

The Abstract of my present Research:

“ Cultural Landscapes Changing due to Human Influences and Threats to Mangrove Wetlands Ecosystems : A Case Study on the Sundarbans in Bangladesh“

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The Sundarbans is part of the coastal complex lying west of the delta formed by the Ganges-Brahmaputra- Meghna (GBM) rivers systems. Bangladesh through its complex of river systems drains an area of about 1.76 million sq.km of the Catchment areas of the Ganges, Brahmaputra and the Meghna of which only 7.5 percent lies in Bangladesh. The Sundarbans is situated in the transboundary Ganges catchment area which is known as the single largest stretch of productive mangrove forest and unique mangrove ecosystems in the world. It provides direct employment opportunity to 600,000 people (UN/ESCAP 1988) and 6 million people indirectly dependent on coastal mangrove resources but now they are under health risk due to high salinity and arsenic contamination. The hotspots of biodiversity (66 species of mangrove are available in the Sundarbans whereas 70 species are available in the world) of the mangrove Sundarbans is also under threatened. It is representing 3.5 percent of the world mangrove forest and declared as world heritage site by UNESCO in 1997. The Sundarbans region is characterized by close network of interconnect tidal rivers, creeks and suffer from salinity problems due to tidal flooding and the diversion of Ganges water at Farakka Barrage in India from early 1975. So the Ganges basin in Bangladesh part is almost dry in the summer season. The Gorai river which is the distributary of Ganges and main source of upstream fresh water supplier to Sundarbans mangrove forest .As a result the coastal mangrove wetlands ecosystems were balancing. After withdrawal the upstream surface water almost 57 % water in summer season . As a result salinity levels have increased drastically in the in upstream areas of the south western part in Bangladesh. The capillary upward movement of soluble salts due to presence of high saline ground water table at shallower depth and soil salinity. The highest salinity 54 ds/m has been found in the north side of the Sundarbans. Where the water salinity threshold has been identified only 20 ds/m. The reduction of Ganges freshwater flows while the industries are facing serious problems in quality control of products and disastrous effects on agriculture, fisheries, navigation, hydromorphology, drinking water, wetlands and mangrove ecosystem. Chemical factors like salinity, pH, oxidation reduction, potential mineral contents, marine pollution, sedimentation etc are the major ones which influence the development of management forest The rivers water contains about 35 g of solute per litre, mostly as NaCl (other salts include Na₂SO₄, MgSO₄, CaSO₄, MgCl₂, KCl, Na₂CO₃ etc). The dominate species Sundari (*Heritiera fomes*) which is cover 52.7 percent and Goran (*Ceriops decandra*) are affected by top-dying disease and recognised as a key management concern. The Ganges water sharing issues is a long disputed matter between the two neighbours Bangladesh and India. Ganges water sharing is not just a geo-techno-political problem it is also a humanitarian problem. The community as a whole may participate in and all classes benefits from biodiversity conservation and mangrove management plan for ecosystems. The objectives of this Study is to formulate a long-term management plan for the protection of changing landscapes and mangrove wetlands ecosystem through ensure to supply Ganges water into Sundarbans. GIS simulation and Water Salinity Modelling would be a proper tools for decision making and make recommendations for the future development of Ganges water sharing conflict and protection of mangroves wetlands ecosystems and the cultural landscapes in the Sundarbans region.