INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

OF UNESCO

Address by

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on the occasion of the Tsunami Session at the World Conference on Disaster Reduction

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Mr.Chairman, Distinguished delegates.

In the aftermath of the Sumatra earthquake and subsequent tsunami, nine days ago, in Geneva, during the Ministerial level meeting coordinating the humanitarian relief efforts, representatives of all the countries represented there, expressed their strong will to respond effectively to the crisis so we never have to witness again a disaster of the magnitude of the catastrophe of December 26. It is in this spirit that offer the Contribution of the Intergovernmental Oceanographic Commission (IOC) of UNESCO. Our Commission, as a response to the catastrophic tsunamis of 1960 in Chile and 1964 in Alaska, organized in 1965 the Tsunami Warning System for the Pacific Ocean, ITSU. The International Coordination Group of ITSU (ICG/ITSU), established in 1968, is a subsidiary body of the Intergovernmental Oceanographic Commission, and as such reports to the IOC Assembly composed by 130 States.

Over the course of 40 years UNESCO and its Intergovernmental Oceanographic Commission have accumulated an invaluable experience and knowledge on how to setup and run such a system, applying a comprehensive mitigation approach to Tsunami risk. The Pacific system is functioning well and provides a framework of good cooperation among the countries in the region. The

absence of a similar system in the Indian Ocean lies behind the devastating impact of the tsunami of the 26 December. We stand ready to transfer to the Indian Ocean region with the shortest delay possible the knowledge and experience IOC has accumulated in establishing and operating the Pacific Ocean system. The same applies to the establishment of early warning systems in other oceans and seas and, indeed, to setting up an integrated global network.

An effective tsunami warning system can exist only through international regional cooperation that respects the principle of open free and unrestricted exchange of observational data and ensures the establishment of an effective Tsunami Response Plan that is activated when warnings are issued.

There are important lessons to be learnt from our past experience. Important as they are, it has to be recognised that the instrumental networks used for tsunami detection and early warning, are just one element in the chain of actions aimed at mitigating the hazards from tsunamis. The robust, comprehensive mitigation approach used by ITSU is based on three mutually dependent components: first, the assessment of tsunami hazard; second, the warning system; and third the adoption of preparedness measures.

The actual hazard posed by tsunamis is specific to a given region. *Local tsunamis* can be generated by small earthquakes, a landslide or lava flow and affect areas less than 200 km away. This is the most frequent type of tsunamis. On the opposite extreme, a huge earthquake, like the one off the coast of Sumatra the 26 of December, do generate a *distant tsunami* or *teletsunami* that can travel thousands of kilometers over the deep ocean before hitting the coastline. Let us not forget that the recent tsunami in the Indian Ocean had also an impact in Africa. It is estimated that over 200 people were killed in Somalia, and much destruction occurred that has ruined livelihoods, especially in fisheries. Thus, because of the existence of distant tsunamis, a single country cannot adequately protect itself from tsunami risks without a regional network composed of hundreds of observation stations.

In local tsunamis or in regions where the centre of seismic activity is close to the coastline, the time for issuing an alert is very limited. In these cases it is the Local or Regional Tsunami Warning Center the only one authorized and practically enabled to issued a Warning. These are important, codified, operational procedures of the existing warning system, aimed at maximizing the

effectiveness of the response and minimizing the occurrences of false alarms.

At the core of the system are the National Tsunami Warning Centers, designed to respond to the most frequent type of events occurring in their regions and fully interlinked with the National Emergency Authorities. Consequently long-term preparedness plans can be implemented and timely alerts issued by responsible agencies. Inundation maps, produced through numerical simulations, evacuation plans and territorial zoning are some of the tools prepared by these National Tsunami Warning Centres and used locally by the authorities. These are some of the many actions implemented as part of the Master Plan under the guidance of the international elected officials of the International Coordination Group of ITSU.

The Intergovernmental Oceanographic Commission (IOC) of UNESCO has been advocating in favour of an early warning system in the Indian Ocean and other regions of the world since the risk of tsunamis exists in varying degrees in all oceans and coastal seas. This is why we are now calling for the establishment of early warning systems not only in the Indian Ocean but also in the Caribbean and the Mediterranean and for their reinforcement in the

SW Pacific. Indeed, we are actively promoting the setting up of a global early warning system for tsunamis that would provide an integrated international framework for establishing regional systems and responsible national centres and facilities.

