SAFETY OF MANKIND AGAINST DISASTER

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Introduction:

Mankind is facing serious threat and great challenges from large scale disasters, such as cyclones, tsunamis, torrential rains, droughts, dust storms, floods, fires, landslides, oil-spills, etc. Normal daily life of several hundreds people's is disrupted by various disasters with loss of property costing tons of dollars. In a space of a year, a tsunami, an earthquake, brutal storms and floods have claimed more than 300,000 lives and cost at least 100 billion dollars in damage. Humans prefer to view these catastrophes as the result of misfortune, of randomness, of the unfathomable forces of Nature, of the whims of gods or of God. Could mankind be to blame? Obviously titanic hurricanes and gigantic earthquake creates a certain amount of damage but the degree and level of destruction is really much more a result of society than it is of the natural agent.

Social Impact of Disasters: Large-scale disasters have significant humanitarian, social, security, political, and economic implications. Disasters leave large numbers of people ill, disabled, widowed, orphaned, displaced, or suffering from post-traumatic stress disorder. In an emergency situation, people's access to basic needs—e.g., food, medicine, clothing, shelter, and safety—is disrupted, and large portions of the population may lose access to economic resources and opportunities. At the individual level, victims of disasters lose self-confidence and experience psychological disturbances, e.g., despair, helplessness, fear, insecurity, vulnerability, suicidal thoughts, sleep disorders, flashbacks, nightmares or loss of faith**.**

Economic Impact of Disasters: During 1987–1997, the global direct economic loss from natural catastrophes was $700 billion, i.e., an average annual loss of $70 billion. Estimated costs, based largely on direct physical impacts or observable losses of fixed capital and inventory, e.g., buildings, infrastructure, industrial plants, crops, and materials. Indirect costs include (i) disrupted flows of goods and services, (ii) loss of earnings due to damaged infrastructure, (iii)

increase medical expenses, and (iv) lost productivity. Secondary effects have short and long-term implications (i) the levels of debt, (ii) the thrust of government monetary and fiscal policies. Some empirical studies suggest that the indirect and secondary costs of disaster may be as much as 2.5 times the cost of direct losses.

Disaster management system is and integrated process of planning and implementation. It aims to protect public safety, promote disaster resilient communities and create public confidence in the ability of the system to mange an emergency or a disaster. There can be no effective disaster management without availability of **data** and maps showing demographic distribution, houses, buildings, hospitals, schools, playgrounds, parks, power houses, fuel station, water resources, fire stations, access roads, evacuation routes and other important elements of infrastructure in each town and community. Perhaps the greatest handicap in launching a rescue and relief effort during the recent earthquake was the absence of information.

The core elements of disaster management system are: hazard analysis, vulnerability, risk analysis, mitigation, planning and preparedness, response and recovery

The first stage in **hazard analysis** is to identify the types of hazards that exist in the area under study. These could be events occurring suddenly or gradually, of an atmospheric, seismic, geological, volcanic, biological and hydrological nature. It is best to make a list of possible hazards that may result in creating a disaster. The next step in hazard analysis is to assess the probability of occurrence of the potentially hazardous event for a vulnerable population. It evaluates the degree to which the population, structures and goods would be at risk.

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In identifying and assessing hazards, an important step is to carry out vulnerability. **Vulnerability** is the ability of a system (or element) to withstand, avoid, neutralize or absorb the impacts of hazardous natural events. A vulnerability analysis takes into account not just the degree of potential loss or harm to human beings, but also to material, industry and business. This is a complex exercise and it requires very scientific inputs.

Risk analysis is a combination of hazard analysis and vulnerability analysis, together with analysis of self protection capabilities. It estimates damage, loss and consequences arising out of disaster scenarios. Its results are presented by risk maps.

Mitigation is a “before disaster” activity and the next step after hazards have been identified and risks assessed. Measures are generally taken well in advance of a potential disaster situation. Mitigation can involve mapping of hazards, reinforcing or upgrading infrastructure, making embankments, flood walls, forecasting disaster.

Planning and preparedness is dependent on the accuracy and adequacy of data, hazard maps, vulnerability analysis and risk assessment. Based on this information, plans are made to respond to each type of disaster. They should clearly describe the task sequence, responsibility, resources and role of each organization, such as:

- Maintain trained staffed and equipped fire stations. Monitor response time of 5 minutes from initial call to arrival and from the nearest station to all parts of city.
- Plan and hold emergency stocks for food, medicine, power generators, mobile search and rescue equipments.
- Plan for alternative sources of water, evacuation routes, and communication systems.
- Plans for debris removal, interim housing and restoration of services.
- Establish requirements for fire alarm, emergency exists, driveway clearances, gas shut-off valves and evacuation from buildings
- Make extensive use of websites, newspapers, brochures, radio for providing emergency preparedness and planning information.

The first requirement after a disaster takes place is to carry out a **rapid need assessment** and a **rapid damage assessment**. Trained teams should carry out assessments and reports on the magnitude of the event, the level of response and the resources required to conduct life saving and life sustaining operations. Based on need and

damage assessment, the required actions such as sounding the alert, declaration of emergency, evacuation, rescue and relief operations, decisions relating to shut down or restoration of utilities, opening of evacuation/relief routes, medical support etc. are initiated. This is a vital component of disaster management system and requires high skills, accurate information and well rehearsed coordination among various quarters.

RESPONSE: While the disaster relief efforts require rapid response, the help must be of the right type and matched with the needs of the people. The Oct, 8 disaster taught us how the introduction of non essential items impede relief efforts by clogging distribution channels. The disaster response in major damage to buildings and structure would need personnel with specific skills who have mastered basic rescue techniques of cutting, hoisting with mechanical equipment, searching in confined areas and providing emergency treatment.

RECOVERY PHASE: The recovery phase is frequently under emphasized in disaster plans, but returning lives and livelihoods to normalcy becomes a primary concern of disaster-affected communities and nations. Traditionally, the recovery phase means returning to a situation that existed prior to the disaster event. Recent definitions of recovery take this process further, with a view to "improving" the pre-disaster living conditions of the stricken community. We ought to learn a lesson from the fact that almost all government buildings, schools and hospitals were destroyed during the recent disaster, leaving us with no choice but to build them once again. Clearly, we are rich enough to build them twice over, but not rich enough to build them right. It is, therefore important to emphasize the need for resilient recovery processes so that the new buildings and infrastructure are safer for use in a future disaster.

Understanding of any kind of disaster including its key phases, warning, awareness, preparedness, rescue and response is a conglomeration science, community awareness and development, law as well as systematic planning for rehabilitation. The preparedness of any disaster management plan also needs the services of people with variety of knowledge, skills and experiences. We have to make a paradigm shift from paradigm shift from conventional response and relief to a more comprehensive risk

reduction culture with a view to reducing the vulnerability of people, especially the poor, to the effects of natural, environmental and human induced hazards to a manageable and acceptable humanitarian level.