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NATURAL DISASTER REDUCTION IN CANADA

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The Canadian Academy of Engineering currently shares with the Royal Society of Canada the responsibility of sponsoring the Canadian National Committee for the United Nations International Decade for Natural Disaster Reduction (CNC-IDNDR) which was established in October 1994. The Chairman of this committee is Dr. Alan Davenport, a past President of the Academy.

Events of recent times have re-emphasized the need for confronting the threat of natural disasters. Internationally, the earthquakes in Kobe, Hyderabad and Northridge, the floods in the Mississippi and the Netherlands, and previously, hurricanes Andrew and lniki, have impressed on us the devastation that can be caused by natural disasters. At each event, the costs associated with the disruption, damage and lost jobs have escalated into tens of billions of US dollars.

The increase in the costs of natural disasters around the world has been dramatic and the lives of millions of people have been disrupted. Many believe that the most important manifestations of climatic change are likely to be changes in the climatic extremes. Over the past two decades, the number of catastrophes — events in which the capacity and resources of the community are overwhelmed — has nearly quadrupled. The losses of smaller nations from natural disasters have often exceeded their GNP, seriously affecting development and widening the gulf between the rich and poor. Post disaster reconstruction costs as a proportion of aid funds have roughly doubled over the past six years.

Canada's vulnerability to natural disasters puts the economy at risk

Examples of Canadian vulnerability are the Queen Charlotte and Grand Banks earthquakes, the Edmonton and Barrie tornadoes, intense winter storms off the Atlantic coast, the St. Jean Vianney and Frank slides, floods in the many major rivers, severe forest fires in Manitoba and even volcanoes in the Cordillera. In addition, the cumulative effect of the much more frequent but minor occurrences of natural hazards including blizzards, ice storms and hail, may cause greater suffering and economic loss.

While on a year to year basis the most frequent hazards are related to windstorms, the most threatening are due to severe earthquakes on the West Coast and the St. Lawrence Valley. Recent estimates suggest that an earthquake the magnitude of the Northridge earthquake in lower mainland British Columbia could cause more than $30 billion in damage. A report by the insurance Bureau of Canada indicates this would exceed the capacity of the industry to pay. This represents a major risk for the Canadian economy.

Prevention and preparedness are the keys to mitigating disasters

Against this threatening picture our capacity to prevent these disasters from happening has improved steadily, but the knowledge needs to be applied. The fatalistic view that disasters are inevitable Is pervasive and far more attention has historically been given to aid rather than prevention and preparedness.

Prevention is concerned with identification of the hazard and avoidance of the dangers by ensuring construction of adequate resistance and avoidance of building in the flood plains of rivers, for example.

Preparedness is concerned with the steps that can be taken to lessen the impact such as warnings,

the provision of refuges and the availability and training of emergency preparedness resources. It enlists emergency preparedness agencies, hospitals, fire, ambulance and police services, schools, communications networks, and the community resources themselves.

While relief and recovery operations immediately after the disaster reflect the natural humanitarian wishes to help the victims and may offer the greatest political returns, they are in fact the least effective use of resources. Reconstruction may necessarily be started without adequate planning, using similar construction methods and on sites which may be as hazardous after the disaster as before. The methods used in the distribution of aid can undermine the re-establishment of a collapsed economy.

The Canadian National Committee is playing a significant role

The CNC-IDNDR is developing a five part program which includes:

- Preparation of a Canadian National Report to review major hazards in Canada (This report was tabled at the Yokohama World Conference on Natural Disaster Reduction in May 1994).
- Assessment of all significant natural hazards, and the development of hazard maps and data bases for use by local communities, insurance, financial institutions, home owners, building regulators, municipalities and agriculture in planning and preparedness for protection from floods and storms.
- Vulnerability assessments to develop ways to integrate all hazards and estimate socio-economic impacts as a basis for prevention, emergency preparedness and risk management strategies.
- Development of risk management and adaptation strategies for effective prevention and preparedness.
- Development of case histories for disaster management education and the establishment of expert panels to carry out post disaster reviews.

The CNC has co-sponsored workshops and conferences on several significant issues:

- Risk Estimation of Extreme Weather Events
- Improving Responses to Atmospheric Extremes — The Role of Insurance and Compensation
- Pan Pacific Hazards 96 — Earthquakes, Volcanoes and Tsunamis.

The CNC has also undertaken a role as a catalyst in disaster communications — an area in which Canada has developed leadership through its involvement in the "hazardnet" software and Emergency Preparedness Information exchange (EPIX) programmes commissioned for the IDNDR, as well as a demonstration project by the Canadian Forest Service being arranged for the G7 Ministers.

The IDNDR has focussed attention on the growing threat of natural disasters and brought recognition of our potential to prevent or mitigate these disasters. We know what to do and how it should be done, but we must also create awareness in government, the financial and industrial sectors, and the community at large.

Disaster reduction is imperative for sustainable development

For further information contact the IDNDR co-ordinator, Royal Society of Canada, (613) 991-6990

*This is a publication of the **Canadian Academy of Engineering** whose Fellows volunteer to provide reliable and timely information to the Canadian public on issues which are important to safety, health, and public policy.*

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