MEDICAL PREPAREDNESS ASPECTS OF DISASTERS

India's unique geo-climatic conditions make it vulnerable to natural disasters like flood, drought, cyclone, earthquake, and epidemics/pandemics (latest being Influenza 'A' or H1N1) leading to sizable number of human casualties. To elucidate the mass casualty potential of natural disasters in the last one decade, the Orissa Super Cyclone (October 1999) caused more than 9,000 deaths; the Bhuj earthquake (January 2001) resulted in 14,000 deaths while the Tsunami (December 2004) accounted for the death of nearly 15,000 victims. The dimensions of modernization and industrialization's are man-made disasters such as road/rail/air accidents, fire, and stampede having also mass casualty potential; new dimension being Chemical, Biological, Radiological and Nuclear (CBRN) disaster occurring accidentally or caused by terrorism activities. The deaths due to man-made disasters during the period 2001–03 were nearly 12 times higher than those caused by natural calamities. Consequently, disasters result in large number of deaths, both human and animal, in a short span of time that place overwhelming stress on individuals, society and the administration with an uncommon challenge of handling large numbers of survivors seeking medical attention due to the effects of the hazard(s).

The large number of casualties and heavy economic losses experienced during past major natural disasters led to the realization that development cannot be sustained unless all the phases of Disaster Management Cycle continuum are comprehensively addressed. The Government of India thereupon decided to switch from a policy of relief-centric post-disaster management to adoption of a proactive, multi-disciplinary and holistic approach for prevention, mitigation and preparedness. To usher in this paradigm shift in the national approach to management of disasters, the Disaster Management (DM) Act was enacted on 23rd December 2005 which envisaged the creation of an apex body called the National Disaster Management Authority (NDMA) with the Prime Minister as its Chairperson; likewise, constituted are State Disaster Management Authorities (SDMA) and District Disaster Management Authority (DDMA). The NDMA is in charge of spearheading and implementing the integrated approach to disaster management regarding which a large number of National Guidelines on Natural disasters (Cyclones, Earthquakes, Floods and Landslides & Snow Avalanches) and Man-made disasters (Biological, Chemical [Industrial], Nuclear & Radiological Emergencies, Chemical Terrorism) have been issued that act as the basis for the development of various action plans by different ministries and departments concerned.

With the backdrop that the common denominator of all disasters is human sufferings on account of injuries and diseases, that entails in the pre-disaster phase comprehensive planning, preparedness and capacity development to respond with the coordinated actions of the SDMA/DDMA and the medical fraternity responsible for mass casualty incident management. This encompasses medical management in

four phases, that is, initially at the Incident site by the Medical First Responders within the 'golden hour' preferably - a critical period between injury and life/limb saving surgery that decides the patient's outcome; then evacuation in the ambulances fitted with critical care equipment; followed by prompt treatment in the hospitals and sequelae of resultant disease/disability; and lastly, prevention of epidemics, management of chronic health effects and provisioning psycho-social care. Modalities for CBRN hazard management shall be instituted, if required.

Accordingly, the proactive steps instituted by NDMA in the direction of institutionalization of the framework for "all hazard" emergency medical response in disasters, culminated into the formulation of the National Guidelines on Medical Preparedness & Mass Casualty Management, that are now under the process of implementation by all State Governments and stakeholders on the following aspects:-

i) Full-fledged containerized mobile hospitals enabling quick deployment at the time of disaster or for religious/ cultural fairs, to treat a large number of casualties on-site are in the process of being acquired and attached with hospitals located at strategic locations based upon the risk assessment. Three such hospitals are under procurement by the MoH&FW on the requirement of MHA (nodal ministry for Disaster Management).

ii) Laboratories play an important role in all phases of disasters for which a network of Bio-Safety laboratories are being established with a few Bio-Safety Level-3 and Level-4 laboratories at the designated nodal institutions. The Integrated Disease Surveillance Programme and number of upgraded laboratories, both in Government and private sector, have proved very useful in the management of ongoing H1N1 pandemic.

iii) Licensed Blood banks critical for management of shock have been networked to cater for surge requirement during disasters.

iv) Burn Centres are being expanded to 30 beds each in all medical colleges, tertiary care hospitals, and districts having more than 10 Major Accident Hazard (MAH) units with burn risks.

v) Trauma Centres that were non-existent till recently, of varying bed capacities are being established that range from State Apex Trauma Centre to Zonal Trauma Centre (25 beds), Regional Trauma Centre (10-15 beds) and District Trauma Centre (10 beds). In this arena, AIIMS has established state-of-the-art JPN Apex Trauma Centre with number of States/Union Territories like Chandigarh appreciating its imperative need, not far behind.

