Hydrol Current Res 2014, 5:4
http://dx.doi.org/10.4172/2157-7587.S1.015

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference on
Hydrology & Meteorology
September 15-16, 2014 Hyderabad International Convention Centre, India

Looking beyond hydro- meteorology setting for floods in Siang River, Arunachal and upper Assam, India

Sujit Dasgupta
Geological Survey of India, India

Earthquake triggers landslide blocking rivers, followed by breach of landslide dam generating flood in downstream which is not uncommon in mountainous terrain; e.g., the 1950 Assam-Tibet earthquake triggered landslide to block the Subansiri River and then breached that generated devastating flood in Assam. On 11 June 2000 a high discharge flood passed through the Siang River, Arunachal and Assam which was caused due to failure of a huge debris-avalanche dam that blocked the Yigong River, a tributary of Yarlung Tsangpo in southeast Tibet, for 62 days accumulating 3000 Mm3 of water in lake behind the landslide barrier; an instantaneous discharge of 120000 cumec was recorded from 17 km downstream of the breached dam causing substantial damage to property and loss of life both from Tibet and India. Published documents, maps and imagery testify that the Yigong Lake along the river existed since 1900 and during the last 100 years several episodes of landslide blockade and breach took place resulting downstream flood; some of these landslide incidences have been correlated with earthquakes that locate near the barrier dam and the earthquake-landslide-flood nexus constrained for events during 1938,1962,1988, and also for the 2000 landslide-flood when two earthquakes occurred four hours before the avalanche. The recurrent landslide is located at the junction of the Jiali and the Yigong-Lulang strikeslip faults and the lake behind the dam along the Jiali fault has grown to the extent of 20 km x 1.5 km with 20 m of water column that increases during the monsoon. The Jiali fault that ruptured to generate the 1950 earthquake is highly stressed and active, and fluctuating lake water during peak monsoon is arguably responsible for nine earthquake swarms between 1968 and 2010 that locate over the fault-lake. Both the stand alone and swarm earthquakes increases landslide susceptibility, enhancing probability of flash flood.

Biography

Sujit Dasgupta has completed his MSc (Geology) from Calcutta University in 1971. He joined Geological Survey of India in December 1973 and worked under different capacity till his superannuation from the position of Deputy Director General in April 2010. He worked with NHPC during 2011 as Consultant for finalization of DPR on Hydroelectric Projects in Myanmar. He attended and contributed for UNESCO-RELSAR workshops in Bangladesh, Bhutan, China, Iran and Thailand. He is an expert in earthquake geology and seismotectonics and published more than 50 papers in national and international peer reviewed journals.

sujitdasgupta@yahoo.com