GLOSS, through IOC.

### 3.9 IGOS GEOHAZARDS WORKSHOP

During the IGOS Geohazards workshop (Orléans – France, June 27 to 29 2005) the Chairman presented the IOC Tsunami Warning and Mitigation Program and its status in the Pacific and Indian Ocean. IGOS (Integrated Global Observing Strategy) is an international partnership established in June 1998 which brings together a number of international organizations concerned with the observational component of global environment issues, from both a research and operational perspective.) .

The Chairman participated to the Science Working Group Session and presented the needs on geological research about the major earthquakes to assess the tsunami hazard.

### 3.10 IAEA FLOODING HAZARD WORKSHOP

During the IAEA International Workshop on External Flooding Hazards at Nuclear Power Plant Sites (Kalpakkam - India, August 29 to September 2 2005) the Chairman presented a Keynote lecture on the Unesco/IOC Tsunami Warning and Mitigation Program and its status in the Pacific and Indian Ocean. Dr. Schindelé participated to the panels “Methodologies and Techniques for tsunami hazard assessment” and “Tsunami Warning Systems and NPP operational safety”.

## **4 SEMINARS, WORKSHOPS AND SYMPOSIUMS WHERE ICG/ITSU WAS REPRESENTED**

Due to the 26 December 2004 destructive tsunami, numerous meetings, conferences and workshops were organised worldwide. Laura Kong, Director of ITIC will present a comprehensive list of the workshops and symposiums.

## **5. FINANCIAL SUPPORT**

The IOC Secretariat will present the 2004-2005 budget, and for the next 2 years.

The financial situation is very critical and the budget resources allocated for ITSU are totally insufficient for a sustainable Pacific Tsunami Warning System, in terms of capacity building and technology transfer.

I look forward to every Member States to contribute to the IOC Trust Fund in support of the ITSU-XX Work Plan implementation and to approach your government and IOC representative to obtain more staff and budget for the national and international tsunami mitigation program.

## **6. IOC WEB PAGE**

The ITIC and IOC tsunami Web sites have been merged in 2005. Information on most of the ITSU activities and documents are now published in that new site (URL: <http://ioc3.unesco.org/itic> or <http://ioc.unesco.org/itsu> or <http://www.tsunamiwarning.org>). Member States, other countries, organizations and everybody who want to know about the activities of our Group, to have good knowledge on the tsunami phenomena, past tsunamis observations and data should be able to find what they need in the new site.

I recommend that the further development of the site should include the immediate publishing of a minimum of information after each recent tsunami event in a Tsunami Bulletin.

The IOC Secretariat and ITIC will inform us on the latest developments related to the web site.

## **7. CONCLUDING REMARKS**

This report is an overview of what we have achieved during the inter-sessional period, concerning the ICG/ITSU activities and other IOC tsunami activities

As I indicated in my introduction, the 26 December 2004 Sumatra tsunami changed everything in all aspects concerning how to face natural hazards and risk, and how to warn early in case of an extreme event.

Since 26 December 2005, the Chairman was invited to participate at numerous Conferences, Workshops and Meetings. Consequently, the cooperation with the UN organizations increased substantially. Everybody is referring to the Pacific Tsunami Warning System. The challenge to ICG/ITSU is to keep his position improving continuously all components of the PTWS.

I hope that most of you took this unique opportunity to strengthen your position in your country and to explain what are the components required to reduce the tsunami risk, as presented by ICG/ITSU, and that the unique efficient method needs close cooperation between neighboring countries and in all the region.

Several main issues to improvement of the PTWS must be discussed during the session and decisions taken :

- after a large or major earthquake, how long do we accept to wait for the confirmation that a tsunami has been generated and what is its magnitude? You know that in several areas, the answer is 2 hours. Is it acceptable. I personally think that due to the 26 December events and the media awareness, the maximum is between ½ hour and 1 hour. Consequently, the data of the sea-level stations must be sent at least every 20 minutes and

the sea-level network must be enhanced in numerous areas, with additional stations, or upgrading existing stations as those of GLOSS. The early detection of major tsunamis must be one of the priorities;.

- the second issue is to organize international tsunami exercises and to establish the terms of reference of these exercises. These exercises will help us all to assess our country's "tsunami readiness" and to improve our systems as necessary;
- the third item which must be improved is the knowledge of the tsunami hazard and risk on the coasts of our countries : this is necessary to build the tsunami evacuation maps and roads and know who must or must not be evacuated during a warning. No alarm during a new major tsunami would be very bad and false alarm would also have bad consequences for the system.
- the fourth issue is to build a Generic National Tsunami Emergency Plan, including the stakeholders, the methods, the list of actions for each stakeholder (a standard operating procedures manual)
- other documents can also be developed, such as Tsunami Posters and Templates on the requirements of a Tsunami Warning Center.

I would like to see contributions to the tsunami programme coming from all Member States especially those of the West-Pacific and South-East Asia.

This meeting will give the opportunity to Member States to be informed on the IOC tsunami program in the Pacific, in the Indian Ocean and other regions. The IOC Member States who are not part of ITSU are kindly invited to join the Group and contribute to the activities of the PTWS. Countries who are not IOC Member States are also invited to be part of IOC and ITSU.

Next year, probably most of the governments and authorities will have forgotten the tsunami danger. IOC, ICG/ITSU and the other intergovernmental groups are responsible to keep the society informed on that natural risk and must continue their efforts to implement and maintain tsunami warning systems, nationally, regionally, and at the global level. This is a challenge and our experience in the Pacific shows that after 40 years without a Pacific-wide tsunami, several organizations and governments have forgotten that a tsunami can impact their coasts any time and any day.

The experience in the Indian Ocean and other seas will be very useful for the Pacific: build a system in a empty area is very different from maintaining a system on a long term basis, when considering the evolution of the institutions in charge of the system.

An effective tsunami early warning system is achieved when all persons in vulnerable coastal communities are prepared and respond appropriately, and in a timely manner, upon recognition that a potentially destructive tsunami is coming.

ITSU is working since 40 years to achieve this objective. This is a continuous process that needs a permanent involvement of governments, institutions, organizations and people working in tsunami programs. It has been recognized that the key to achieve and keep the effectiveness of a tsunami warning system is the close cooperation at international, national, regional, institutional and local level. My personal experience since 10 years as Vice – Chairman and Chairman of ITSU encourage me to give you several main recommendations :

- 1 Develop in your country tsunami programs in accordance with the ITSU Mitigation Strategy (Hazard Assessment, Warning Guidance and Preparedness) , improve the efficiency of the national tsunami warning center, implement a National Tsunami Coordination Committee, and increase cooperation between the government and the stakeholders, included the scientists and the emergency managers.
- 2 Enhance the national sea-level real-time network and make available those data to the PTWS
- 3 Develop a regional and international cooperation with the same policy
- 4 Implement recent technologies for tsunami hazard assessment and tsunami warning guidance, as the tsunami forecasting method and the geodetic real-time network and develop necessary cooperation with relevant national and international organizations.
- 5 Organize National Tsunami exercises, Conferences, Symposiums, Workshops, Trainings on Tsunamis at national, regional and local level.

Co-ordinating the Tsunami Warning System for the Pacific is an international, national and personal 24-hour activity. We should always remember that the safety of the population in coastal zones, in relation to the tsunamis, depends on us – only on us- I am confident we will all agree that it is worth giving the programme the best of ourselves, during this session and the next coming years.

[end]