

**Total Disaster Risk Management Approach for Sustainable Development**  
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Distinguished guests, ladies and gentlemen:

It is my honor to be able to welcome you all to Kobe, especially here in the JICA Hyogo International Centre, and to welcome you to our International Training Program on Total Disaster Risk Management which we are co-organizing with UN OCHA Kobe.

While waiting for the Opening Ceremony to start, you were shown the brief video tape on ADRC and its activities. And in addition to its contents, I am very much honored to inform you that the ADRC will mark its fifth anniversary soon, and that the Republic of Kyrgyz has joined us since July 2002. With the joining of the Republic of Kyrgyz, we have now 24 member countries in Asia.

One of the aims of establishing ADRC is to have a multilateral network to exchange ideas and pursue ways to substantially decrease the adverse effects of natural disaster. Five years ago, there were international networks which dealt with natural disasters, however, quite a number of them were in the scientific research. But there existed a big gap, that is how these expertise can be practically applied to administrations, thus reaching the people facing the risks of natural disasters. To fill this gap, ADRC has identified the following as its specific pillars of activities. Information sharing, capacity building and cooperation. ADRC believes that the biggest challenge we are facing now for sustainable development in Asia is 'disaster reduction'. Therefore, in this training program, we would like to provide you some ideas on Total Disaster Risk Management, some features of hazard mapping that is effectively applied throughout the disaster reduction cycle, and rapid assessment that fulfills the relief needs.

The International Training Program on Total Disaster Risk Management is one of our undertakings to search for effective approaches to reduce substantially the adverse effects of natural disasters in Asia. In our five years of experience in Asia, we have been developing the concept of Total Disaster Risk Management, the details of which I am going to present today. The aim of our training program this week is to encourage all of you to find adaptable methods of applying TDRM according to each country's socio-economic conditions.

**Introduction of holistic approach to disaster reduction**

In Asia, natural disasters can be defined as the biggest obstacle to sustainable development. Due to its geographical and geological features, Asia is prone to various types of natural disasters. The region accounts for 88% of the total affected population and 54% of all the economic damages in the world reported from 1975 to 2000. We have seen many countries, losing considerable amount of its GDP, or gross domestic product, from one single disaster event. To name a few, the statistics on the top 10 severest disasters based on the ratio of amount of damage to GDP (according to CRED-EM DAT database 2001, HDI of UNDP, World Bank and World Fact Book 2001 edited by ADRC) indicates that the forest wildfire in Mongolia in 1996, the earthquake in Armenia in 1988 and the floods in Tajikistan in 1992 deprived these countries more than their annual GDP. Additionally, the floods in Nepal in 1987, the floods in Myanmar in 1991, and the windstorms in Laos in 1993 caused tremendous economic damages of more than 20% of the annual GDP of these countries, not to mention the lives lost and the sufferings in the affected country. Natural disasters can also be assumed as the biggest obstacle to social security of the affected country. However, the increasing trend in the number of natural disaster events

worldwide in recent years is still observed unfortunately; therefore, these apparent results of huge damage by natural disasters in many disaster prone countries led ADRC to pursue the idea of TDRM in Asia.

The event of natural hazard alone does not necessarily mean 'disaster'. A strong typhoon over an uninhabited island or a strong earthquake in a no-man's land is just a natural phenomena and not a disaster. Unusual heavy rainfall in a river-basin with a sufficient flood management system may result in the increase of water in reservoirs and not in the loss of lives or property. Only when natural hazards strike vulnerable societies or communities that they turn into 'disaster'. We cannot stop or control the natural phenomena; however, the number of disasters will be substantially decreased if we can decrease the vulnerability of the community. This gives us a great hope that if we properly assess the disaster risk of a community and take necessary measures, we will be able to reduce a number of disasters or lessen their impact.

### **'Disaster reduction cycle'**

To reduce disasters, we need to consider the cycle of disaster reduction. Experience has taught us that there are different measures to be taken according to the four different phases of disasters, which are (1) Pre-Disaster Phase, (2) Preparedness Phase, (3) Response and Immediate Relief Phase, and (4) Post Disaster Phase. In any country, immediate response to a major disaster is the first priority. After experiencing several disasters, it is logical that the disaster responders would notice there are ways to be better prepared for a sudden event, such as the designation of evacuation routes from dangerous areas or the preparation of emergency stock. These proper preparedness measures can save people's lives effectively. Moreover, the responders would notice that there are also ways to prevent or mitigate disasters and to start taking the imminent need of these measures into their consideration. Hence, as a result, the incorporation of rehabilitation and reconstruction, prevention or mitigation measurements is an inevitable and vital concern to reduce future disaster.

In order to address the whole 'Disaster Reduction Cycle', many players have to be involved. Civil protection and relief teams are always needed for the preparedness, response, and immediate relief phase. However, they are not the only major player. Experts' knowledge of various disciplines is also important. For the Pre-Disaster Phase and Post Disaster Phase, there should be even more variety of players to be involved.

Following are some examples: To cope with typhoon disaster; scientific research on meteorology, development of meteorological observation instruments, communication system to gather data and disseminate forecast, civil engineering for flood control works, forestry and agriculture for land conservation, regional planning for proper land use are the vital concern to be employed. To cope with earthquake disaster: scientific research on geophysics, structural engineering for buildings and social infrastructures, forestry to prevent secondary landslides, city planning for securing safe evacuation areas, lawmakers to draw regulations for building codes, and administrators to enforce these codes are the minimum requisite to be applied as well.

