

## **Institutions Concerned with Landslide Hazard Mapping, Control, Forecasting, Mitigation, Research, and Training**

Landslides threaten lives, public structures, and economic development and the prevention and control works of landslides are multidisciplinary; therefore a significant reduction in landslide losses can only be achieved through the collective effort of public agencies, institutes, and the people concerned. In China, there are a number of institutions responsible for landslide mapping, forecasting, and reducing the cost of damage caused by landslides. Some of these institutions and their roles are listed below.

## Role of Government Agencies

Public agencies play an important role in landslide management. Important agencies and their responsibilities are listed below.

- The Ministry of Construction—design and building codes and controlling landslides related to urban construction and development
- The Ministry of Railways—avoidance, design and building codes, and controlling landslides for protection of railways
- The Ministry of Communications—avoidance, design and building codes, and controlling landslides to protect highways and waterways
- The Ministry of Metallurgical Industry—controlling landslides in relation to specific mining areas
- The Ministry of Energy—controlling landslides in relation to major hydroelectric power stations
- The Ministry of Water Conservation—controlling landslides in watersheds of rural areas where necessary
- The Ministry of Forestry—managing national forest land to minimise landslide damage
- The Ministry of Geology and Mineral Resources—studying and mapping of landslides in important development areas.

## Role of Research Institutions

Some institutions carrying out research on methods to reduce the impacts of landslide disasters are given below.

- The Chengdu Institute of Mountain Hazards and Environment, the Chinese Academy of Sciences, Chengdu, Sichuan Province
- The Centre for Environmental Geology of the Ministry of Geology and Mineral Resources, Beijing
- The Debris Flow Prevention Institute of Dongchuan City, Yunnan Province
- The Institute of Geology, the Chinese Academy of Sciences, Beijing
- The Northwest Branch of the Chinese Academy of Railway Sciences, Lanzhou, Gansu Province
- The Research and Coordination Centre for Geological Hazards of Gansu Province, Lanou, Gansu Province
- The Institute of Rockfall and Slides of Hubei Province, Yichang, Hubei Province

These universities and colleges also carry out studies on landslide disaster mitigation, individually or jointly with the institutions mentioned above.

The duties of these institutions are:

- to undertake research on landslide mechanisms;
- to conduct research on real time predictions for landslides and debris flows;
- to develop landslide inventory and mapping methods;
- to develop landslide risk assessment methods;
- to develop and improve design and construction techniques for controlling landslides and minimising landslide damage;
- to provide expert advice to public agencies and local governments;
- to provide technical and training assistance;
- to disseminate research results to planners, decision-makers, governments, and communities; and
- to develop a landslide information base.

## **Role of Central, Provincial, and Local Governments**

Provincial and local governments carry out the following:

- mobilising resources and providing expert assistance for help and rescue operations;
- compiling inventories of landslides occurring in areas under their jurisdiction;
- promulgating and enforcing grading ordinances and building codes to minimise landslide occurrence and damage;
- preventing the construction of public facilities in landslide-prone areas and relocating obsolete public facilities in landslide-safe areas;
- providing information to make the public aware of landslide hazards and coordinating private sector resources in the event of an emergency;
- establishing landslide monitoring/warning systems individually or jointly with research institutes; and
- designating areas of active landslide movement or high risk areas of such movement as landslide-threatened areas.

## **Role of NGOs and Scientific Societies**

Recently, several landslide societies or committees have been established in those provinces most susceptible to landslides. The Landslide Committee of the Geographical Society of Sichuan was established in 1982; the Gansu society of Landslides and Debris Flows in 1984; the Landslide and Debris Flow Committee of the Shaanxi Geology Society in 1985; the Landslide Control Committee of the Shaanxi Civil Engineering Society in 1985; the Landslide Society of East China in 1987; the Landslide Society of Hubei in 1988; and the Landslide and Debris Flow Committee of the Water and Soil Conservation Society of China in 1990. These societies have altogether more than 1,000 members who are mainly researchers and engineers specialising in geology, geomorphology, topography, geophysics, civil engineering, erosion control, forestry, agriculture, and other landslide-associated fields. Members are from research institutes, universities and colleges, public organisations, consulting agencies, and government agencies. They hold national or provincial symposia and seminars, together or separately, to share and exchange information on landslide processes and control methods. International Symposia have been held, such as the China-Japan Field Workshop on Landslides in 1987; the International Symposium on Landslides and Geotechniques in Wuhan in 1991; and the East Asia Symposium and Field Workshop on landslides in 1994 (Li Tianchi 1990).