

Flood Risk Assessment

Abstract: The concepts of hazard, vulnerability and risk have been extensively used in various disciplines with a different meaning, impeding cross-disciplinary cooperation for facing hazardous events. Even for natural hazards, such as floods, no unique definitions and assessment procedures have been widely accepted. In this paper we propose a comprehensive way for defining and assessing flood risk and vulnerability in the flood-prone areas. The suggested methodology follows a three-step assessment approach: a) annualised hazard incorporating both probabilities of occurrence and the anticipated potential damages b) vulnerability (exposure and coping capacity) in the flood-prone areas and c) annualised flood risk (estimated on annual basis). The methodology aims to assist water managers and stakeholders in devising rational flood protecting strategies.

Keywords: Flood Hazard, Vulnerability, Annualised Flood Risk, Flood Risk Assessment

1. INTRODUCTION

The assets at risk from flooding can be enormous and include private housing, transport and public service infrastructure, commercial and industrial enterprises, and agricultural land. The International Committee on Large Dams (ICOLD, 2003) conducted a survey to determine the social and economic impacts of the floods in 20 countries, where are located about 80% of the total number of the world's largest dams. The greater number of victims due to floods is produced in Asian countries, as it is shown in the Table 1.

Table 1. "Mean" number of victims per year (ICOLD, 2003).

Victims	Countries
0 – 10	Argentina, Australia, Brazil, Canada, France, Ireland, Italy, Netherlands, Norway, South Africa, Sweden, Russia
10 – 20	Spain
50 – 100	Indonesia, USA
100 – 150	Japan
>150	Korea (250), Bangladesh (200), India (1500), China (2000-3000)