

Some key questions we seek to answer in relation to the coastal delta region of Bangladesh are:

Who are the key stakeholders and what are their roles?

Who are the poor?

What are the Ecosystem Services?

How and why are these Ecosystem Services changing?

What is the role of biophysical change and Ecosystem Services?

What implications do changes to Ecosystem Services have on the poor?

What are the social, environmental and governance controls on livelihoods?

How can policy promote the sustainability of ecosystem services?

Project Partners



UK

University of Southampton
 University of Oxford
 University of Exeter
 National Oceanography Centre
 Plymouth Marine Laboratory
 University of Dundee
 Met Office/Hadley Centre

Bangladesh

Bangladesh University of Engineering and Technology (BUET)
 Bangladesh Institute of Development Studies (BIDS)
 Institute of Livelihood Studies (ILS)
 Ashroy Foundation
 Institute of International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B)
 Center for Environmental and Geographic Information Services (CEGIS)
 Bangladesh Agricultural University (BAU)
 Bangladesh Agricultural Research Institute (BARI)
 Technological Assistance for Rural Advancement (TARA)
 International Union for Conservation of Nature (IUCN)
 Dhaka University

India

Jadavpur University, West Bengal

China

East China Normal University, Shanghai (ECNU)



BUET

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ESPA Deltas: Assessing Health, Livelihoods, Ecosystem Services and Poverty Alleviation in Populous Deltas

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Livelihood



Ecosystems



Services



Poverty



Community



Introduction

Worldwide, delta regions are very vulnerable with their large populations and ecosystems facing multiple threats. In the coming decades stresses at global (e.g., sea-level rise), regional (e.g., catchment management) and delta plain (e.g., water extraction, sediment starvation) levels could result in increasing flooding, salinization, land loss and degrading of ecosystem services. All these changes will have adverse effects on the poor. The Ganges-Brahmaputra-Meghna (GBM) Delta is one of the world's most dynamic and significant deltas and is at increased risk of extreme weather events and sea-level rise, coupled with population growth and urbanisation.



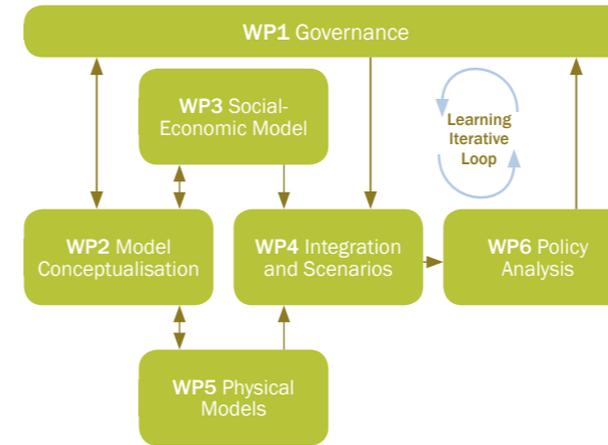
The Project

The ESPA Deltas Project aims to provide policy makers with the knowledge and tools to enable them to evaluate the effects of environmental decisions on people's livelihoods. This is being done by a multidisciplinary and multinational team of social and natural scientists, engineers and policy analysts using a participatory, holistic approach to formally evaluate the ecosystem services and poverty and related policy in the context of changing deltaic environments. This approach is being developed and tested in coastal Bangladesh and will be assessed for transferability in two populous deltas in India.

“ Deltas are home to over 500 million people worldwide, provide rich ecosystem services and yet often experience significant levels of poverty ”

Quantification of links between poverty and ecosystem services

Outputs



Method and Expected Outcomes: Developing a dynamic model of the coastal delta

The methodology is based upon the conceptualisation of ecosystem services provision and drivers of poverty, utilising a wide range of physical and social models (e.g., climate, coastal and catchment hydrology, water quality, morphodynamics, mangroves, fisheries, demographic projections and vulnerability modelling). In addition, a new flexible integrated analysis modelling tool will be developed that can describe complex interrelationships between the physical and social environments, their drivers and the livelihood of local populations, including feedbacks and thresholds. This will be informed by the other suite of models and address cross-cutting questions, allowing participatory application. The project structure is shown in the figure above, which recognises the integrated and iterative learning nature of the research and includes stakeholder involvement (across government and civil society) in all stages.

Model integration of biophysical and socio-economic sciences

An evidence base for the policy cycle

Transferability methods for other populous deltas

Tools for decision makers



Bangladesh Case Study Area