



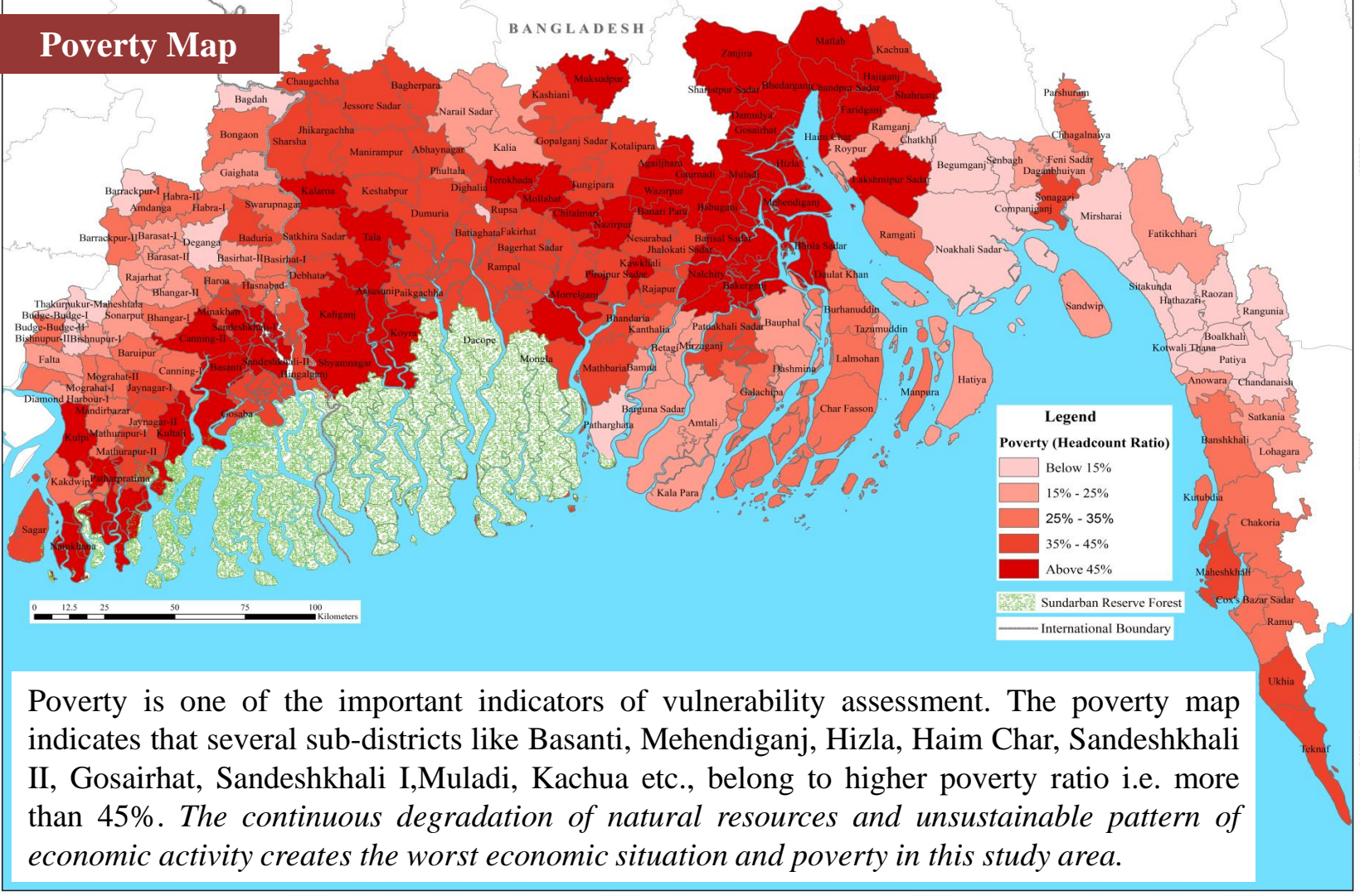