vi) Transportation for casualty evacuation by the Integrated Ambulance Network having basic medical equipment for resuscitation, essential drugs,

and two-way communication vis-à-vis the hither-to-before Ambulances which functioned only ferried patients. In this context, it is heartening to note that since then 11 States have already implemented this scheme. Self-propelled Accident Relief Medical Vans (ARMV) and special Ambulance trains of Indian Railways can be activated and moved to the disaster site. Of late, casualty evacuations by air, especially by helicopters ambulances, have greatly improved patient care management capabilities.

vii) Our rich heritage of alternative systems of medicinal remedies of Ayurveda and Unani which are renowned for building and boosting natural immunity in the population coupled with Homeopathy may be useful in management of injuries and illness during disasters. Such efforts are being encouraged to practice under proper supervision.

viii) Disaster resilient communication connectivity between all responders to facilitate medical response is under implementation. Additional thrust is on tele-medicine which entails putting diagnostic equipment and Information Communication Technology for connectivity between the disaster site and advanced medical institutes where such link-up have been installed.

ix) The effectiveness of the community's response being the first responder is dependent upon their level of awareness of the hazards with their do's and don'ts (video-clips are being hosted by the NDMA on TV channels) and training in First Aid.

x) Recognizing the psychological problems in the survivors' resultant of disaster's effects, the Psycho-social Support and Mental Health Services in the aftermath of disasters was considered to be addressed in detail. Consequently, its National Guidelines have been released on 20th January 2010 by Hon'ble Health Minister whereby its framework has been institutionalized for all stakeholders to ensure it as an integral part of their role in disaster management.

xi) Capacity building ventures that are being conducted under the aegis of NDMA are as follows:-

a) Basic Life Support (BLS) and Advanced Trauma Life Support (ATLS) Courses are being conducted in collaboration with MoH&FW and Trauma Centre AIIMS.

b) Training capsule on Emergency Medical Response to CBRN casualties for Medical Officers of Delhi Government in collaboration with Ministry of Defence (Army Medical Corps and Defence Research & Development Organisation), Bhabha Atomic Research Centre

Mumbai and Trauma Centre AIIMS are being conducted especially with the backdrop of the forthcoming Commonwealth Games.

c) Introduction of Disaster Medicine in the medical curriculum is on the anvil.

d) Mock Exercises on various types of disasters are being conducted periodically in conjunction with the State governments and stakeholders groups, for efficient and effective response preparation.

In this endeavour towards mitigating the effects of disasters, Capacity building efforts can be addressed effectively only with the active and enthusiastic participation of the stakeholders insofar as awareness generation, education, training by appropriate institutional framework, management systems and allocation of resources for efficient prevention and handling of disasters. Further, the efficacy of Disaster Management Plans and Standard Operating Procedures is tested and refined through training, seminars and mock drills which are being conducted in different parts of the country.

In this context, the NDMA in conjunction with the SDMA Bihar has planned to conduct 1½ to 2 days Workshop at Patna in February 2010 which will revolve round the theme "Medical Preparedness & Response Strategy to combat Bihar's disasters" for sensitization on the medical preparedness status pertaining to the common disasters afflicting them. The participants shall be all stakeholders viz. concerned State Government departments, DDMA and PRIs/ULBs functionaries, INGOs/NGO, Community Disaster Management teams members, corporate sector associated with Disaster Management and recognized associations like the Bihar State Medical Association. This Workshop will focus on Health sector response capabilities to disasters in terms of resources (both human and material), preparedness and capacity building of all sectors. Further, the strengths and weaknesses of Community based Disaster Management activities on medicare and disposal of unidentified bodies; the yeoman service rendered by United Nation agencies, NGOs (local, national and international) to vulnerable groups and for psycho-social and mental health activities; and lastly, the corporate sector's social responsibility. This brainstorming initiative of vulnerability assessment is proposed to be replicated in other States for SWOT analysis, and share the good practices for dissemination and implementation, as applicable.

Concerted efforts by all stakeholders to follow the National Guidelines in general, and Medical Preparedness & Mass Casualty Management and Psycho-social Support and Mental Health Services in the aftermath of disasters in particular, will definitely pave the way for a safer and disaster-resilient India, with the ability to respond effectively in terms of comprehensive medical response to realize the National Vision.