

Climate change and engineering geological challenges

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Editorial

Climate change is not new term for us. Worldwide we are facing changing weather pattern, vegetation, ground weathering and hydrological factors. Extreme heat in summer, extreme cold in winter, flood and drought as well as increasing the frequency and intensity of hydro-meteorological disaster; which causes the major loss of ecology and environment. Increasing the human population and encroachment of forest and flood plains has increased the losses of society. The World Meteorological Organization has observed that the world already is nearly five times as dangerous and disaster prone as it was in the 1970s, because of the increasing risks brought by climate change. The first decade of the 21st century saw 3,496 natural disasters from floods, storms, droughts and heat waves. That was nearly five times as many disasters as the 743 catastrophes reported during the 1970s. Some disasters such as floods and storms, pose a bigger threat than others (WMO, 2007). Flooding and storms are also taking a bigger bite out of the economy. Flooding and mega-storms were by far the leading cause of disaster from 2000-2010. About 80% of the 3,496 disasters of the last decade were due to flooding and storms. Seas are rising because of climate change. There

is growing evidence that warming temperatures are increasing the destructive force of hurricanes. For mitigate the impact of climate change, engineering geology and geo-mechanical factors of ground play the major role. For mitigating the hazard prone zone, we take geological and geotechnical data of area and design the best factor of safety. But as climate is changing in drastic way from last 10 years and climatologist suggested the high sea level, increase the frequency of hydro-meteorological disaster; impacted the ground by sudden increase the pore water pressure of soil, water percolation along the joints in rock causes the landslide for large area. Probably design factors which we are considering today were not suitable for next 10 years and life of design structure will be less.

We are observing the impact of climate change in present infrastructure project in form of Landslide, ground sinking, high monsoon and others. For mitigate the infrastructure projects from impact of climate change, we have to consider extreme possible weather condition and suggest precautionary measures for projects. It is also need more research work related to climate change and engineering geological challenges and it should be publically available for awareness of local public and administration.

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