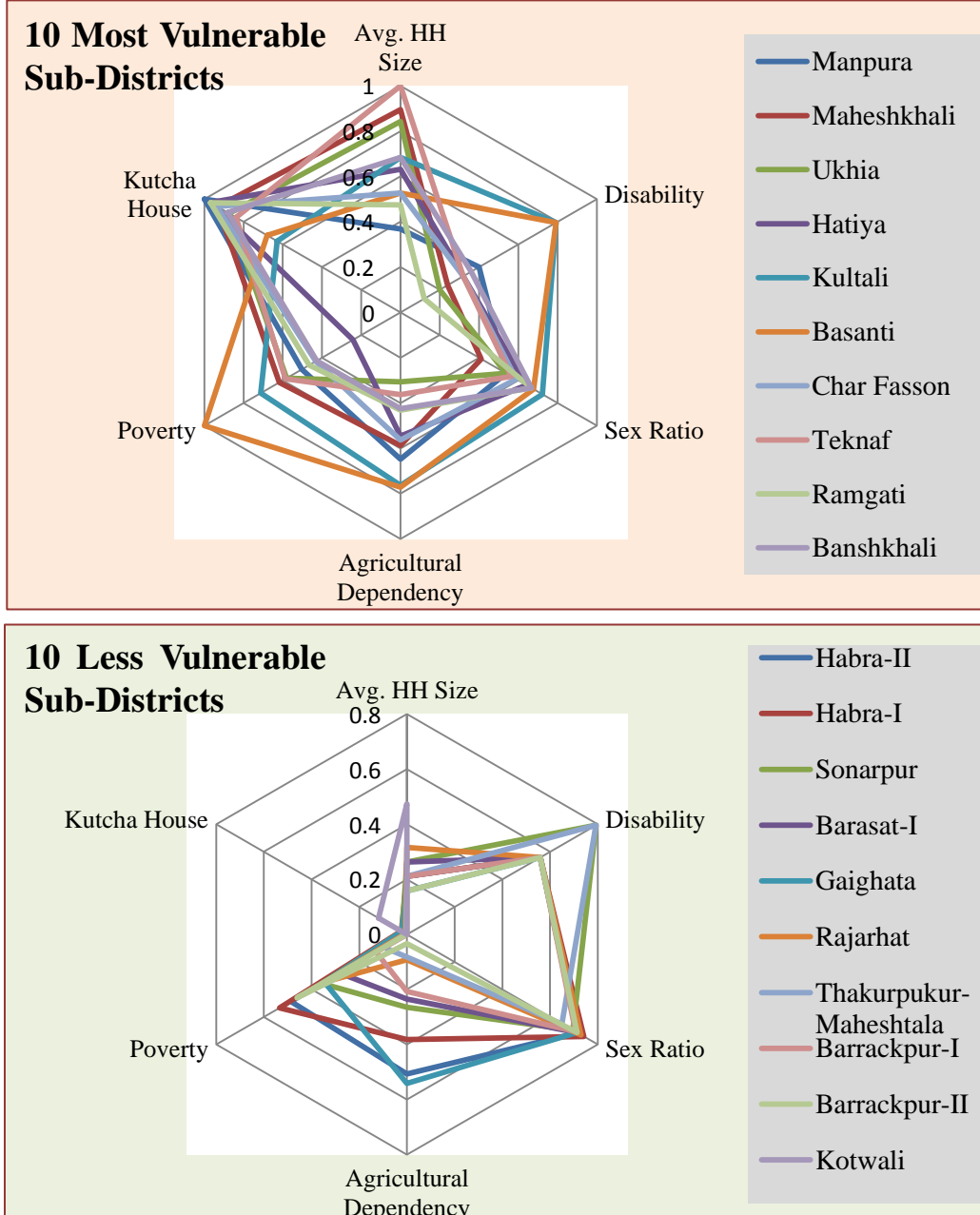
Introduction

