

C 3.2 RISK MANAGEMENT FOR ROADS

Recommendations to Decision makers

In order to reduce the loss of life, injury and damage caused by disasters, each country should:

- Adopt comprehensive and integrated risk management strategies considering the balance between safety and security. Such an integrated strategy should be underpinned as a context of integrated disaster risk management which is closely related to the policies and practices for land management and the reduction of damages by all relevant stakeholders. Specific recommendations are:
 - Integration of structural and non-structural measures, such as hazard mapping, zoning, disaster proofing, disaster fighting, forecasting and warning, training and rapid response actions.
 - Strengthening of the framework of disaster policy and organization, laws and legislation regarding preventative measures and emergency management from the viewpoint that disaster can never be totally eliminated.
 - Promoting information sharing, compilation of necessary data and capacity building for proper maintenance and optimum operation of disaster control facilities based on the recognition that improper management of such facilities may aggravate disasters.
 - Development of guidelines/manuals of risk management to implement and operate risk management in the road sector for the purpose of inducing the effective and appropriate countermeasures for the mitigation of essential social loss.
 - Development of educational methods including capacity building to risk management for roads
 - Giving importance to public participation and community based local cooperation in raising awareness regarding the impacts of disaster through appropriate policies and related activities.
- Allocate adequate resources to implement the necessary disaster management projects in accordance with the above recommendations.
- Cooperate with neighbouring countries and with all relevant intergovernmental and non-governmental programs aimed at mitigating the effects of disasters including participation in the network systems and the opportunity of dialogue such as the international seminar organized by PIARC.

Technical aspects

Technical Toolbox

TC 3.2 has developed a technical toolbox, which is a database of useful technologies for the risk management phase, i.e., planning, design, construction, operation (maintenance) and consists of the inventory sheets and their appendices. The inventory sheets aim to assist budgeting and road management application of risk management technologies/tools. The technical tool box can be applicable to show the series of qualitative analyses such as the risk matrix for the risk evaluation and risk assessment. This tool box can be useful for technical cooperation among not only developing countries but also developed countries.

Risk Management Process Manual

The Risk Management Process Manual is issued by Transit New Zealand (Transit), the organisation that is responsible for the stewardship of New Zealand's state highways. The objective of the risk management process manual is to provide a set of tools that will help to minimize threats to Transit's business and maximize opportunities to enhance it. This manual consists of four sections (Overview, Responsibility, Key Tools and Application) and four appendices.

Risk Management for Roads

The risk management process consists of the following steps: risk identification, risk evaluation, and execution of measures. Risk identification and evaluation includes the aspects of time, cost, function, property (owned by the project or external), human (staff, road user, and third party), intangible assets (image, human resources, etc), and the environment. The risk evaluation is based on a matrix considering the probability and the consequences of the risks. Evaluating risk, all aspects mentioned before need to be considered and balanced.

Risk Management for Projects

Risk management for projects involves the components planning, design and construction of the management process for road networks. The operational aspects have to be considered in the phases planning and design. Some countries have guidelines for risk management in the following sub areas: balanced scorecard, project, network management, internal safety, and crisis management.

Risk Management for Highway Systems Security

This part focuses on the operation of road networks. It deals with risk management principles related to Highway Systems Security. Following the terrorist events of September 2001, matters related to Highway Systems Security have become increasingly important over the last few years as the level of awareness has, itself, become more widespread. Therefore many organizations have become increasingly involved in this area of expertise and several methodologies and approaches were developed to assist responsible authorities in the assessment of vulnerabilities of their infrastructure and the identification of critical assets.

The New Approach Developed by the European Normalization in the Road Sector

Minimum requirements and performance: the Euro codes based Europe has stated this target since 1976 in the so-called "Guidelines for public infrastructures owners and contractors". Several basic requirements oblige public owners to be concerned with risks and the environment and to account for the public command socio-economical and

juridical consequences. As far as public infrastructures and their components are concerned, it focuses on requirements dealing with structural resistance, security (construction related risks, service related risks, fire resistance), as well as protection (hygienic working conditions, health protection, noises, environment), and saving (energy, isolation). The new normalization approach thus moves from a descriptive approach to a performing approach

The Hyogo Framework for Action by ISDR (International Strategy for Disaster Reduction)

In January 2005, 168 Governments adopted a 10-year plan to make the world safer from natural hazards at the World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan. The Hyogo Framework is a global blueprint for disaster risk reduction efforts during the next decade. Its goal is to substantially reduce disaster losses by 2015 - in lives, and in the social, economic, and environmental assets of communities and countries. The Framework offers guiding principles, priorities for action, and practical means for achieving disaster resilience for vulnerable communities. Collaboration and cooperation are crucial to disaster risk reduction: states, regional organizations and institutions, and international organizations all have a role to play. Civil society, including volunteers and community-based organizations, the scientific community, the media and the private sector, are all vital stakeholders.

Recommendations to PIARC

Risk management is surely a growing presence in the road sector and greater attention is devoted to the security of highway systems. But risk management techniques are not widely used systematically in many countries except in some advanced countries like New Zealand. The Technical Committee 3.2 (TC3.2) has focused on three issues on integrated risk management techniques, risk management for mega-project and highways systems security. The primary mission of TC3.2 is how to introduce and implement risk management in the road sector.

The following subjects are recommended for further activities:

- Further study on more guidelines/manuals of risk management for roads from all over the world to contribute to creating risk management process manuals;
- Further study on a greater number of best practices of risk management for natural hazards and technological (man-made) hazards and mega-projects and organizations and the methodologies of risk management to improve expertise of the TC3.2 members;
- Creation of information sharing strategies in collaboration and cooperation with states, regional organizations and institutions, and international organizations;
- Development of risk management technical toolbox for technical cooperation improvement to developing countries; and,
- Organizing international seminars to help promote risk management in not only developing countries but developed countries.