

I. Introduction

In China, 66.5 per cent of the total land area is mountainous and geologically complex. Rocks from the Precambrian to the Holocene Age have been deformed repeatedly since Paleozoic times resulting in extremely complicated geologic structures. Because of complex and weak geologic structures and rugged mountain topography, high-intensity rainfall and frequent earthquakes contribute to the significant vulnerability to landslides in the Chinese mountain areas, especially in the Hengduan Mountain Region of Southwestern China, the Loess Plateau Area, and Taiwan Island.

On the other hand, there are abundant resources such as water for power; mineral and forest resources; and rare animals and plants in the mountain areas. Thirty three per cent of the total national population live in mountain areas on 40 per cent of the cultivated land. Due to restrictive geographical conditions and differences in historical and social conditions, economic development is both uneven and slow to take place. Since the 1950s, to eliminate inequalities between the mountain and lowland areas of China, and to use the natural resources available in mountain areas, a great deal of effort has gone into developing and promoting their economy and culture. Rapid population growth, large-scale deforestation, and infrastructural development contributed to an increase in the damage caused by landslides. In recent years, huge quantities of geologic materials have been disturbed by

the construction of large buildings; by quarrying and mining; and by building dams, reservoirs, and canals.

Other countries in the Hindu Kush-Himalayan Region, such as India, Nepal, and Pakistan, have also been subjected to serious damage from landslides (Bhandari 1987; Sharma 1974; and Shroder 1989). It is a problem that is aggravated by lack of environmental awareness, inadequate warning systems, incapacity to recognise hazards, and lack of infrastructure for disaster mitigation. It is now increasingly emphasized that there is an urgent need to improve the capacity to reduce landslide disasters in the vulnerable Hindu Kush-Himalayan Region.

This paper reviews the available information on the causes and impacts of landslides on mountain development and the techniques of landslide mitigation carried out in China. The purposes of the study are :

- to increase awareness by assessing the social and economic impacts of landslides;
- to develop a geologic and socioeconomic understanding of landslide problems associated with sound integrated mountain development; and
- to share this knowledge with other countries in this region in order to facilitate safer and cost-effective development in the Himalayas.