- Low-lying areas of the Ganga-Brahmaputra-Meghna (GBM) Delta with high population density is experiencing intense climate change impacts like sea level rise, coastal erosion, salinization, frequent cyclones and floods, etc., which stresses this resource dependent community.
- This situation is further complicated by the multi-dimensional variables of poverty and lack of social well-being such as poor access to education, child mortality, food and energy security, malnutrition, lack of safe drinking water and sanitation facilities.
- Communities, with varying adaptive capacity to respond to climatic impacts, are likely to experience different levels of vulnerability.
- This study aims to assess social vulnerability of coastal communities of GBM Delta in the context of the underlying social conditions of coastal people, ignoring the political boundary between India and Bangladesh.
- Social Vulnerability being one of the thrust area of DECCMA, this poster could be useful, significant and interesting for *all relevant ongoing research activities in the sphere of Climate Change Adaptation.*

Concept of Social Vulnerability

- Social scientists tend to view vulnerability as representing the set of socio-economic factors that determine people's ability to cope with stress or change (Allen, 2003), climate scientists often view vulnerability in terms of the likelihood of occurrence and impacts of weather and climate related events (Nicholls *et al.*, 1999).
- Social Vulnerability is viewed as an inherent property of a system arising from its internal characteristics (Adger, 1999; Adger and Kelly, 1999) and determined by factors such as poverty and inequality, marginalisation, food entitlements, access to insurance, and housing quality (Blaikie *et al.*, 1994; Adger and Kelly, 1999; Cross, 2001).
- Biophysical vulnerability is a function of the frequency and severity (or probability of occurrence) of a given type of hazard, while social or inherent vulnerability is not.

Results and Discussion



Conclusion

The world's climate is changing, and the social vulnerabilities associated with these changes are increasing. Thus assessing social vulnerability will help to understand how communities are exposed to natural catastrophes. It is significant to know who are mostly affected in the community and their ability to withstand and recover from damage. People in this coastal area are more dependent on natural resources such as agriculture, water and mangrove forest and they have limited set of livelihood options. Researchers should identify alternative livelihood options for coastal communities. There is a urgent need to reduce the gender gap or inequality in terms of education, social security and other aspects of life. Strong coordination and implementation of policies for the local people are still missing. This study tries to give a representation of the social vulnerability of the coastal regions; however it also suggests further studies on the adaptation options and coping mechanism to reduce the social vulnerability.

Methodological Framework

The study has been carried out at the sub-district level in the 19 coastal districts of Bangladesh (*Coastal Zone of Bangladesh*) and 2 large districts of India using secondary data from *Census of India* and *Bangladesh Bureau of Statistics* with a simple equal weightage methodology.

Variables	Description	Relation	References
Household Size	Average size of households	Positive	Adger 1999
Dependency Ratio	Ratio of the population under 15 and over 65 years of age to the population between 15 and 65 years of age (economically active)	Positive	Dwyer <i>et al.</i> 2004 Kuhlicke <i>et al.</i> , 2011, Reid <i>et al.</i> 2009, Cutter <i>et al.</i> 2003
Disabled Persons	Percentage of disabled Persons to total population	Positive	2003
Sex Ratio (Male-Female Ratio)	Ratio of the number of females per 100 males	Negative	Parameters of Sensitivity and Adaptive capacity, WP 2 & 3, DECCMA & Population Monograph, Bangladesh
Work Participation Rate	Percentage of total workers (main and marginal)(IND)/employed(BD) to total population	Negative	
Agricultural Dependency	Percentage of cultivators and agricultural labours (dependent on agriculture) to total population	Positive	
Poverty (Headcount Ratio)	Percentage of households who belong to BPL category (IND) and below the upper poverty line (BD)	Positive	Cutter <i>et al.</i> 2003, Vincent 20004,
Kutcha House (Temporary Structure)	Percentage of households live in kutcha (BD)/temporary structure of houses (IND)	Positive	Cutter <i>et al.</i> 2003
Rural Population	Percentage of rural population, defined as the difference between the total population and urban population	Positive	Vincent 2004

