

Characteristics of Asia's Natural Catastrophe Risks

**Professor Tso-Chien PAN
Executive Director
Institute of Catastrophe Risk Management
Nanyang Technological University
Singapore**

ABSTRACT

Asia's population growth and rapid urbanization are the key drivers of future risks in the rapidly growing region of Asia and Southeast Asia. With urban population increasing dramatically worldwide, cities are playing an increasingly critical role in human societies and their sustainability.

The world has just crossed a major landmark in its history with the majority of people now living in cities. This has just happened to China as well based on its latest census results. Thus, a major challenge worldwide, and particularly so for Asia and Southeast Asia, is to understand and predict how dynamics resulting from population growth and rapid urbanization will impact the interactions between nature and human society. During the past five decades, the largest human and economic losses due to catastrophic events have occurred in Asia. In year 2011 alone, the world saw its highest natural catastrophe loss of US\$380 billions due mainly to Asia and Southeast Asia disasters – the devastating Thailand flood and the massive Japan earthquake followed by tsunami and nuclear reactors meltdown.

Recently, the population data of major urban conglomerates show that Asia has 11 out of the top 15 urban conglomerates of the world, with population more than 26 millions. Population growth and rapid urbanization of Asia and Southeast Asia thus present special challenges to catastrophe risk management. The urban-based risks can possibly involve the risk domains of natural catastrophes and manmade disasters, which may cover wind/flood effects, earthquake shakings, infrastructure security, terrorism, pandemic, for example. The interaction of complex adaptive dynamic behavior of societal response to catastrophes with the cascading failure of interdependent networks of infrastructural systems is a massive challenge for dealing with the domain of evolving new urban-based risks.