

Social Aspects of Climate/Global Change

As a developed country privileged to have sophisticated environmental forecasting technologies, we are morally obligated to reduce the treadmill of poverty that plagues poor nations prone to frequent, extreme events through proper risk management. The developing countries of Pakistan, India, and Bangladesh in Southeast Asia are particularly vulnerable to prominent flooding, which causes approximately 40 million deaths a year. Aside from repercussions for national security and water resources management, severe flooding directly impacts the socioeconomic condition of the poorest, predominantly agricultural societies in this region.

Sporadic loss of agriculture maintains these societies in a perpetual cycle of intergenerational poverty and debt. Risk warning strategies and forecasting can potentially alleviate the losses incurred from severe flooding, however, current technologies in this region are very basic and inefficient. It is of great importance to accurately predict the effects that climate change have on the regularity and intensity of severe events, at a timescale of not a few hours, but rather days prior to the event.

A society that can handle present day hazards is better equipped to adapt to and mitigate hazards of a changing climate. Studies show that longer, more intensive floods and hurricanes over the past 20 years may be a result of the increasing temperature, and climate change escalation has the potential to force these societies into an even worse state of structural poverty. Although there is no deterministic solution to predicting climate events, we can determine optimal mitigation strategies through the use of ensemble models. By providing a 10 day forecast, the community has the ability to move livestock to safe refuge, harvest crops earlier, and adequately store food and water. These forecasts can save 50-90% of individuals annual income, thereby increasing the society's fiscal security and resilience and alleviating the grasp of structural poverty.