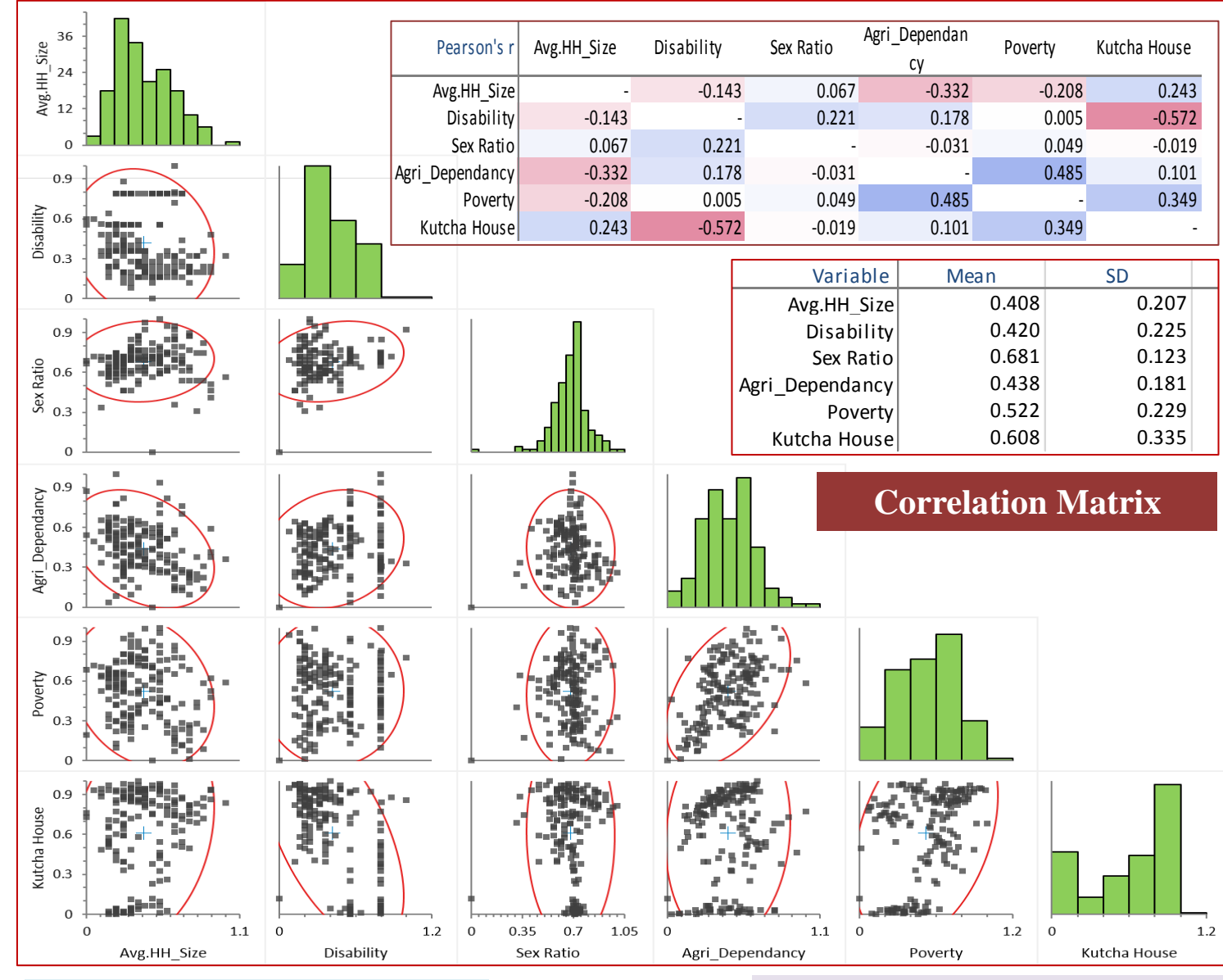
Methodological Steps

Selection of Variables based on literature and available data

Normalization for all the variables
 $Is = (Ia - Imin) / (Imax - Imin)$ (Positive)
 $Is = (Imax - Ia) / (Imax - Imin)$ (Negative)

