

FOURTH SOUTH ASIA GEOLOGICAL CONGRESS - GEOSAS-IV

The 4th South Asia Geological Congress was held between 13-15 November 2002 at India Habitat Centre, New Delhi. The Theme of the Conference was "Quaternary Geology and Dynamics of South Asia" with the following sub-themes: (1) Quaternary Processes, Coastal Dynamics and Neotectonics, (2) Climatic changes during the Quaternary - Causes and their Implications, (3) Quaternary Stratigraphy, (4) Evolution of life during Quaternary era, (5) Aeolian and Glacial processes and their impact and (6) Quaternary Resources - Potentials and Constraints.

There were 317 participants including 21 foreign delegates. The abstract volume contained 118 manuscripts including 15 invited and 19 by foreign nationals of Sri Lanka, Nepal, Bangladesh, Iran, Pakistan and China. In addition Cambodia also participated in the Congress.

The scientific conference was inaugurated by Sushri Uma Bharti, Union Minister for Coal and Mines on 13th November 2002. There were 54 oral presentations in six Technical Sessions for 3 days. There were 63 manuscripts for poster presentation during GEOSAS-IV. The recommendations were summarised on 15th November in the Valedictory Session. The proceedings of GEOSAS-IV as full paper volume will be brought out by 31st March 2003.

Salient conclusions and recommendations of the Congress so relevant to South Asian Region are summarised below:

Conclusions

1. Several aspects of Quaternary processes of sedimentation induced by tectonism and climate changes were discussed. The procedures for such studies are more or less well established. The presentations mostly followed the accepted models of Quaternary glacial and interglacial periods and the ongoing last interglacial period sea level lows during Early Holocene and Pre-Holocene period as well as subsequent rise of sea level were well documented from different locales. Since these processes have affected human civilisations by way of inundation of coastal tracts, desertification of mighty riverine areas, their relevance to the present day were brought out. For instance, study of the sediment cores in the Bay of Bengal region off the coast of South India could identify a cold spell interlude in the Holocene. So also, in the low lying coastal areas of China, the sedimentary pile has recorded the rate of seawater rise in shorter spells of hundred years duration. By presenting such studies the GEOSAS-IV has attempted to fine-tune our understanding of short-term events. These are very relevant for prognostication to predict immediate future trends in coastal areas, in view of the spectre of global warming and consequent sea level rise.
2. Among the several facets of the Quaternary geological studies, the nagging problem has been the regional correlation of strata, as also the methodology for determination of the age of sedimentary layers. Addressing these issues, GEOSAS-IV brought out the studies on the volcanic complexes and related volcanic ash bed associations for standardising regional correlation from Iran, Afghanistan, Pakistan and India. In respect to age determination of strata, the method of Thermoluminescence dating was considered as a reliable one, besides C-14 and other radio isotopic methods.
3. Quaternary sedimentary terrain being the most populated zone all over the globe owing to the excellent ground water availability for human settlements and agriculture, GEOSAS-IV also focused its attention on the arsenic pollution of groundwater in West Bengal and Bangladesh. Sedimentary strata of Mid to Late Holocene period continue to be polluted by arsenic waters, whereas strata of Pre Holocene are devoid of it. Scientific studies have not yet fully understood the source and mechanism of this pollution to suggest a total remedy but the suggestion is for *in situ* bioremediation as a low-cost alternative to the usual pump and drain process for cleaning up the contaminated groundwater.
4. Some of the presentations during GEOSAS-IV were on the important find of the skull fossil of early humans namely the Narmada Homo Erectus of Central India. The tectonic reasons for the extinction of the once mighty Saraswathi River mentioned in the Vedas, evidences for Pre-Harappan civilization in Dwarka in Gujarat etc. attracted wide interest.
5. Interaction amongst the geoscientists of the region during the GEOSAS-IV meet led to identification of some possible regional areas for collaboration: (i) for gemstone prospecting between India and Sri Lanka, (ii) volcanic ash studies and Stratigraphic correlation in the Iran-Afghan-Pakistan-Indian region, and (iii) arsenic pollution mitigation studies between India and Bangladesh. It also opened several areas for

collaborative studies among the Indian participants spanning from stratigraphic correlation between data gathered from land and sea bed, age determination of well established columns of such strata by isotopic and luminescence dating, sedimentation tectonism, sedimentation *vs.* climatic change during Quaternary period.

