
Holistic Approach to Disaster Reduction in Japan: Towards Total Disaster Risk Management

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Disaster reduction and sustainable development in Asia

In Asia, natural disasters can be the biggest obstacle to sustainable development. Due to its geographical and geological conditions, Asia is prone to various types of natural disasters. The region accounts for 88% of all the affected populations of the world in period 1975-2000, and 54% of all the economic damages reported in the world for the same period. We have seen many countries, losing considerable amount of its gross domestic product or GDP by one single disaster event. To name a few, statistics show 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 their the annual GDP. Also the floods in Nepal in 1987, the floods in Myanmar in 1991, and the windstorms in Laos in 1993, caused economic damages of more than 20% of the annual GDP of these countries, not to mention the lives lost and the sufferings of the affected populations. These natural disasters can also be the biggest obstacle to social security of the affected country. Unfortunately, we are seeing the increasing trend of numbers of natural disaster events worldwide in recent years.

Natural hazards do not equal natural disasters

Natural hazard events themselves do not necessarily mean disasters. A strong typhoon over an uninhabited island, or a strong earthquake in a no-man's land are just natural phenomena and not a disaster. Unusual heavy rainfall in a river-basin with good flood management system may result in increase of water in reservoirs and not in loss of life or property. We must bear in mind that only when natural hazards strike vulnerable societies or communities that they translate into disasters. This gives us great hope that if we can properly assess

the disaster risk of a community and take necessary disaster prevention /reduction measures and reduce the vulnerability of the community, we would be able to lessen disasters or reduce their impact.

The disaster reduction cycle

What do we have to do to reduce disasters? Experience has taught us that there are different measures to be taken according to the four different phases of disasters, namely the pre-disaster phase, the preparedness phase, the response and immediate relief phase, and the post disaster phase. In any country, immediate disaster response to a major disaster is the first step taken. After several experiences of disaster response, the disaster responders would notice that there are ways, such as the designation of evacuation routes from dangerous areas or the preparation of emergency stocks, to be better prepared to a sudden event. These proper preparedness measures can help save people's lives. Then, the people would notice that there are also ways to prevent or mitigate disasters and they would start to take these measures. Furthermore, the people would notice that in rehabilitation and reconstruction, prevention or mitigation measures could be incorporated to reduce future disasters. Thus, the disaster reduction cycle is envisioned in the country. However, do we have to wait for every disaster-prone country to experience this process? The answer is obvious. The United Nations designated the 1990s as the International Decade for Natural Disaster Reduction and called for concerted international action to reduce the impact of natural disasters. The idea of the disaster reduction cycle was discussed and the dictum "prevention is better than cure" was widely recognized. The exchange of experience in disaster reduction activities among countries had been encouraged. Japan, having experienced so many natural disasters and also having confidence in the importance to address disaster reduction cycle holistically, was one of the promoters of the IDNDR.

Japanese experience in the *holistic approach* to cope with disasters

Every year, Japan is affected by heavy rains and storms twice a year: First in late-June to mid-July (the bai-u rainy season), and second in mid-August to September (the typhoon season). Consequently, the country suffers from floods

and landslides. Flood control has always been a major task for both the national and local governments since medieval ages. There is an old proverb in Japan which says: "The person who controls the river floods controls the country". There are traditional river dike construction methods and river control works which were developed around 1500 to 1700 A.D. Some of them are named after the local feudal lord which made innovative river control works. The average number of typhoons which directly hit mainland Japan is 2.7 per year. Even if the typhoons do not directly hit the mainland, they sometimes stimulate the active rain-fronts and bring torrential rains.

In the 1940s and 1950s, Japan had suffered from the heavy damage caused by storms and floods almost every year. Death toll 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 sailed out and shipwrecked, resulting in tragic deaths of 1,761. This 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-Bay Typhoon hit Nagoya Metropolitan Area, which is the third largest metropolis in Japan, and coincided with the high tide of the sea and resulted in 5,098 deaths. These tragedies forced the Government to drastically reinforce disaster countermeasures. The need for change from response-oriented approach to preventive approach was recognized. Comprehensive multi-sectoral approach was needed. Policy makers recognized the need to invest in disaster reduction measures.

The Disaster Countermeasures Basic Act was passed in the parliament in 1961, and the Central Disaster Prevention Council was formulated as the national coordinating body comprised of all the relevant ministries and agencies with the Prime Minister as the chairman. Also 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 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 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 devasted Tokyo in 1923, was designated as "Disaster Prevention Day" to raise public awareness and prepare the people for the typhoon season. "Act concerning Special Financial Support to deal with the Designated Disaster of Extreme Severity" was passed in 1962, which enabled special subsidies to local governments for reconstruction of public works. Also, early weather forecast and warning was seen as essential, and a huge meteorological radar was constructed on the top of Mt. Fuji, which is 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, together with large governmental investments in river control, sabo, dam construction and also emergency telecommunication systems etc., gradually decreased the death toll by typhoons and floods. Although it is still impossible to prevent all the damage by typhoons, the annual death toll by floods and storms has been kept under a hundred since 1994. This is a clear indication of the success achieved by the holistic approach to disaster reduction. And, it also proves that it is worthwhile to invest in disaster reduction. Since the average number of typhoons hitting Japan has not changed in the past 40 years, the decrease in casualties can be attributed to the improvement of the societal conditions.

The multi-disciplinary and multi-sectoral coordination

In order to address the whole disaster reduction cycle, many players must be involved. Civil protection and relief teams are always needed for the preparedness and response, and the immediate relief phase. But they are not the only major players. Expert knowledge of various disciplines are also needed. For the Pre-Disaster Phase and Post Disaster Phase, even more variety of players needs to be involved. Here are some examples: To cope with typhoon disaster important are scientific research on meteorology, development of meteorological observation instruments, communication system to accumulate information and to disseminate forecasts, civil engineering for flood control works, forestry and agriculture for land conservation, regional planning for

proper land use, and in these so many players are necessary. To cope with earthquakes important are scientific research on geophysics, structural engineering for buildings and social infrastructures, forestry to prevent secondary landslides, city planning for securing of safe evacuation areas, lawmakers to draw regulations for building codes, administrators to enforce these codes, and in these so many players are likewise needed. What is more important is there has to be a national coordinating body to mobilize various sectors concerned, to encourage individual efforts, as well as to enable the various players to cooperate among themselves. This coordinating body must also develop a "checklist" to draw the entire picture of what is being done and to identify what needs to be done.

The important link to people

For multi-disciplinary and multi-sectoral efforts to be effective, the most important factor is the link to the people. Typhoon forecasts by meteorologists must reach the people at risk to urge their evacuation if necessary. Local houses must be properly built with affordable technology by local architects to be earthquake resistant. In any country, this link to the people is the most difficult part. Various players can be this critical link. Local governments, community organizations, mass media, and non-governmental organizations may be the link. In Japan, for typhoon warnings, the public TV and radio broadcasts were quite effective in transmitting the critical information. In some cases, the local school system can also play a big role in dissemination of knowledge to communities. Pupils can learn about disasters in the classrooms, and when they go home they can tell their mother and father what they learned in school. Many countries are trying various methods to convey the important message across more effectively.

Towards Total Disaster Risk Management in Asia

Experience in Japan for typhoons has shown that the holistic approach to disaster reduction can make a difference in reducing human sufferings. Many countries have developed effective methods in various sectors to reduce

disasters. If the national coordinating bodies in disaster prone countries can carefully study these success stories and adopt them according to their respective local conditions, I believe that natural disasters can be reduced, and thus lead to sustainable development in Asia.