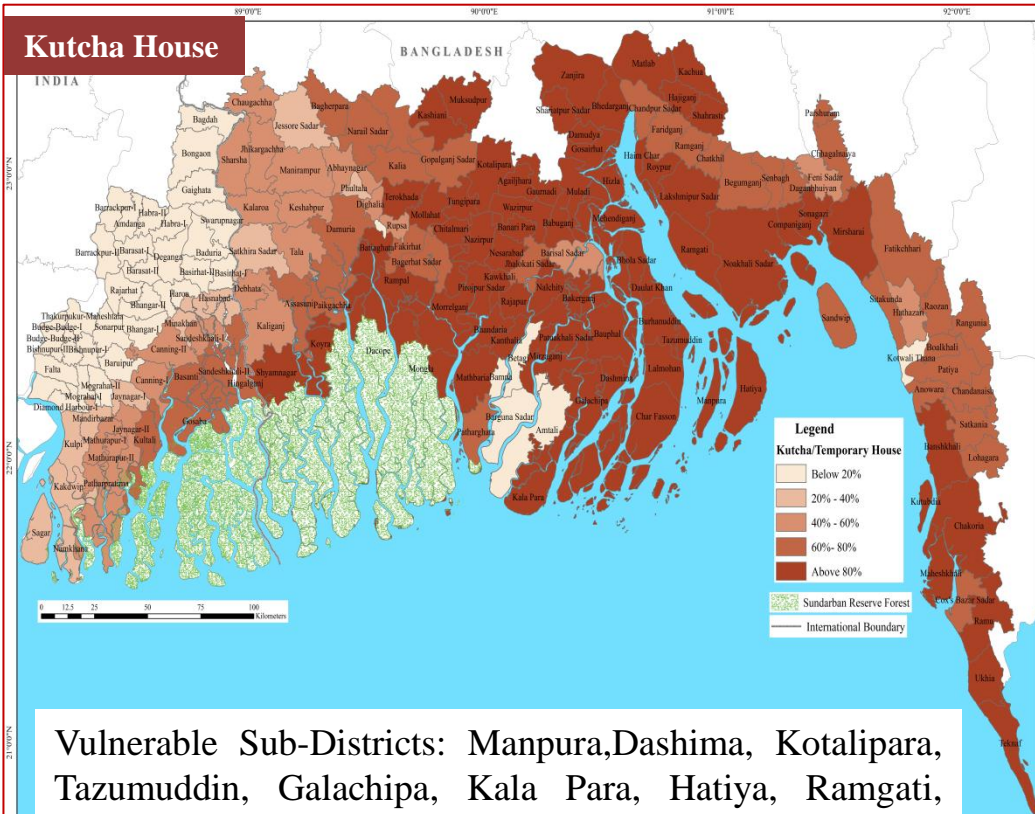
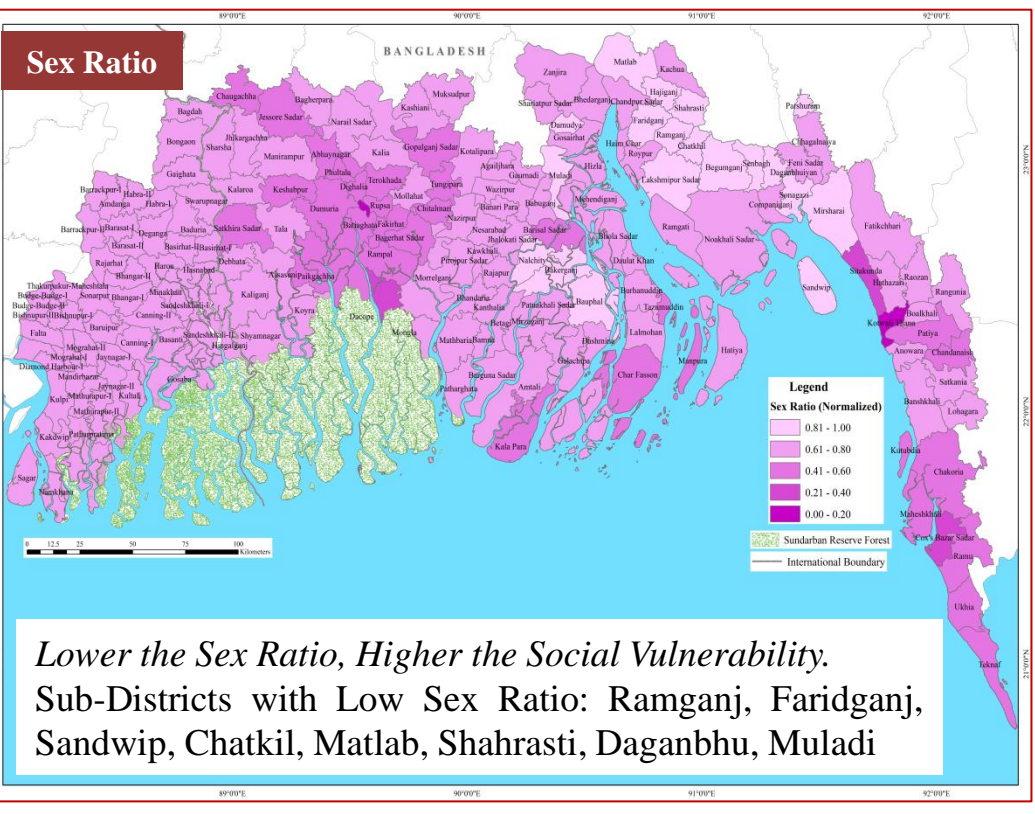
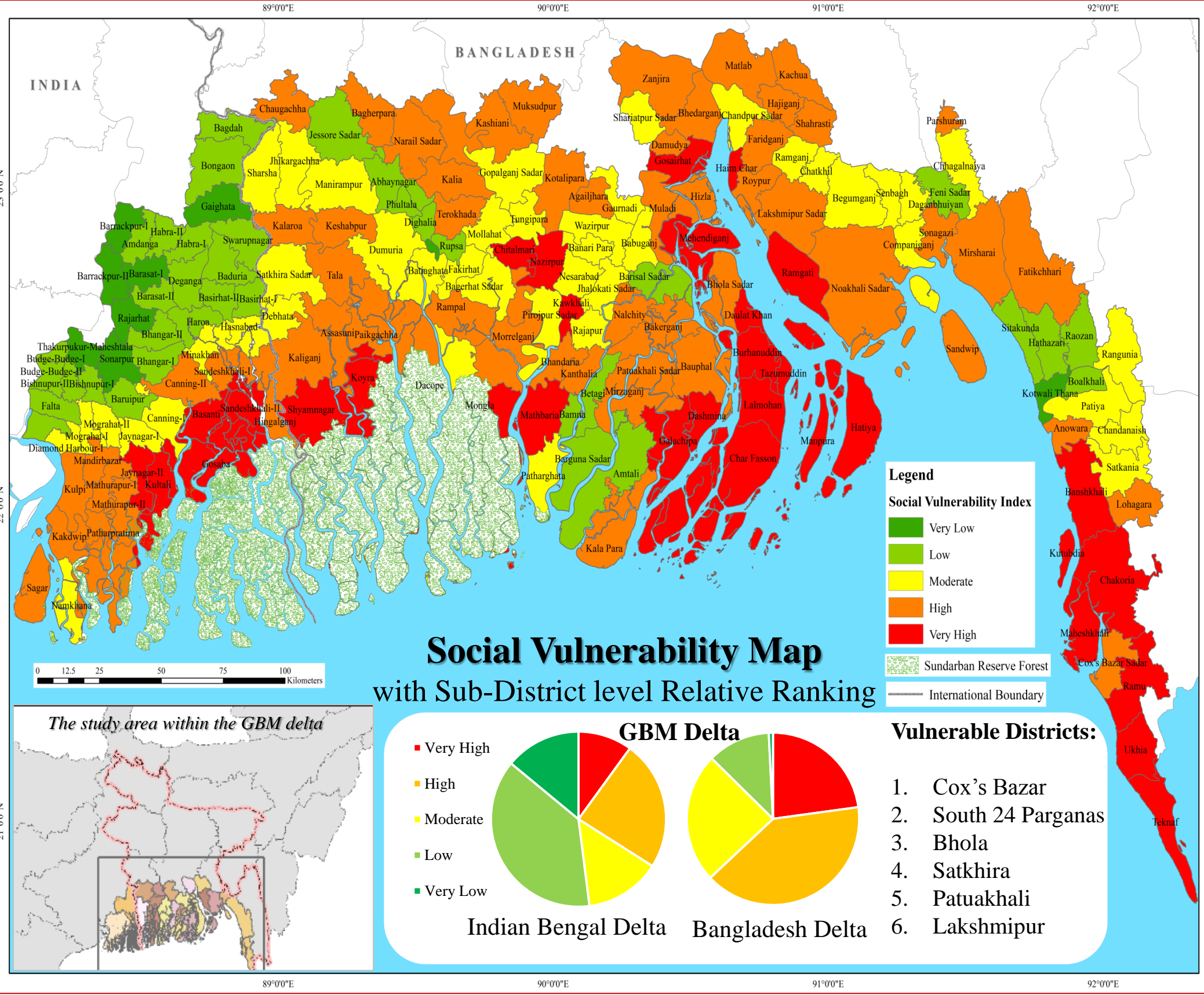
Correlation Matrix for reducing the number of variables (coefficient greater than +/- 0.6)

