INTERNATIONAL SEMINAR ON QUATERNARY SEA-LEVEL VARIATION, SHORELINE DISPLACEMENT AND COASTAL ENVIRONMENT, THANJAVUR. (20-26 Jan. 1997)

Dr. Michael J. Tooley, St. Andrews University, Scotland and President INQUA World Oceans Shoreline Commission, who delivered the keynote address emphasised the importance of shoreline study based on his own primary research which brought to light variation in sea-level from coast to coast. Since more than half of human population live along or very near to coast he emphasised the need to activate studies in Indian Ocean.

The seminar organised by Dept. of Earth Sciences, Tamil University, received 87 papers covering aspects of coastal dynamics, sea level oscillation and its impact, coastal environmental changes, sea level oscillation and biota, Quaternary transgression, sedimentation and sea level change, environment and Quaternary transgression, sea level oscillation and foraminifera, sea level oscillation and its impact on mineral resources. The seminar succeeded in bringing active researchers on one platform enabling them to interact with each other. From the response the seminar received, it looks as though a good beginning has been made in the study of the Indian Ocean. Scientists have still a long way to go in consolidating their research work. Some of the important aspects which came to light during the seminar are:

1. South of Mumbai, for about 100 km geomorphic evidences exist to indicate higher relative sea level in the past, 8-10 m above A.S.L. (Kamble et al.)

2. Along Goa coast, Holocene sea attained the present level about 5000-6000 years B.P. and it has fluctuated both above and below. The coast line of Goa at present is in the phase of emergence and has not yet attained maturity (Dholakia et al.).

3. Along the Andhra Coast, beach ridges distributed in different segments give clear evidence of Holocene sea level changes (Sambasiva Rao).

4. Studies in Rameshwaram Island point to conclusive evidence of submergence of the connecting link between India and Sri Lanka (Singh).

5. Shallow seismic records from the continental shelf off Kakinada-Gopalpur, north Andhra Pradesh, indicate conspicuous breaks in slope and also variation in gradients representing a pre- transgressional morphological feature and the modification of the shelf topography during and after transgression (Mohapatra and Murty).

6. Studies on West Bengal coast indicate erosion, inundation and storm winds, besides silting of river bed, removal of valuable buffer sand dunes and sandy sea beaches, salt water influx into agricultural lands, and reduction in agricultural productivity.

7. Late Quaternary sea level fluctuation is evident from the record of benthonic foraminifera associated with coral and algal debris in the submerged banks of Andaman sea. (Bhattacharjee and Ghosh).

8. Three sets of strand lines along Krishna-Godavari delta front, Andhra Pradesh indicate falling sea levels during Holocene (Pruhvi Raju).

9. The occurrence of grey ooids at -55 m, brown peloids at -90 m and white ooids at -110 m depths in shelf sediments off Gujarat in Arabian sea, as shore parallel zones, in association with abundant skeletal matter, signify climatically controlled palaeostrandlines (Vaz).

10. In the southern part of Sri Lanka, the area between ten fathom and one hundred fathom isobars has been found to be a drowned extension of a penelope (De Silva and Katupotha).

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11. Kolleru Lake located between Krishna and Godavari deltas along the Andhra coast has evolved in stages from an open marine bay to lagoon-tidal delta - mangrove swamp to a freshwater lake over a period spanning from Early Holocene (10,000 year B.P.) to present (Shah and Singaraju).

12. The study of coastal sections of South Kurile Islands has facilitated the reconstruction of sedimentary environment, evolution and dating by $^{14}$C method (Korotky et al.).

13. The hydrogeochemistry of ground waters of the Pondicherry Coastal region has brought out the need to stop further exploitation of ground water in and around the coast and to initiate ground water recharging through shallow bore wells in order to arrest incursion of salt water inland (Ramanathan et al.).

14. The study of distribution of Otoliths in continental shelf and slope surficial sediments off Saurashtra, Arabian Sea, provides an additional tool in reconstructing Palaeoenvironment and assessing of fish stock in the past (Rane et al.).

15. In Bengal basin, biostratigraphic zonations of radiocarbon dated Holocene sediments have been made through correlation of local biostratigraphic zones of four sections with definite data on elevation from present day MSL (Banerjee and Sen).

16. From the data measurements, carried out using $^{14}$C method, it appears that the progradation phenomenon is dominant in the Mekong delta of Indochina (Thuyen et al.).

17. The study of beach and beach ridges along the Tamil Nadu coast has indicated high concentration of heavies (Mohan and Rajamanickam).

18. The construction of coastal structures acting as littoral barriers along the east coast of India in the past has resulted in an advancement of shore southward of the structure and recession on the north. Continuous change of wave climate along a 10 km stretch of coast, north of Madras port had caused immense damage to the local inhabitants and also to the national highway. The study of wave height, duration and sequence of their occurrence during major monsoon seasons has enabled devising suitable protective measures (Mani).

19. From the study of the distribution of Quaternary Coastal placers of southern Tamil Nadu it is inferred that only a shoreline encircled around a basin in combination with shoreline configuration and converging wave dynamics can influence or control placer enrichment (Angusamy et al.).

20. A major portion of sediments brought down by the river Bhagirathi-Hugli, is used for building up the bars; enough sediments remain to help in the progradation of the delta face and this is proved in the emergence of a few islands in the Bay of Bengal (Basu).

Besides presentation of papers, special lectures had been arranged. A novel feature was the institution of a prize for the best paper presented. The coastal zone is about 100 km wide and intertidal zones are full of immense human activity. The period of sea level changes is also the period of high CO$_2$ concentration and climatic changes. The INQUA and Shoreline Commission provide the nodal platform for sea level studies. The involvement of various agencies in this task is necessary. There was a general consensus on the need for involving local people in all programmes of sea level studies in the coastal sector. Considering India has a coastline of nearly 33,000 km and the zone is one of intense human and economic activity, the need for greater attention to Quaternary studies can not be overlooked.

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