In addition, the most important issue to accomplish in disaster reduction is to have a good national coordinating body to mobilize various sectors concerned and encourage individual efforts, as well as enabling the various players to cooperate among themselves. Having a good national coordinating body, an effective multi-disciplinary and multi-sectoral involvement in regional planning, social infrastructure works, agriculture and forestry, health and sanitation, environment, civil protection, relief, scientific and engineering research is inevitable. For multi-

disciplinary and multi-sectoral efforts to be more effective, the link to the people is the most important point. For example, storm forecasts by meteorologists must reach the people at risk to urge their evacuation if necessary. In any university in Asia, in the faculty of engineering, in the school of architecture, they would teach how to make anti-seismic building, however, unless these technologies are adopted to the common housing of the people, it would not decrease the casualties from earthquakes. Local houses must be properly built with affordable technology by local architects to be earthquake resistant. In any country, this kind of link to the people is the most difficult part to acquire. Various players can be the critical link, such as local governments, community organizations, mass media, and non-governmental organizations. Concerning typhoon disaster in Japan, for example, the public TV and radio broadcast are quite effective in transmitting the critical information. The local school system can also play a big role in dissemination of knowledge to communities so that pupils can learn about disasters in the classrooms and then tell their parents what they have learned. Many countries are trying various approaches to convey the important message across effectively, and develop even more adequate methods in various sectors to reduce disasters.

### **Examples of Japanese disaster reduction countermeasures from 1950s**

Discussing about the history of Japanese disaster reduction countermeasure, it can be seen that adapting the idea of holistic disaster reduction approach in Japan was enforced after experiencing series of severe disasters that resulted in a heavy toll of human lives in 1940s and 1950s.

Japan is affected by heavy rainfall and storms twice a year: First from June to mid-July (the Bai-u rainy season), and second from mid-August to September (the typhoon season). The average number of typhoons which directly hit mainland Japan is 2.7 per year, however, even if the typhoons do not directly hit the mainland, they sometimes stimulate the active rain fronts and bring torrential rainfall. Consequently, the country suffers from floods and landslides.

In the 1940s to 1950s, Japan was suffering from the heavy damage caused by storms and floods almost every year. And the death toll has numbered more than 1,000 in several typhoons. In 1954, a powerful typhoon swept through the main islands of Honshu and Hokkaido, and just when the typhoon was above the Tsugaru Channel between these two islands a large ferry ship that sailed out was shipwrecked, resulting in tragic death of 1,761. This incident has alarmed the authorities of the fact that the typhoon warning was not duly transmitted or understood by the ship operator. In 1959, the powerful 'Ise Wan' Typhoon hit the city of Nagoya, the third largest metropolis in Japan, coinciding with the high tide of the sea, and claimed 5,098 lives. These tragedies forced the government to drastically reinforce disaster countermeasures. The need for change from the 'response-oriented approach' to 'preventive approach' was first recognized. To achieve the sufficient preventive approach, a comprehensive multi-sectoral approach was needed, and the need for investment in disaster reduction measures was recognized by the policy maker as well.

Through several experiences of such devastating disasters, the Disaster Countermeasures Basic Act was passed in the parliament. In 1961, the Central Disaster Prevention Council was formed as the national coordinating body, comprised of all the relevant ministries and agencies with the Prime Minister as the chairman. Furthermore, the national government was tasked to compile the annual official report on disaster countermeasures, which must include the comprehensive list of action to be taken by individual ministries and agencies, agreed upon as the Cabinet decision which is the highest level of policy decision in the Japanese Government, and reported to the

parliament. The National Basic Disaster Management Plan was formulated as the Cabinet decision and all the ministries and agencies were tasked to formulate the Sectoral Disaster Management Operation Plan. Local governments were also given the duty to formulate the Local Disaster Management Plan.

September 1st, which is the day the Great Kanto Earthquake devastated Tokyo in 1923, and also in the midst of the typhoon season, was designated as 'Disaster Prevention Day' to raise public awareness and to urge people to prepare for disasters. 'The Act Concerning Special Financial Support to Deal with the Designated Disaster of Extreme Severity' was passed in 1962 and enabled special subsidies to local governments for reconstruction of public works. Also, early weather forecast and warning was seen as essential, and huge meteorological radar was constructed on the top of Mt. Fuji, the highest mountain in Japan and the symbol of Japan's landscape. This radar enabled the monitoring of typhoons far out in the Pacific.

These organizational arrangements and involvement with large governmental investments in flood control, land conservation works, forest conservation, sabo-dam construction and emergency telecommunication system, public broadcasting, meteorological observation, and etc., gradually decreased the death toll from typhoons and floods. Although it is still impossible to prevent all the damages caused by typhoons, the annual death toll by storms has been kept less than a hundred since 1994. This is a clear indication of the success achieved by the holistic approach to disaster reduction. Furthermore, it proves that it is worthwhile to invest in disaster reduction. Since the average number of typhoons that hit Japan has not changed in the past 40 years, the decrease in casualties can be attributed to the improvement of the societal conditions.

## **Conclusion**

To simplify its essential elements, the Total Disaster Risk Management Approach is as follows:

- multi-level, multi-dimensional and multi-disciplinary cooperation and collaboration
- making decision based on reliable risk information from hazard mapping and vulnerability assessment
- enhancing coordination and integration of stakeholders' action and efficient exchange of information
- ensuring that appropriate enabling mechanisms are in place, including policy, structure, capacity building, and resources

In conclusion, with the aforementioned theory and examples of TDRM or Total Disaster Risk Management Approach, it can be comprehended that if the national coordinating bodies in disaster prone countries carefully study these successes and employ them according to their respective local conditions, the number of natural disasters can be reduced, thereby leading to 'sustainable development' in Asia as an ultimate result.

Thank you very much.