

Water & Climate Change in Bangladesh

Developing an integrated river basin management framework under the lens of loss and damage

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INTRODUCTION

Loss and damage is a relatively new pathway under the United Nations Framework Convention on Climate Change (UNFCCC) for tackling the adverse impacts of climate change. Fundamentally, it is a mechanism seeking to go beyond conventional understanding of climate change mitigation and adaptation. It also focuses on managing residual impacts. The novel contribution of this project is to explore the utility of the concept in practical terms with specific reference to the uniquely cross-cutting water sector. This has yet to be formally included in the UNFCCC Loss and Dam framework.

The research centres on one of the largest, most populated and geo-politically complex river basins in the world, the Ganges-Brahmaputra-Meghna (GBM) in South Asia (Figure 1). Particular attention is given to Bangladesh, recognised by the UN as one of a group of least developed countries (LDCs) by virtue of low income, weak human assets and high economic vulnerability - and one of those most vulnerable to climate change induced hydro-meteorological disasters. The research will explore the potential effectiveness of ecosystem-based water management to address climate change induced loss and damage – sustainably and equitably.

METHODS

Principle research question

This research advocates the mainstreaming of climate change into Hydro Nation policy. It's main aim being to investigate how best deliver robust 'climate ready' evidence to inform trans-boundary water agreements. Bangladesh is considered as a case study, from which international lessons can be drawn. The principle research question is - how might climate change induced loss and damage in the greater Ganges-Brahmaputra-Meghna (GBM) delta be best managed and how can an improved understanding inform future regional water accords?

Secondary research questions

Five Key questions are – (i) what is the current state of water resources in the GBM region? (ii) what is the trajectory of climate change induced loss and damage for the water resources sector? (iii) how variable is the economic, social and environmental value of water, as well as what might be the economic and non-economic dimensions of risk in future? (iv) what is the state of trans-boundary water negotiation between the co-riparian countries (Bangladesh and India), including what are the 'dead-lock' and 'common' issues hindering the negotiation process? (v) how can the issues related to sustainable development, climate change adaptation and loss and damage be mainstreamed under a common river basin management approach?

RESULTS

Preliminary research findings show clear evidence of increasing climate change induced loss and damage. More than two-third of all kind of disasters are hydro-meteorological and annual occurrences of water related disasters have doubled (166 to 327) in the period 1980-2013 (Figure 2). It is estimated that annual normalized damage worth in the global scale is around USD 30 Billion and rising (Figure 3).