Recommendations

1. The South Asia Geological Congress, that has now become a regular feature in the region, should normally be held at intervals of three years and should cover a wide spectrum of disciplines of geological sciences. This 4th Congress urges upon all the participating countries, particularly Sri Lanka, Bangladesh, Nepal and Iran to consider organizing the next Congress, i.e. GEOSAS-V, in their country, and inform about their decision as soon as possible to the GEOSAS Central Secretariat, Islamabad.
2. A National Secretariat for GEOSAS activities should be established at the Geological Survey of India, Kolkata for continuing and promoting activities of GEOSAS in India. The Secretariat shall have representation from organisations who are presently members of the National Advisory Committee of GEOSAS-IV i.e. National Geophysical Research Institute, Wadia Institute of Himalayan Geology, Oil and Natural Gas Corporation Ltd., Atomic Minerals Division and Universities. Director, International Division, Geological Survey of India shall act as the Organising Secretary of the Secretariat of the Indian Chapter of GEOSAS.
3. The Directors General of the national geological surveys of the regional countries may coordinate the GEOSAS activities in their respective countries and should act as the respective national focal points to liaise with the central secretariat of GEOSAS.
4. One of the national geological surveys should host meetings of the heads of the geological surveys of the region every year in coordination with the GEOSAS - Central Secretariat. Such meetings may focus on increasing awareness among the Governments and policy makers, about the importance of geological sciences in national and regional development. The first such meeting will be hosted by Pakistan as graciously offered by the Director General, Geological Survey of Pakistan.
5. GEOSAS is presently having the participatory membership of 10 countries of ECO and SAARC regions, namely, Bangladesh, Bhutan, India, Iran, Maldives, Myanmar, Nepal, Pakistan, Sri Lanka, and Turkey. Efforts should be made to expand the participation of other countries from South-East, Central and West Asia, especially, Afghanistan in the activities of GEOSAS.
6. The Central Secretariat should compile a Directory of Geoscientists and Geoscientific Institutions of the Region as well as a six-monthly Newsletter, both based on the information to be supplied by the respective national focal points. The Secretariat should also establish a GEOSAS website.
7. Every national Correspondent for GEOSAS should include in its publications/newsletters mailing lists, with names of other GEOSAS national focal points so that free flow of published information takes place among geoscientists of the region.
8. The Geological Survey of India, the organizer of GEOSAS-IV, will publish the proceedings of GEOSAS-IV at the earliest possible.
9. The member countries should organize GEOSAS Workshops during the inter-Congress period. Some of the topics suggested for the workshops are:
 - a. Human resource development in natural sciences - the critical gap.
 - b. New trends in earth sciences - the targets and the road map.
 - c. Earth's natural resources - surplus or deficit.
10. Secretary General GEOSAS specially requested Director General of the Geological Survey & Mines Bureau of Sri Lanka to organize the Workshop on the subject of human resource development and to dedicate it to Professor P.G. Cooray who first gave the idea of the formation of GEOSAS and has been championing the subject of human resource development in natural sciences. On a proposal of the Secretary General, the participants unanimously approved to honour Professor Cooray with a special GEOSAS award, to be given on this occasion, for services rendered for geoscientific cooperation in South Asia.
11. The training facilities available with member countries may be utilized for common regional benefit. Wider regional dissemination should be made of the opportunities of refresher courses and programs of continuing education organized in the region so that the entire region can benefit from such opportunities. The Geological Survey of India will provide facilities with its Training Institute Centers for use by the GEOSAS member countries.
12. The member countries are urged to actively

- cooperate in the programs of common geological interest including, but not limited to, the following subjects: (a) Seismicity in the Himalayan terrain (b) Gemstone exploration (c) Sedimentary petrology, (d) Metallogeny of the collision zone (e) Precambrian-Cambrian stratigraphy (f) Fluvial sedimentation and (g) Basin evaluation.
13. The progress on implementation of the above recommendations of GEOSAS-IV should be reviewed by the next Congress, i.e. GEOSAS-V.

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S.K. BHUSHAN

NEWLY ELECTED HONORARY FELLOWS RESPOND

We have great pleasure in reproducing below excerpts from the acceptance letters received from the newly elected Honorary Fellows of the Geological Society of India. - Ed.

"I did receive the letter from Dr. B.P. Radhakrishna and I am greatly honoured to accept the position of Honorary Fellow of the Geological Society of India. ... Of all the honours I have received, I will consider this honour coming from my mother country as the one to be most proud of."

Prof. Manik Talwani
USA

.... It is a great honour and indeed a career highlight to have this award bestowed on me. During my numerous visits to India I have got to know many of the fine members of the Geological Society and have also gained an insight into the tremendous job the Society is doing in promoting the science in your country. It has been a great privilege for me to have played some part in this initiative, albeit in a very small way.

The geology of India is varied and fascinating and I am keen to keep contact with my many friends and colleagues in the country in further endeavours in both the academic and economic spheres of the science in your country. I will also assist where possible in keeping the links between the Geological Societies of India and South Africa, strong.

Once again I would like to express my sincere gratitude to the Geological Society of India for the honour that they have bestowed on me and it would be appreciated if these sentiments could be conveyed to the Council of the Society as well."

Prof. Richard Viljoen
South Africa