

# GLOBAL ENVIRONMENTAL CHALLENGES: LOCAL DIMENSIONS

Focus on the water sector in the Eastern  
Himalayan region

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**Qazi Kholiquzzaman Ahmad** PhD

Chairman, Bangladesh Unnayan Parishad (BUP)

President, Bangladesh Economic Association (BEA)

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# GLOBAL ENVIRONMENTAL CHALLENGES: LOCAL DIMENSIONS

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- Local dimensions of the challenges arising from climate change play out in terms impacts on natural and human systems at the local spaces
- The poor and disadvantaged people are at the forefront of the adverse impact of climate change, particularly in poorer countries where not only community capacity but also the state capacity to respond is extremely limited

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- In fact, climate change impacts are add-on to the multiple stresses they already face
- These stresses include:
  - The poor usually live on marginal lands such as coastal, low-lying, and arid lands and on riverbanks

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- These lands are on harm's way of severe climatic events such as floods, storm surges, cyclones, hurricanes, and droughts
- The poor usually depend on agriculture and other rudimentary economic activities for their livelihoods, which are very much subject to environmental challenges

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- The capacity of these people to adapt to climate change impacts is extremely limited or non-existent because of:
  - Income poverty
  - Extremely limited access to resources
  - Human capability limitation due to lack of education, training, and health
  - Marginalization not only from economic standpoint but also in the context of social and political processes of change, i.e. socio-economic-political exclusion

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- These people, thus, are at the wrong end of a highly iniquitous society; and their livelihoods are tenuous and severely jolted when a major climatic event strikes
- In fact, natural disasters force many of the poor people to become destitutes and many non-poor (somewhat above poverty line) to slip into poverty

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- In this presentation, one key sector, viz. water is considered in relation to local dimensions of climate change
- Needless to mention, without water human beings and other life forms cannot survive and economic sectors such as agriculture and industry are crucially dependent on water

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- To exemplify the implications of climate change for water sector, let us focus on the eastern Himalayan region which includes Bhutan, Nepal, parts of India, and Bangladesh

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- This region is prone to natural disasters such as floods, cyclones, and storm surges
- During the dry season, water scarcity is also a major problem in the region

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- Let us focus on floods and water scarcity and consider them in turn

## Flood

- The frequency of major floods in this region has increased since the mid-nineteenth century, occurring in 1955, 1974, 1988, 1998, and 2004, the interregnum being successively 19 years, 14 years, 10 years, and 6 years

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- Flood frequencies and intensities are likely to increase in future with global warming (as indicated by evidence from climate models and hydrological studies)
- Losses and damages caused by a major flood are dependent on when during the crop cycle it occurs as well as its coverage, depth, and duration

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- The losses caused include those in terms of (a) houses, assets, crops, livestock, manufacturing units, businesses, infrastructure (roads, telecommunications, school buildings, hospitals) being either destroyed or damaged; (b) human health hazards; as well as (c) in terms further environmental degradation (land quality degradation, air and water pollution, fresh water scarcity, changes in precipitation and temperature intensity and cycle, bio-diversity losses)

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- Concerning health hazards, water and vector-borne diseases spread, which impact on the affected people's health and, hence, on their ability to work, making them even more economically vulnerable
- The worst sufferers, from environmental degradation, economic losses, and health hazards, are usually the poor and other low income groups in the flooded areas. As a result, poverty both widens and deepens.

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- On an immediate basis, their livelihoods are often destroyed; and the access of severely affected people to relief during the flood and rehabilitation in the post-flood period become crucially dependent on resources from outside the households and communities

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- A similar situation is faced by large numbers of people in coastal belts (in Bangladesh and India) as a result of major cyclones and storm surges

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- In order to meet the rehabilitation needs of large numbers of flood or cyclone/storm surges-affected people, the government of a particular country has to mobilize resources and it often becomes necessary to transfer resources from regular development budget to meet relief and rehabilitation needs  
As a result, the development prospect of the nation as a whole is adversely affected

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- However,
- ✓ The losses may be reduced and relief and rehabilitation may be somewhat facilitated if the capacity of the local people to respond can be improved through proper training (mainly in preparing for and collectively responding in terms of evacuation if needed and how best to organize relief, medicines, safe drinking water etc. during flood) and development of local institutions to provide the necessary framework for local people to organize themselves for collective action

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- ✓ Effective policies and action programmes to control land degradation, water and air pollution, bio-diversity losses, and other aspects of environmental challenges can help conserve the environmental base
- ✓ An effective health care system and quick responses during a disaster can help those who are affected by water and vector-borne diseases to recover fully. But, deficits are huge on both counts in the regional countries

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- ✓ Diversification of rural economy and of agriculture in general and of crop agriculture (including development and adoption of flood resistant and shorter duration varieties) in particular , making them more suited to the changed water regime brought about by climate change will improve the local capacity to respond

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- Also,
- ✓ Conducive (institutionally and resource-wise strong and effective, community focused) national policy and programming framework needs to be established/ strengthened to facilitate the above mentioned courses of action;
- ✓ Regional cooperation arrangements for disaster management should mutually help strengthen national disaster management efforts in the regional countries; and

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- ✓ Global environmental governance, including appropriate financial and technological assistance to developing countries has a crucial role to play in the context of local action in any poor country
- Thus, the need is thinking, planning, and implementing local action, supported appropriately by effective national, regional, and global environmental governance

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## Water scarcity

- During the dry season from 1 January to 31 May, particularly in March and April, parts of the region suffer from water scarcity of various intensity
- The Ganges catchment area is a case in point

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- In addition to water stress (no or little rains, low soil moisture content in the area), the Ganges faces very low flows during the most dry months;
- Increased abstraction upstream (for the many development projects in those areas) is another reason for the most downstream country Bangladesh to face severe water scarcities;

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- South-west Bangladesh faces major environmental and economic disasters due to extremely limited availability of fresh water; and  
North-west Bangladesh also suffers from water scarcity

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- With the glaciers in the Himalayas, which is the major source for water for the region during the dry season, receding fast, the Ganges water-flows will be reduced further in future, resulting in severe consequences for the regional countries, particularly Bangladesh

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- Such a prospect was foreseen in the 30-year Ganges [water sharing] Treaty signed between India and Bangladesh in 1996: The Treaty includes a clause which says that both the governments will work together to undertake appropriate action to augment dry season Ganges flows
- However, no progress has yet been made in this regard

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- Another major local dimension is:
  - Relocation of climate refugees, the displaced people as a consequence of their homes, lands, and livelihoods having been destroyed in the wake of climate change and sea level rise
  - In the coastal belts of, for example, Bangladesh and India, there may be large numbers of people so displaced in future

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- In a country of high population density as Bangladesh,
- ✓ many of the climate refugees may, finding no other alternatives, move to riverbanks and other available marginal lands, facing another round of displacement and bleaker future; and
- ✓ many others may move to urban slums, which are necessarily unhealthy, congested, and devoid of basic utility and social services, making for catastrophic human existence

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- ✓ The health hazards faced by slum dwellers include many preventable but communicable diseases, which are attributable to environmental sanitation, ignorance, and poverty;
- Expanding slums and increasing slum dwellers will also put increasingly severe pressure on urban services, disrupting urban development

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## □ Responses would include

- Taking action now as proposed earlier to reduce the adverse impact of climate change and sea level rise in future, reducing the number of climate refugees; and

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- Promoting economic, social, and environmental development, keeping MDGs in perspective, in both rural and urban areas to enable the poor including the likely relocated climate refugees to improve their living conditions as well as their capacity to respond to environmental challenges

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**Thank you**