- Set 1: Social**
1. Avg. HH Size
 2. Disability
 3. Male-Female Ratio
- Set 2: Economic**
1. Poverty
 2. Agricultural Dependency
 3. Kutcha House



Average Index for each major component/set
 $AI = \sum |Is| / N$

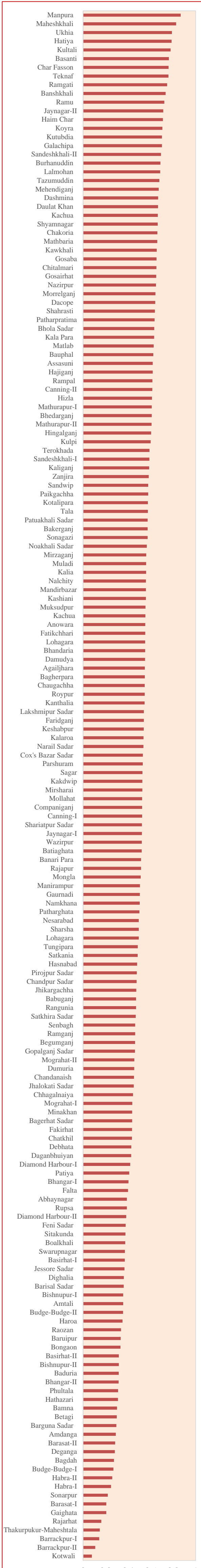
Social Vulnerability Index (SoVI)
 $\sum (Wi \cdot AI) / \sum Wi$



References

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Social Vulnerability Index



This work was carried out under the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA), with financial support from the UK Government's Department for International Development (DFID) and the International Development Research Centre (IDRC), Canada. The views expressed in this work are those of the creators and do not necessarily represent those of DFID and IDRC or its Board of Governors.

