Key Facts and Research gap

1

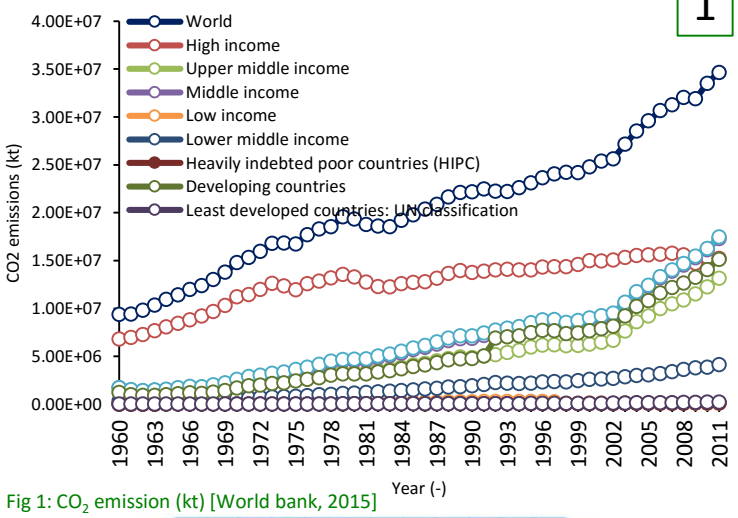


Fig 1: CO_2 emission (kt) [World bank, 2015]

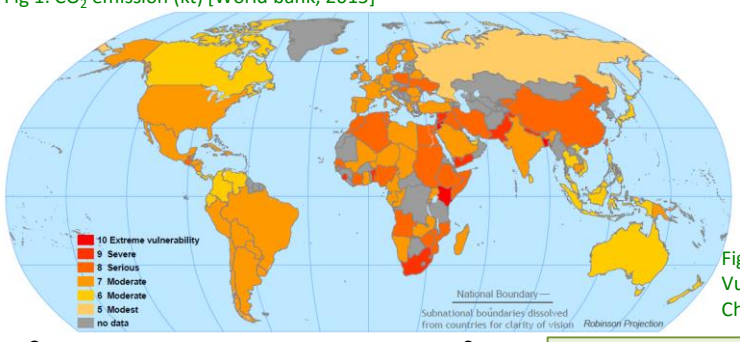


Fig 2: Global Distribution of Vulnerability to Climate Change [SEDAC, 2015]

Bangladesh is highly vulnerable to climate change effects

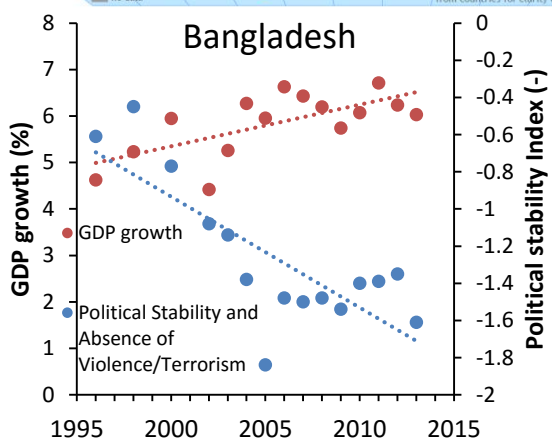


Fig 3: GDP growth vs. Political stability [World Bank Data, 2015]

Analysis of 37 global and regional models revealed the inapplicability in Bangladesh because of-

- **Difference in socio-economic framework**
- **Data inadequacy**
- **Need for climate changes feedback**

Food security vs Energy security

Would need to produce food for a significant large population in a possibility of reduced land areas

Would need to generate and supply adequate energy for the country to support development for becoming middle income country from low income country

Overarching Research Questions

2

1. **What are the energy situation (Present and future policy) of Bangladesh?**
2. **Does the global energy planning models applicable for Bangladesh?**
3. **How to determine the capital, O&M and fuel cost of energy technology (both demand and supply) in the year 2010?**
4. **How to forecast energy cost in the future?**
5. **What should be the optimum forecasted energy, food and emission scenarios to find the least cost scenario?**

