

Economic modeling of climate change

Rezaur Rahman
Professor
IWFM, BUET

Purposes of economic modeling

- To estimate cost of damage due to climate change
- To investigate the cost-effectiveness of mitigation measures
- To carry out cost-benefit analysis of adaptation measures

Economic modeling methods

- Backward looking, impact based framework
- Forward looking, risk based framework

Economics of climate change - Global case

Modeling the overall impact of climate change is a formidable challenge, involving forecasting over a century or more as effects appear with long lags and are very long lived.

Warming	Loss of GDP
2 - 3°C	0 - 3%
5 - 6°C	5 - 10%

Economics of climate change - Bangladesh case (1)

	Baseline	No further adaptation		Further adaptation	
		2020	2050	2020	2050
Expected annual loss	0.60%	0.70%	0.80%	0.50%	0.20%
50 year event	5.8%	7.0%	7.3%	4.6%	1.9%

Economics of climate change - Bangladesh case (2)

B/C ratio

- Road raising: 1.2 ~ 2.7
- Flood proofing of homesteads: 1.4 ~ 3.2

Compensation

- **Obligation of developed countries**

“assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.” - UNFCCC

- **Economic instrument**

§ Kyoto Protocol Adaptation Fund: financed from a levy on Clean Development Mechanism (CDM) Projects.

CDM - Definition

The Clean Development Mechanism (CDM) is an arrangement under the Kyoto protocol which allows industrialized countries with a green house gas reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reduction in their own countries

CDM - Objectives

- Reduction of emission through globally cost-effective way
- Sustainable development of developing countries
- Generation of funds for adaptation

End