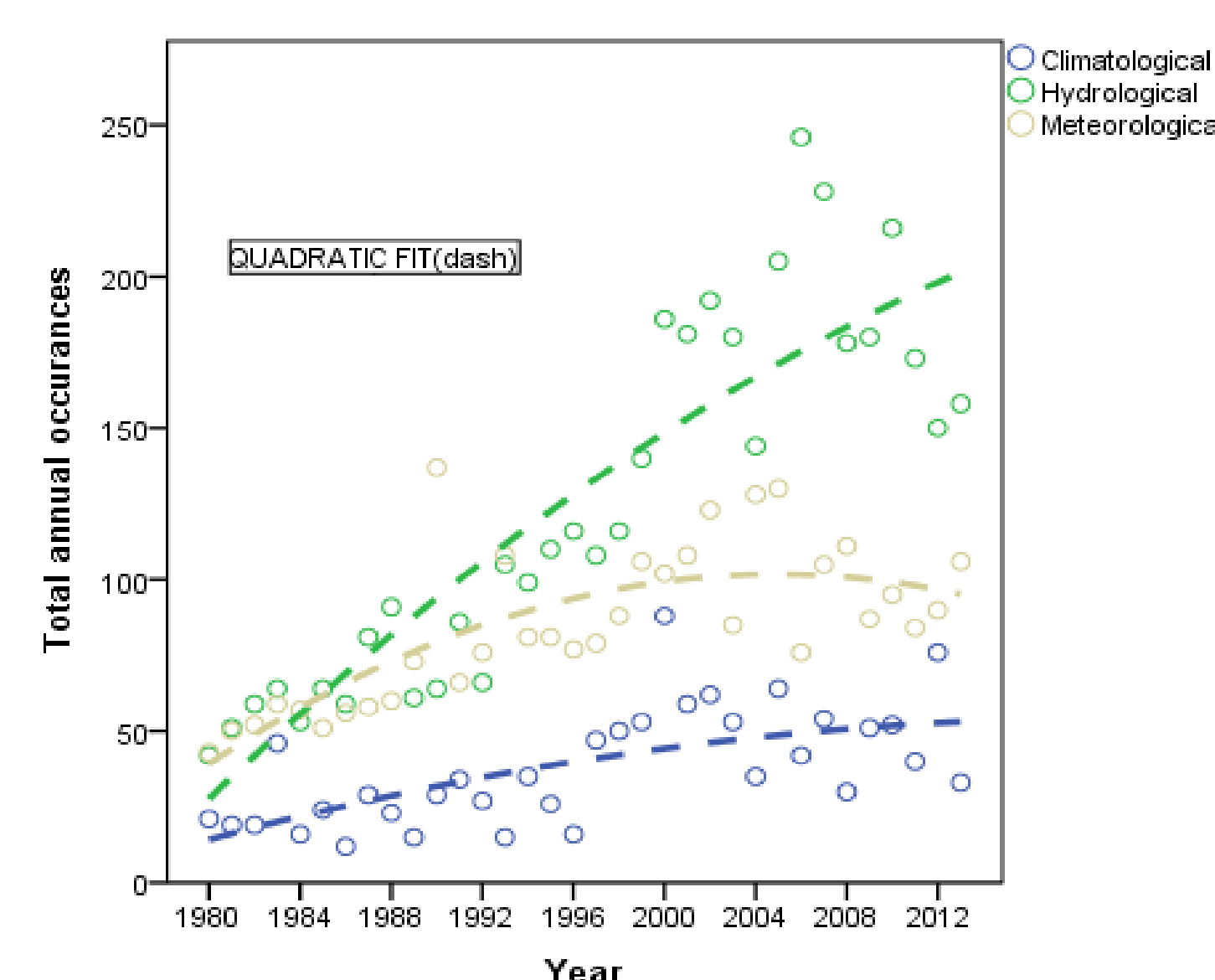


Figure 2 Annual frequency of hydro-meteorological disasters (Data source: EM-DAT: <http://www.emdat.be/>).

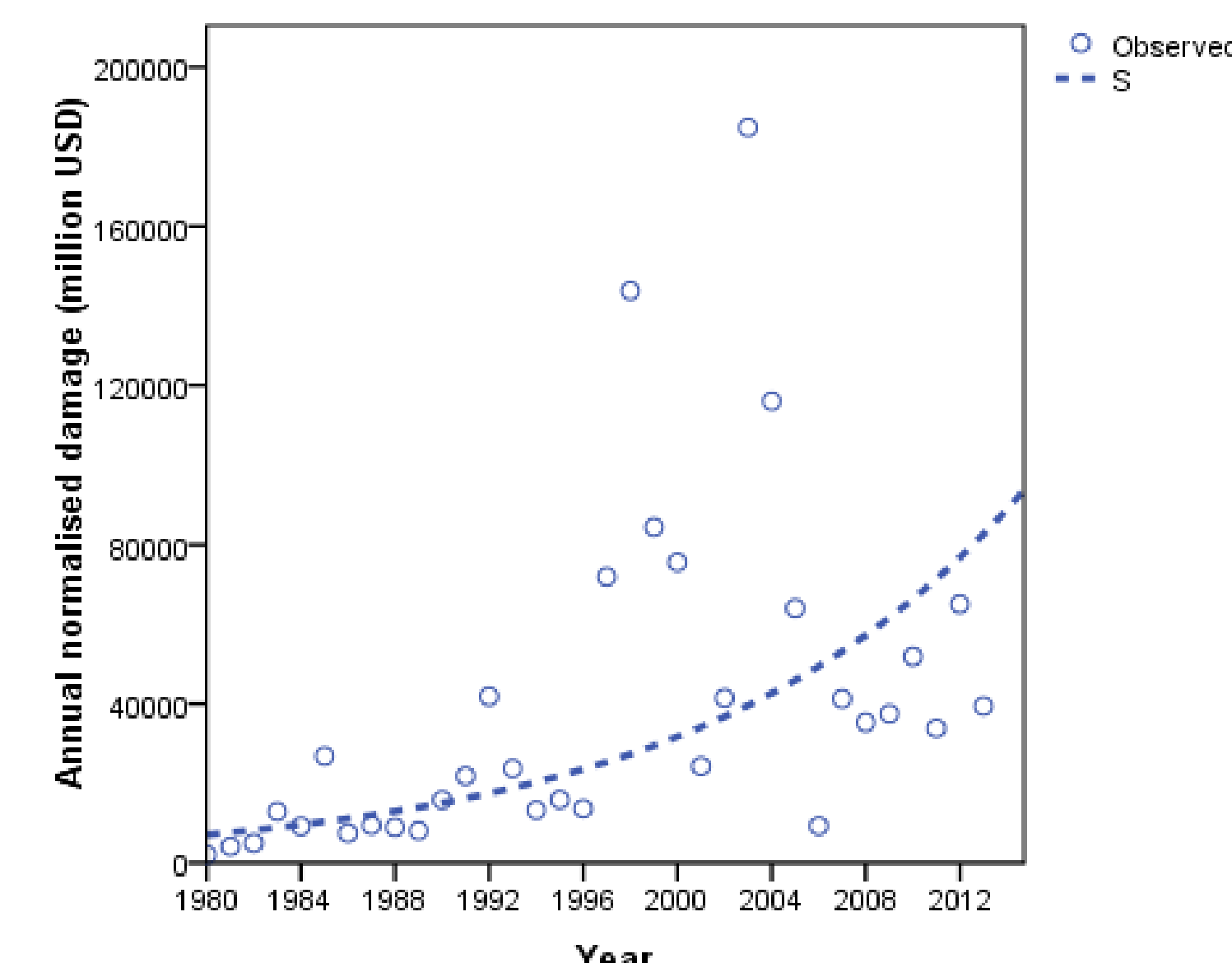


Figure 3 Annual normalized economic damage from hydro-meteorological disasters (Data Source: EM-DAT and World Bank)

