National Conference on Climate Change and Natural Resources: Impact and Sustainable Development in Indian Perspective – Salman Khan*, Syed Azharuddin and Swati Tripathi, Birbal Sahni Institute of Palaeosciences, 53 University Road, Lucknow, 226007, India (*E-mail: salmangeo@bsip.res.in)

The present day climate variations are the sum total of natural as well as anthropogenic impacts. To address the recent findings and future challenges in the field of climate change in the Indian perspective, a national conference on Climate Change and Natural Resources: Impact and Sustainable Development in Indian Perspective was organized during 21-22 February 2018, at the Centre of Advance Studies in Geology, University of Lucknow (LU). The inaugural session of the conference was presided by Mr. Brajesh Pathak, (Minister of Law and Justice, Additional Energy Resources, Uttar Pradesh Government) along with the presence of other eminent personalities like Prof. S. P. Singh, (Vice Chancellor, LU), Mr. S. N. Deo, Deputy Director General, Geological Survey of India, Lucknow (GSI).

Broadly, two themes were covered such as Climate change (23 presentations) and Natural Resources (44 presentations) that included varied type of surface processes, environmental hazards, geo-resources and its sustainability. Research findings related to various aspects of climate change along with measures used for mitigating and sustainable practices of conserving natural resources were discussed in detail during the conference.

The first two technical sessions were dedicated to climate change where oral presentations for past and present climate variations were addressed. Sedimentary records along with the micro-paleontological proxies were discussed to infer climatic peaks during geological past. Quaternary period was considered as sub-theme for discussion in oral sessions due to intermittent interglacial-glacial cycles and present epoch is represented by interglacial counterpart. Salman Khan of Birbal Sahni Institute of Palaeosciences, Lucknow (BSIP) presented the palynological findings inferring vegetation and gradational warming pattern from off-Svalbard, Arctic Ocean during Plio-Pleistocene boundary. Syed Azharuddin (BSIP) discussed the trends and episodes of southwest monsoon during the Holocene using isotopic signatures of planktonic foraminifera from the NE Arabian Sea sediment cores. In his presentation, he has demonstrated various abrupt events occurred during the Holocene which are important in studying the rise and fall of various human civilizations over the past. Dr. Swati Tripathi (BSIP) discussed about the floristic and climatic reconstruction in Indo-Burma region since late Pleistocene based on palynological interpretation from endangered wetlands of Assam, northeast India. She stressed upon the deterioration of the tropical mixed deciduous forest under relatively dry climatic regime since 710 cal. BP in Deepor wetland (Ramsar site) which was accompanied by accelerated human settlement, as shown by an abrupt increase in Poaceae >45µm along with typical ruderal pollen taxa. Vikas Dev (Department of Geology, University of Allahabad) highlighted the heavy mineral assemblage from western Arabian Sea and their significance in provenance studies. Amit Kumar (Department of Geology, University of Delhi) addressed results of laboratory experiments of CO₂ capturing in the tholeiitic basalt of eastern Deccan volcanic provenance to check the validity of CO₂ sequestrations. Ankit Pandey (H.N.B. Garhwal University) discussed rising supra-glacial lakes in the vicinity of Upper Alaknanda basin, central Himalayan region provided by spatio-temporal map. Dr. Sudhir Mehrotra (Department of Biochemistry, LU) threw a detailed light on Global warming, its causes, consequences and mitigating measures. Sneha Kumari (Faculty of Law, LU) gave a special presentation on PARIS agreements that was a hope to combat climate

changes. She discussed in detail about the agreement laws on climate change which lays out commitments for nations to limit their greenhouse-gas emissions and contain the impact of global warming. Shishir S. Srivastava (GSI) discussed the evolution of meandering channels of Gomti and Kukrail river in the vicinity of Lucknow, anthropogenic impacts were discussed in detail on the changing meandering pattern of Kukrail river which finally transformed it to present day Kukrail nala.

The third session included the presentations on overexploitation of the natural resources and different mitigating measures. Om Prakash Kumar (Department of Geology, Banaras Hindu University) addressed the toxic impacts of Giral lignite ash on the living world as well as environment in the Rajasthan. Ishita Manna (School of Social Science, Jawaharlal Nehru University) discussed the change in glacial dynamics and land surface temperature from Mentosa and Gangtang watershed, Lahaul Himalaya. She concluded the declining winter monsoon with increasing summer monsoon precipitation in the area since 1993. Dr. Amalava Bhattacharya (BSIP) threw light on the application of Dendrochronology for dating natural hazards. Dr. Bhattacharya also discussed the synchronous behavior of tree-rings with annual weather to study the abrupt climate variations and past natural hazards. Dr. Anjum Farooqui (BSIP) addressed the monsoonal fluctuations and associated vegetational, ecological and sea level changes during the Late Quaternary using palynological records of coastal India. Dr. Farooqui also gave account on the applications of mangrove palynology for predicting paleo-shoreline variations during the Late Quaternary. Vikram Singh (BSIP) threw light on the role of tree rings in drought reconstruction of Kishtwar region, Jammu and Kashmir, India. By correlating the tree ring data, he suggested that 1785 and 1996 were the driest and wettest years around the area respectively. Aryan Anand (H.N.B. Garhwal University) discussed the role of traditional aspects of sustainable development and reported many archeological artifacts from Uttarakhand region useful for the environmental restoration. Imran Khan (Department of Geology, LU) discussed the monitoring of anthropogenic activity using GIS and remote sensing around the Singrauli district. He suggested that the anthropogenic input has devastated the land and other natural resources around the area during last two decades. Prof. Dhruv Sen Singh (Department of Geology, LU) spoke about the depositional sedimentary environment, surface processes and palaeoclimate in Bhagirathi Valley deposits, Gangotri glacier, Garhwal Himalaya. During the valedictory function Dr. D. D. Awasthi (LU) was guest of honor and some of the best poster awards were distributed to research scholars (pursuing Ph.D.) to encourage their research interests.

The conference provided an excellent opportunity to the young research scholars to present and discuss their work among an interdisciplinary scientific community concerned with Climate change and natural resource management. It also provided an excellent platform to the bachelors and masters students of the department to gain interest in the climate change research.

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