

## Uttarakhand Tragedy – Subhajyoti Das (*Email: subhajyoti\_das@hotmail.com*)

Call it an avalanche or tsunami, what happened in Uttarakhand triggered by cloudburst, flash floods and landslides on the 16<sup>th</sup> and 17<sup>th</sup> of June 2013, is no less than a Himalayan disaster. As this journal goes to the press, reports are pouring in on the unprecedented havoc, India's worst natural disaster since December 2004 Indian Ocean tsunami. Going by the media reports so far, the impact is mindboggling e.g., 15000 deaths, 11000 missing including thousands buried in the debris, 5000-6000 animals perished, 144 bridges destroyed, 400 villages swept away, 1636 roads damaged, 19 hydropower projects completely destroyed and a loss of 12,000 crores in the tourist industry alone this year. In the peak of 'Chardham yatra', Kedarnath and Badrinath received large number of pilgrims. More than a lakh of pilgrims were stranded and rescued after airlifting. Miseries of the locals are immeasurable without food and drinking water; with crops and livelihoods destroyed, future uncertain. The Army and Air force have launched the biggest ever rescue operations which is commendable.

The worst affected was the Kedarnath valley. The temple town is situated on glacial outwash plain. The catastrophe struck Kedarnath on the morning of 17<sup>th</sup>, the immediate trigger being heavy downpour (375% more than normal) and sudden outflow from Chorabari glacial lake, upstream of Kedarnath valley, preceded by a landslide on another slope few hours before. All of a sudden ten feet of flood water carrying huge load of sludge, debris and boulders submerged Kedarnath and the surrounding valley destroying everything except the main shrine. The flood waters flowed downstream via Alkananda, Mandakini and Bhagirathi rivers inflicting devastation all along down to Rishikesh and Gauchar over a vast area of 40,000 km<sup>2</sup> in Rudraprayag, Uttarkashi, Chamoli and Pithoragarh districts.

There are 200 potentially dangerous glacial lakes in the Himalayas. With warming of climate, the lakes are expanding and their sudden outbursts may release billions of cubic meters of water ending in catastrophe. In the last 100 years 50 such outbursts have taken place across the

Himalayas. But there is no regular monitoring or warning system in place.

Uttarakhand in the Garhwal Himalayas, comprising highly fractured, fissured and sheared metamorphic rocks, is known to be geologically unstable, ecologically vulnerable. The construction of dams, tunnels, roads and civil structures, drilling, mining and large-scale deforestation flouting all ecological laws of the terrain in the State's development spree, have all but weakened the slope and loosened the soil giving way after heavy rainfall. Natural flows, too, are obstructed. And this, despite declaration of 130 km stretch of Ganga from Gangotri to Uttarkashi as eco-sensitive zone by the Central Government. The enormity of the disaster could be stymied had there been proactive disaster management plan heeding to the warnings by Geological Survey, IMD and environmentalists. The catastrophe in the aftermath of cloudburst is rather man-made than nature-induced.

The catastrophe at Kedarnath forebodes mega-disaster in near future, unless we save ecology of the terrain from unregulated development activities.