

ESPA Deltas

Assessing health, livelihoods, Ecosystem Services and Poverty Alleviation in populous Deltas

ESPA Deltas aims to provide policy makers with the knowledge and tools to enable them to evaluate the effects of policy decisions on people's livelihoods. This is being done by a multidisciplinary and multi-national team of policy analysts, social and natural scientists and engineers. Collectively they are using a participatory method to create a holistic approach to formally evaluating ecosystem services and poverty in the context of the wide range of changes that are occurring. These changes include subsidence and sea level rise, land degradation and population pressure in delta regions.

The approach is being developed, tested and applied in coastal Bangladesh, but is expected to ultimately be applicable in other deltas. The ecosystem services of river deltas often support high population densities, estimated at over 500 million people globally, with particular concentrations in South, South-East and East Asia and Africa.

Further, a large proportion of delta populations experience extremes of poverty and are highly vulnerable to the environmental and ecological stress and degradation that is occurring.

National Oceanography Centre

Contact us international@noc.ac.uk

Dr Judith Wolf **Principal Investigator**
jaw@noc.ac.uk

Dr Lucy Bricheno **Principal Investigator**
luic@noc.ac.uk

Rural livelihoods are inextricably linked with the natural ecosystems and low income farmers are highly vulnerable to changes in ecosystem services. Their health, wellbeing and financial security are under threat from many directions such as unreliable supplies of clean water, increasing salinisation of soils and arsenic contaminated ground water, while in the longer term they are threatened by subsidence and sea-level rise.

This study will contribute to the understanding of this present vulnerability and help the people who live there to make more informed choices about how best to reduce this vulnerability. In particular, the project is working with national stakeholders.

The NOC model

This model simulates hydrodynamics and river salinity using the open-source finite volume coastal ocean model. Several year-long model runs were performed to help understand historic water levels and river salinity, as well as making projections under future climate and river management scenarios.

This technology has also contributed to the development of an integrated model, which takes into account human factors as well as the physical environment. The integrated model (Delta DIEM) makes projections of agricultural crops, drinking water salinity, migration, poverty and human well-being.