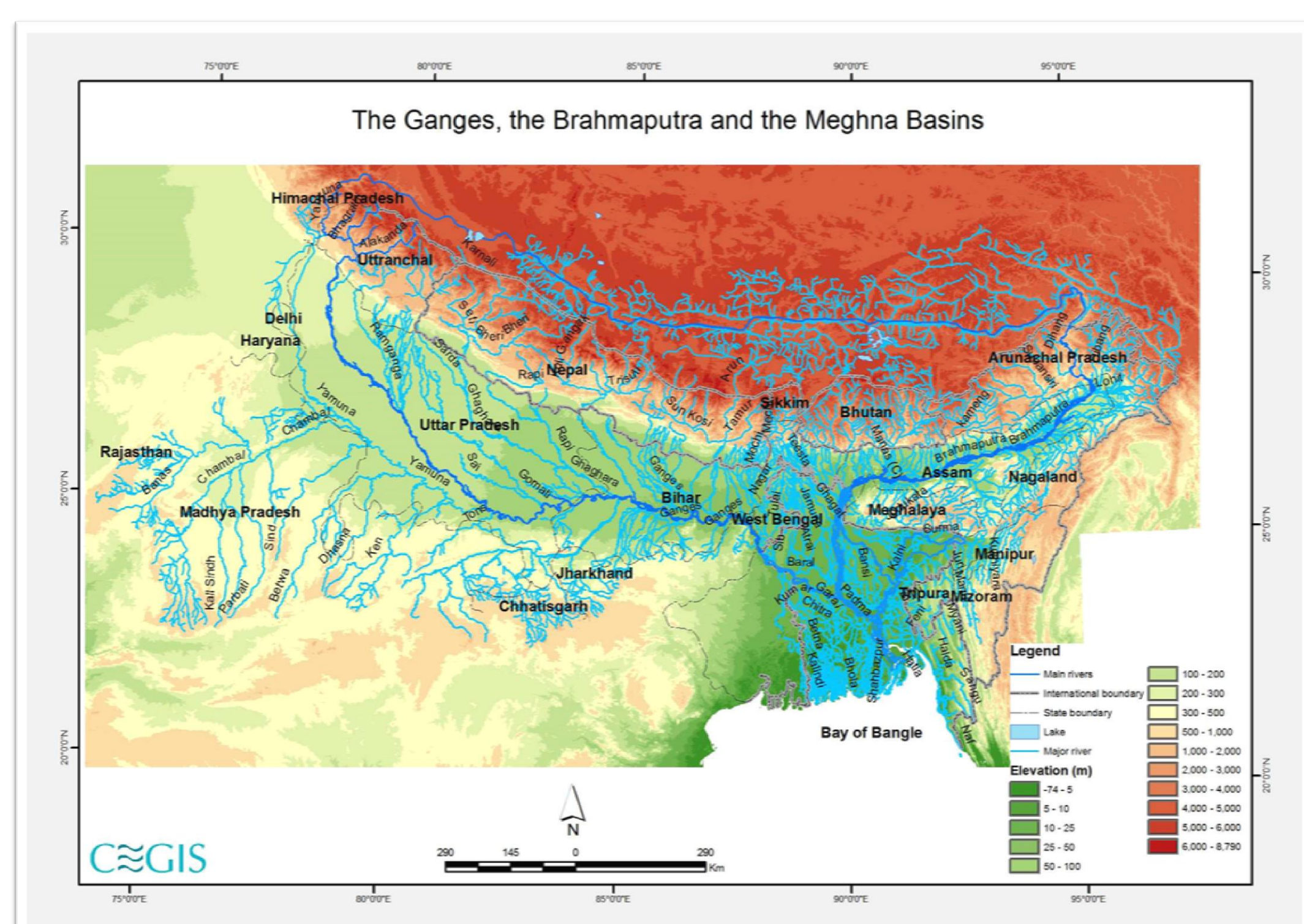


Figure 1 Study Area: The Ganges-Brahmaputra-Meghna (GBM) Basins

FINDINGS AND RECOMMENDATIONS

Dangerous climate change is a truly global problem. However, LDCs such as Bangladesh are the worst victim due to increase in the frequency and intensity of the hydro-meteorological disasters (floods, drought, coastal surges from Typhoons). Cost of inaction might trigger irreversible loss and damage that the societies are unable to adapt or avoid. Trans-boundary scale river basin management places additional challenges in finding appropriate policies, plans and actions to reduce the impacts of irreversible loss and damage.