

## **Disaster Resilient and Sustainable Infrastructure for Better Future**

Nepal is among the highly disaster-prone countries in the world due to its steep topography, fragile geology and harsh climatic conditions. Nepal loses huge resources every year due to the adverse impacts caused by landslides, floods, fires, thunderstorms etc. Seismically, Nepal is situated in the high risk zone and has witnessed mega and major earthquakes such as Gorkha earthquake of magnitude 7.8 in April 2015 followed by numerous aftershocks. Over the past couple of decades, the country has been facing worsening extreme climatic conditions owing to early onset of monsoon, prolonged monsoon and drought resulting to forest fires and reduced agricultural productivity. More aggravated impact of global warming is observed along the permanent snowline where glaciers are fast retreating. Also the frequency of extreme weather events is ever shooting up. A visible impact of Global Warming has been seen both in the national capital with the outbreak of Dengue in the recent days which has costed lives of many and is taken seriously by the public after COVID Pandemic.

In an average, 80% of the total annual precipitation occurs within four months of the monsoon in Nepal. As a result of this, disasters such as landslides and floods occur every year causing huge loss of lives and properties. In 2020 alone the fatalities due to natural disasters reached 448 along with other losses of lives and properties. Unplanned settlement and haphazard urbanization, improper slope modifications during construction of roads and other infrastructures, steep topography and fragile geology are the contributing factors for slope failures and landslides during the monsoon season followed by floods. With the changing climate, the risks posed by Glacier Lake Outburst Flood (GLOF) are increasing and of serious concern to the downstream communities. Events such as prolonged draught has significantly affected food security by reducing productivity in one hand and caused forest fires and loss of lives and properties on the other.

Design and implementation of disaster resilient and sustainable infrastructures are essential to cope up with the challenges posed by such natural and anthropogenic disasters, to maintain the national economy and to enrich the potential to withstand the likely adverse impacts caused by the disasters. There has been progressive changes and updates in the existing codal provisions for design of structures after the Gorkha earthquake 2015. A well-coordinated initiative and strong will power is required to make the paradigm shift in the existing design and construction practices to adopt disaster-resilient infrastructure development and sustainable approach for better future. All tiers of government should collaborate to plan, formulate, design and implement a national policy for fighting against the multi-hazard risks.