Responding to an appeal from the World Summit on Sustainable Development, in Johannesburg (2002), a group of nations have committed themselves to build, in ten years, a Global Earth Observation Systems of Systems (GEOSS). This metasystem is aimed at integrating space-based (i.e. satellites) and "in situ" observations covering the land, the ocean, the atmosphere and ecosystems. A major driving force behind GEOSS is the need to provide early warning of natural disasters such as tsunamis as well as earthquakes, floods and storm surges. The value added of GEOSS is that, through its comprehensive and integrated architecture, the limitations of single systems can be overcome and the benefits of multipurpose usage can be maximized. It therefore makes every sense to develop a global tsunami warning system as part of the GEOSS architecture. Far from promoting a huge, single, centralized system the goal is to integrate the existing efforts in an architecture that allows for the many specialized environmental, meteorological and oceanographic services to be run by the corresponding responsible agencies on a 24 over 24 7/7 regime, but benefiting of a strong synergy and a permanent upgrading of

their components. The tsunami warning system is just one of such services.

The countries and organizations presently dealing with the immediate impact of the 26 December disaster are, at the same time, participants in the Indian Ocean Global Ocean Observing System, an initiative lead by IOC and co-sponsored by WMO, UNEP and ICSU. This regional initiative, established by an agreement signed in Mauritius in 2002, has much potential as a framework for moving towards comprehensive ocean measurement and forecasting in the Indian Ocean. The IO-GOOS has developed a comprehensive plan to address other risks prevalent in the region, such as storm surges, monitor climate and sea-level changes and improve the forecasting of Ocean and Atmospheric weather and climate in the Indian Ocean. Leaders of the affected countries have contacted us and have asked to use this existing regional platform to fats-track the establishment of the Indian Ocean Tsunami Warning System.

We are honoured to receive these requests made to IOC and UNESCO to provide the needed leadership in coordinating the several initiatives that are emerging

As a concrete response to the Indian Ocean tsunami disaster, we are helping to set up technical post-event assessment missions. In addition, in light of the Jakarta Declaration issued on 6 January

2005 that called for a regional early warning system in the Indian Ocean, and anticipating the outcomes of this meeting in Kobe, we will convene from the 3 to the 8 of March in Paris a technical meeting of experts from the interested Member States and relevant regional and international organizations in order to harmonize the different early warning initiatives emerging for and from the Indian Ocean and define the scope and characteristics of a global tsunami warning system.

Later in March, UNESCO will, in collaboration with ISDR, WMO and other partners, call an Indian Ocean Tsunami Regional Conference at which Member States would hopefully agree on their roles in the regional tsunami warning system.

Based on the experience summarized above, we firmly believe that a regional tsunami warning system for the Indian Ocean can be implemented in a short period of time, and in any case with leadership from the region in one year.

The decision to deploy a system in the region in such a short period of time is realistic under the condition of using the existing instrumental networks and communication links, working in its immediate improvement and establishing the national warning centers as a first priority. The implementation of preparedness plans will take more time and the incremental improvement of the system should be planned in consonance with the globalization of

the System, by extending its coverage to other regions of the world in a time frame of 2 to 5 years.

In addition of the seismic networks now in place and in use worldwide, IOC has received the generous offer from the Comprehensive Nuclear-Test Ban Treaty Organization, in Vienna,(CTBTO), offering the use of their important instrumental networks to provide additional valuable data and information on the characteristics of tsunamogenic seismic events for a global tsunami warning system.

Furthermore, the Global Sea Level Observing System, that includes 57 stations in the Indian Ocean, has completed a full plan for upgrading its network with real-time reporting instruments. 38 stations of this network can be easily upgraded to immediately provide the sea-level measurements that are needed to confirm the presence of tsunamis after an earthquake. This upgrading can be made of the rebuilding of the networks that were destroyed in December.

It is important that this system extends to all countries in the Indian Ocean basin, including the African Countries and small Island States that are severely exposed to tsunami risks.

Generous offers of assistance and support have been made by major donor countries such as USA, Japan, Germany and Australia towards the creation of an Indian Ocean early warning system for

tsunamis. In the region, India has put forward their intention to build an Indian Early warning system for the Indian Ocean. Such offers of help are greatly appreciated but I would like to propose that we go about the task of building this system in a coordinated way and following a commonly agreed strategy. In addition, I would like to stress that the technology is only part of an early warning system and that there must be an associated development of mitigation and preparedness strategies for which governments in the region must assume prime responsibility.

Turning to the question of building a global tsunami early warning system, IOC will work closely with WMO by means of our joint Commission of Oceanography and Marine Meteorology, through which we are already developing useful complementarities. The WMO Global Telecommunication System,(GTS), for example has the capacity to broadcast tsunami warning messages worldwide through its operating centers.

We are extremely encouraged by this very positive initial response.

Mr. Chariman:

Ministers from the affected countries pledged in Geneva their commitment to setup the early warning system and to provide strong governance to implement it at the national and regional levels. The international community has responded in an

unprecedented way to the Flash Appeal issued by Secretary General Kofi Annan on the 5 of January. Let us join all our efforts to succeed in this endeavor as a deserved homage to those that lost their lives in the tragedy of December 26.

Thank you