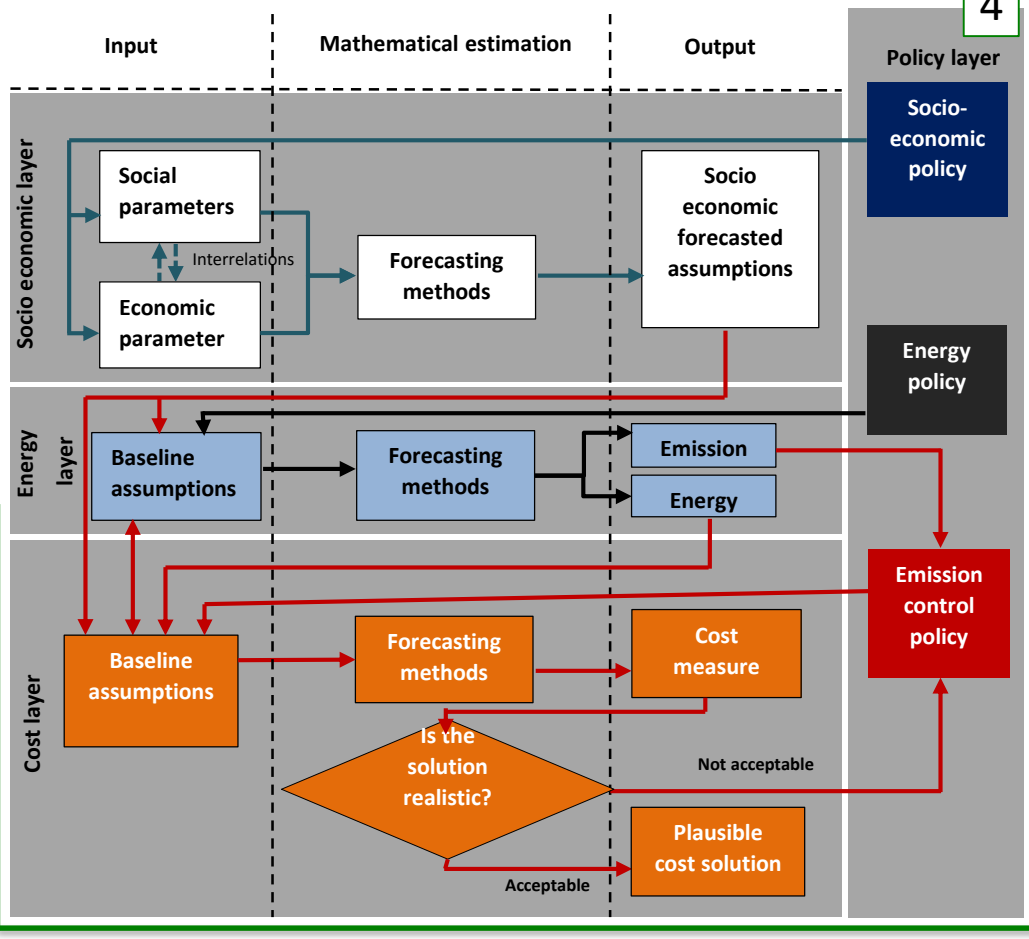
Research Aim

3

To find the optimal cost scenario pathway for energy, food and emission to decarbonise Bangladesh from 2010 to 2050.

Research Approach (Methodology)

4



Research outputs

5

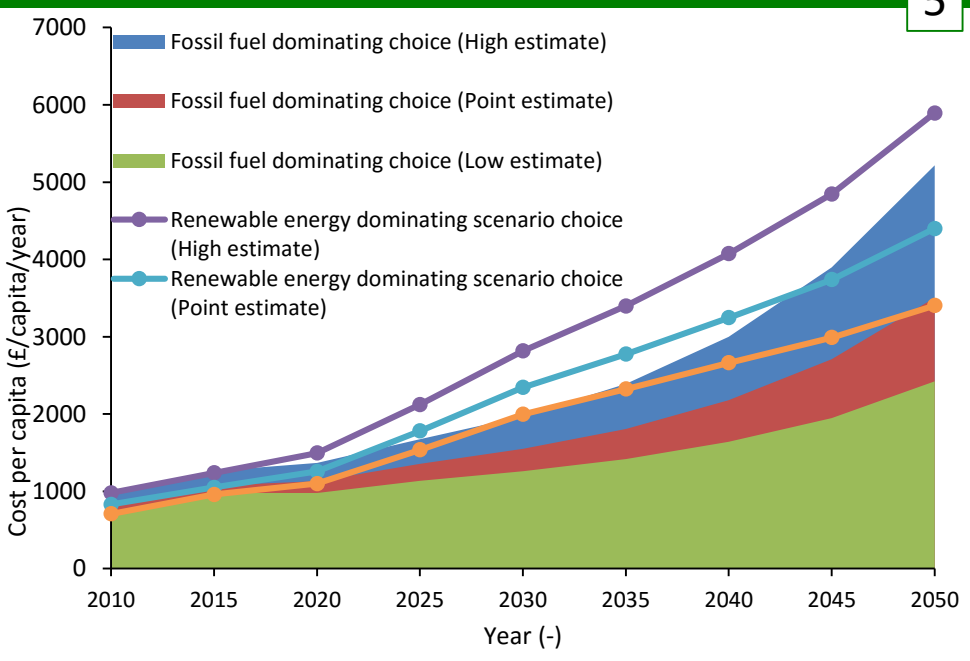


Fig 4: Cost par capita for different energy generation scenario choice

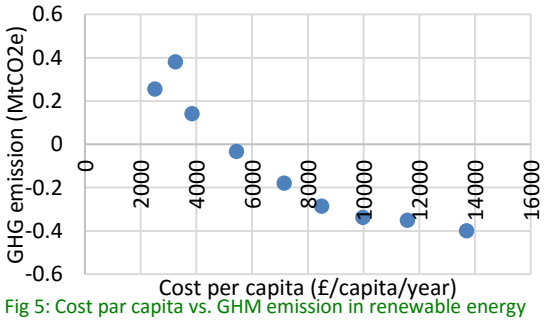


Fig 5: Cost par capita vs. GHM emission in renewable energy dominating energy generation scenario

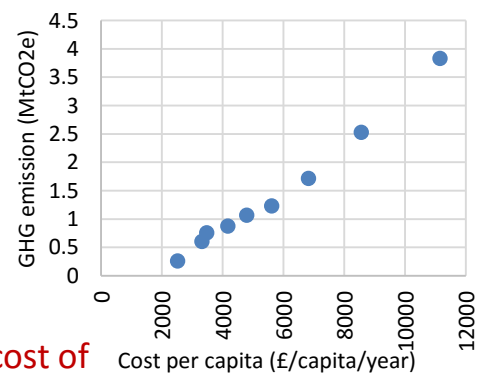


Fig 5: Cost par capita vs. GHM emission in fossil fuel dominating energy generation scenario

Moving towards renewable energy dominating energy scenario would increase capital par capita cost of energy development than that of fossil fuel domination scenarios. But the future would have a low emission scenario with a lower fossil fuel cost, , eventually reducing energy generation cost in the future.

2050 ENERGY AND CARBON EMISSIONS PATHWAYS: MODELLING THE COST OF DECARBONISATION

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