

Environment and disasters in urban context*

Environmental disasters in urban settings are on increase now, due to unscientific land-use settings, inconsistent modifications in the urban landscape, occupancies in the drainage channel or wetland areas, inadequate waste management and disposal-site history, hazardous wastes and chemicals in environment, water-logging, loss of open areas to gain of paved ones, lack of site assessment and proper environmental impact analysis, high-energy use leading to 'warm island syndrome' – the regional climate-warming phenomenon, besides implications of global climate change impacts like changing pattern of rainfall, temperature, winds, etc. The major disasters of environmental origin in urban settings in the recent times are – urban flooding, water contamination, urban drought and environmental-health disasters that breakout due to improper environmental management and waste disposal. Chemical/industrial disasters are also important in urban context due to close proximity or conglomeration with urban settlements. Twenty seven delegates representing municipal bodies, higher education, science & technology, environment, public works, health attended the programme.

The workshop inaugurated by D. S. Sengar (Indian Law Institute University, Delhi) highlighted the role of environmental law in different stages of disaster management, especially in the preventive phase. Cutting of trees in the upper reaches of mountains leads to cutting of throats in basin areas and plains, and this has to be understood for proper disaster management, stated Sengar. Disaster

management, environmental risks and implications of global and regional climate-change adaptation in urban disaster context were discussed by Anil K. Gupta (National Institute of Disaster Management, NIDM). The answer to 'global challenge' lies in 'local solutions' and hence the mitigation of climate-change aggravated disaster-risks lies in 'environmental adaptation' the paradigm of re-evolving synergy with nature. Vinod K. Sharma (Indian Institute of Public Administration) discussed the socio-economic vulnerability to disasters resulting due to environmental degradation. Linkages between environmental degradation and disaster risks have been focused with certain examples from Indian Himalayan region and coastal areas including the Gulf of Mannar (Ram Boojh, UNESCO). *Wrath of Nature* (film by Centre for Science and Environment) was screened to highlight the floods and drought increase due to environmental disturbances caused by human interventions.

Day 2 started with discussion on the role of various environmental legislations on pollution, waste, conservation, water, land-use, safety and rules on environmental impact assessment and auditing, site clearance, coastal zone, etc. in the context of disaster reduction and emergency response, Sreeja S. Nair (NIDM). Anil K. Gupta (NIDM) focused on various environmental policies on the above aspects and their provisions applicable for disaster management functions. Role of various agencies including UNEP, IUCN, IPCC, UN-OCHA Environment Unit, ISDR, WHO, ILO, SACEP, ICIMOD was discussed. Role of geoinformatics and remote sensing in environmental vulnerability assessment with a case study of Orissa was presented.

Environmental modelling concepts and application in disaster management were discussed by Prateek Sharma (TERI University) on Day 3. Jugal Kishore (Maulana Azad Medical College) conducted a

session on various environmental-health disasters, viz. dengue, chikungunya, malaria, hepatitis, cholera, plague, etc. in urban context. Approaches of integrating environmental management and disaster risk reduction in coastal areas were focused by A. L. Ramanathan (Jawaharlal Nehru University). An overview of industrial and chemical disasters with discussion of causes, impacts and approaches of risk reduction and emergency response in industries was presented by Sreeja S. Nair (NIDM), following a film on 'Bhopal disaster'.

Anil K. Gupta enumerated the role of various environmental tools like environmental impact assessment, auditing, life-cycle assessment, ecological footprint, vulnerability-indicators and risk assessments in disaster management on Day 4. Issues of environmental response during disasters and environmental recovery (post-disaster) were also discussed. It was followed by a field visit to Commonwealth Games Village and Akshardham area in Delhi for visual observation of environmental modifications and emerging disaster risks. Day 5 focused on climatic-change mitigation and urban drought by R. K. Mall (NIDM). A group exercise was conducted on practice of identification of hazards, tool selection, scoping and disaster reduction strategy making for urban environment. Valedictory session was presided by P. G. Dhar Chakrabarti (NIDM) who focused on environmental information and tools application in disaster management and stressed the need for integrating disaster management with environmental management at all levels of studies, research and governance.

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