



## MESSAGE

### *Towards A Safer Millennium.....*

Natural Disasters, which damage national economies and produce hardships for large sections of the population, are one of the single largest concerns for most nations. Human settlements are frequently affected by natural disasters – earthquakes, floods, hurricanes, cyclones, landslides, sea erosions – which take a heavy toll on human lives, destroy buildings and infrastructure and have far reaching economic and social consequences for communities.

The global statistics provided by International Conference, Centre of Geneva, CIGC indicates that during last 10 years, national catastrophes have risen by a factor of 3 and economic losses have increased 9 times compared to 1960's. Recently, the series of natural hazards taking place in short span of 30 days starting from Turkey are a living example of the toll of life, these hazards can take apart from economic losses. Earthquake of Turkey measuring 7.4 on Richter scale has been the largest killer taking an estimated toll of 45,000 (UN as on 26.8.1999) followed by earthquake of Taiwan (Richter 7.6) with estimated deaths of 1600. Subsequent earthquake of Greece, volcano in Philippines and Hurricane in the US, are all indicative of rising trends in the frequency and damages growing due to natural disasters. In India, disasters like earthquake of Chamoli, Rudra Prayag, and Garhwal Region, landslides of Malpa, Cyclone of Gujarat and Andhra Pradesh, tornadoes of Balasore and Midnapore, earthquake of Jabalpur, Latur, Uttarkashi are some of the catastrophes which do not allow developing governments to cope up with enormous devastation they cause to human life and property. In Latur, a death toll of 7,928 people and injury to more than 16,000 people with the damage of 27,000 houses and infrastructure facilities worth Rs. 4000 millions are indicative of burden on the exchequer of State and Central Government and people's assets during a short period.

It must be clearly understood that the vulnerability of human settlements to natural disasters is continuously rising due to misappropriation of natural resources by deforestation, mining, development projects etc. as well as the concentration of population and economic activities in large urban agglomerations and the precarious situation of low income settlements in both urban and rural areas. At the turn of the century and the end of the International Decade for Natural Disaster Reduction (IDNDR) a lot needs to be done to put in place various disaster mitigation plans of action. Enormous efforts are being made throughout the world to overcome the problems of natural hazards. Even the well-developed countries like USA and Japan have suffered from severe disasters in the recent past. Countries need to be continuously engaged in collecting the data/information, undertaking research on development of disaster prevention and mitigation techniques and creation of an awareness among the masses through series of actions, training and education. Most of the developed countries are still continuously engaged in strengthening their disaster management capabilities in the form of short term and long term strategies. Based on its experience, HUDCO has for some time now been strongly advocating and applying countrywide action for disaster mitigation.

The Vulnerability Atlas for India brought out by the Ministry of Urban Development and BMPTC identifies the vulnerability of the Indian landscape to multi hazard risks due to natural calamities. The contribution of IMD and GSI establishing networking of scientific instrumentation and disaster warning and forecasting systems is, significant. The user-friendly technological inputs from CBRI, SERC, University of Roorkee and the standardization efforts of BIS need special mention.

From the recent disasters of Turkey, Greece and Taiwan, lessons drawn have clearly pinpointed the fact that it is the unsafe built environment which has been responsible for enormous loss of life. It is the buildings, built without consideration to the seismic safety that caused burial of lives under the debris of damaged buildings. Therefore, it is believed that only the institution of an efficient techno-legal/ techno-financial regime could ensure that the built environment constructed in the regions prone to natural calamities would have adequate protection measures before the local bodies/financial institutions accord any statutory clearance/approval to it.. However, incorporation of such technological features in the building and lifelines would considerably help minimize the extent of damage in the event of natural calamities like earthquake, cyclone and floods. Technology transfer at the grassroots for disaster resistant construction through the building centre movement, is helping to take technologies to the doorstep of people.

I am very happy to introduce this special edition of the 'Shelter' which is being brought out on the occasion of IDNDR day. Disaster Reduction is no more a fire fighting strategy. It encompasses strategies for pre, during and post disaster initiatives. This issue brings together the knowledge and wisdom of some of the most experienced professionals in the field. I hope that the momentum gathered during the IDNDR towards addressing concepts of prevention and preparedness in research and practice is not let up, and we can look forward to a safer millennium.

V. Suresh  
Chairman and Managing Director, HUDCO

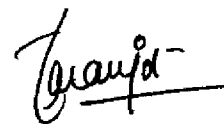
# EDITORIAL

Extreme events of nature and man's survival through these, over ages have been a phenomenon that has always prompted human actions towards understanding nature and dealing with it. Ancient histories are indicative of traditions and cultures adopted by man to survive through variable climatic, geological and hydrological situations in resonance to the natural system. However, presently, scientific wisdom and advancement in technology has opened up possibilities of exploration of natural systems much faster. But these over-enthusiastic adventures have led to human interventions in the ecological systems, which have not been restricted only to understanding them, but exploit them to an advantage. The catastrophes have increased and the fight of man, for its survival continues. Past decade observed these dual linkages between environment degradation, disasters and development and international community in 1989 realized that these natural extreme phenomenon do not differentiate between boundaries when they strike, they do not discriminate between rich or poor nations or people or their professions. They just destroy. Hence, the decade 1990-2000 was declared as International Decade of Natural Disaster Reduction. Yokohama strategy adopted in 1994 in an international conference laid out emphasis on preparing for these devastating events. Series of actions all over the world, during the past decade have indicated a paradigm shift and focus from reaction to pre-action. Nations have been able to recognize that 'Prevention Pays'.

All these years, HUDCO has taken number of initiatives in contributing to the preparedness of built environment to reduce risks of reversing process of development it has set forth. This special issue of SHELTER has been conceived to share these views, to compile information and finally to understand what and how, these natural disasters have been dealt with else where. The attempt signifies one of the goals set up by IDNDR, i.e., of sharing experiences on risk reduction and prevention. The issue comprises of contributions of papers from all those committed to the cause of disaster reduction for sustainable development.

Readers may be able to appreciate and enjoy reading it if they look through the structure of the issue designed to comprehend (a) problem size of the country, (b) options of preparedness and mitigation in human settlements (c) efforts made so far, by various organizations including HUDCO and finally (d) Road Ahead to be treated for disaster mitigation.

It is hoped that the path, that the 'ISSUE' has attempted to lay out, would be enriched by the knowledge and information from all like minded professionals concerned. All that we need to do is to tread this road together towards Sustainable Safer Millennium.....



Taranjot Kaur Gadthok

## Acknowledgements

I owe my heart felt thanks to Shri V. Surësh, Chairman & Managing Director, HUDCO for his deep involvement, constant inspiration and support right from inception to finalisation of this special issue of SHELTER.

Dr. Kulwant Singh, Executive Director, HSMI, HUDCO has been at the back of all the activities in bringing out this issue.

It goes without saying that the eminent professionals, who have contributed their papers for this issue, did so within constraints of very little time provided. It shows their commitment to the cause. On behalf of HUDCO I would like to acknowledge their esteemed contributions which have added value to this issue.

Apart from above, support from CMD Secretariat, Design & Development Wing and Graphic Wing HUDCO has been very valuable and timely.

Last but not the least, I would like to acknowledge the untiring efforts of my team, Ms. Rinki Saxena (TO) and Ms. Anju Garg (SG - II), who have spent long hours together, in assisting me in reproducing the papers. Due to last minute requirements of format and the need to contain the size of the issue, some of the illustrations / contents could not be incorporated / had to be changed without getting back to the authors. We hope the contributors would understand and excuse us for the same.

Taranjot Kaur Gadthok  
Editor

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