



## Climate-Induced Disasters: Regional Initiatives for Collective Response

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**ABSTRACT** The SAARC nations are home to more than a billion-and-a-quarter population, distributed over a rich landscape of mountains, coasts, forests, deltaic plains, and deserts. Over time, the rapid growth of the region's population thrived on the widespread distribution of rich and fertile lands and ample water and other resources. The large and complex river systems around the region has also meant that, historically, water has been a key marker of the landscape, along with the majestic Himalayas and the generous monsoons. While monsoon predominates as a crucial condition of water availability, there are widespread variations in the monsoon patterns across the region. As climatic changes increasingly threaten huge swathes of the globe, including this region, it is necessary to maintain a stable political dialogue to ensure cooperation. This paper argues that member states must stand together to reduce the region's vulnerability and mitigate the ill effects of climate-induced disasters.

### INTRODUCTION: THE SETTING

The nations of the South Asian Association for Regional Cooperation (SAARC) are home to more than 1.2 billion people. The landscape of South Asia—with its sprawling mountains and coasts, forests and deltaic plains and deserts—has over the decades supported the growth of a massive population. Lands have proved fertile; water and other resources, ample and rich. The huge and complex river systems of the region have made water an important marker of South Asia's landscape: in this region, water *is* literally life.

As water is *life-giving*, however, so, too, does it *take*. Across the region, the very geophysical and climatic settings that have given life to its burgeoning populations, also expose its peoples to various natural hazards such as floods and droughts, tsunamis, storm surges, and cyclones. The terrain is also vulnerable to landslides and earthquakes. There is little doubt that the populations of South Asia have a high level of socio-economic vulnerability which, in turn, changes the people's perceptions about disasters.

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To begin with, the populations of South Asia have historically had a problem of uneven access to water, leading to political and economic consequences. One way to overcome this was to innovate local water engineering practices, including on irrigation, without which there is no hope for agricultural well-being. These massive irrigation facilities, however, also exacted huge environmental costs while bringing relief and reducing hunger.

## ENDURING CHALLENGES

It is within this complex environmental setting that the South Asian region in recent decades has witnessed an unprecedented scale of human and economic loss. Water-related environmental crises have been tormenting the region. And while clues have been seen in the past, the writing on the wall is now quite clear: water resources are scarce, and as they reach their finite limit, the potential is further heightened for conflict and disaster.

The threats of water-related disasters are manifold. Floods, for example, have become more unsettling than in previous eras. A significant proportion of the geography of Nepal, India, and Bangladesh are vulnerable to frequent floods. For Nepal and Bhutan, in particular, floods caused by the Glacier Lake Outburst have increasingly become a cause of concern. These floods cause widespread destruction of economic and social infrastructure and claim huge casualties. The flip side of the same coin—droughts—are also increasing in incidence. With droughts becoming more frequent, huge areas of agriculture and related activities—on which well over half the population of the region is highly dependent—are coming under greater duress. Droughts are becoming more frequent, in particular, in the southern provinces of Pakistan and Western India.

With populations growing exponentially, the demand for water has also rapidly increased. Indeed, there is no lack of accounts of how social conflicts arising from the problem of access to water have multiplied. As the region continues in its move towards industrialisation, and more

attention is paid to enhancing the power of capital and markets, the water crisis will likely increase in severity and threaten to hit the poor and marginalised communities, the hardest. Water-dependent livelihoods will be exposed to more uncertainties. Coastal regions, for example, are bracing for the severe impact of depleting fisheries; the livelihoods and lives of millions of fisherfolk and their families are at greater risk.

Yet the multilayered challenges of environmental crises do not end with floods and droughts. Flood plains, for their part—which has historically received blessings from the rivers, also being regularly replenished by them—are becoming more vulnerable to landslides. These torrential rains-induced landslides force sediments into dams, reservoirs, and river channels, in turn making the rivers even more unpredictable. With the behaviour of rivers becoming more erratic, hydro-power projects are left vulnerable.

Climate-change science has provided adequate proof that these changes in what used to be the 'natural' cyclical patterns of water, are induced by the warming of the atmosphere. Without a significant turnaround in the phenomenon of global warming, these vulnerabilities are only set to worsen across South Asia. While stories of erratic waters are old, worsening climate change has made such unpredictabilities the norm. Water quality has deteriorated, creating critical impact on human livelihoods and health.

With these rapidly increasing uncertainties, another issue which spells an impact on several nations is hydro-electricity generation, especially in the central and eastern Himalayas. The concerned governments have yet to satisfactorily respond to the various concerns raised by scientists, policymakers, farmers, fisherfolk and grazers, on the possible fall-out from these hydropower projects. An imperative is for some inter-governmental mechanism for dialogues to be put in place, and discussions must then commence on the issues being raised in various platforms. The same inter-governmental dialogues can serve as venue for the sharing of experiences with past hydropower projects,

towards greater mutual understanding about the wide range of issues related to dams and reservoirs, and their link to changing hydrological regimes.

Further, as governments of several nations of this region have in recent years taken to increased investment of capital in hydropower generation, this will have a critical impact on the livelihood practices of communities in both downstream and upstream areas. Such top-down decisions to plan and construct hydropower projects across the region must now take on a different face, and begin including in the processes the voices of the marginalised communities. They are, after all, the ones who are to be made vulnerable to various social, economic and political conflicts that may arise from hydropower generation.

This means that there has been a largely one-sided political and technological attempt to change the hydrological behaviour of transnational water resources. Regional institutions have so far failed to respond to such change and the ensuing crises; this further builds into potential conflicts between nations. For example, as dams and reservoirs are constructed by India in the eastern Himalayas, downstream Bangladesh is criticising these projects for not taking their country into confidence. That these dams and reservoirs will significantly induce environmental and human resettlement problems have already been articulated by the people of Bangladesh.

There is increasing consensus amongst scholars that technological solutions like flood-control programmes should provide more emphasis to local-level actions. The top-down flood-control approach, for one, has been in practice in the countries sharing the Ganga-Brahmaputra-Meghna basins. But, observers say, the views of affected communities are rarely taken into consideration while developing any flood-control plan. The vulnerable communities seldom receive the benefits of such mitigation plans; rather, they are divorced from the customary check-and-balance systems.

## **MINDING THE RIGHTS OF VULNERABLE COMMUNITIES**

What is equally important—in policymaking towards mitigating the ill effects of climate-induced disasters—is that the customary rights of marginalised communities are codified; it must be done before they disappear. At the same time, such codified rights need to be discussed in different forums including legislative institutions, keeping in mind the objectives of putting in place appropriate legislative mechanisms. These moves will give recognition to these traditional communities' understanding, knowledge, and expertise, and give them room in decisionmaking related to their water needs. Such recognition will only come from extensive and inclusive public deliberations, done in concert with other investigations towards the drawing up of appropriate legislation that, once again, is inclusive of customary rights. Top-down technological expertise which had come to the region—largely coinciding with the era of colonialism and re-strengthened by the post-colonial nation-states—should enhance its exchanges with the extensive local knowledge systems. These exchanges go beyond rhetoric or compassion, and realise genuine knowledge-sharing.

As things are, community-based forest management systems have already received significant attention in the region. There are similar widespread local irrigation practices amongst peasant communities. These can provide adequate models for building up sustainable water management systems. Governments should enhance and create more decentralised institutions to engage with the local communities. Such institutions can appropriately explain and inform the agrarian and fishing communities on the climate-induced changes and their impacts on the livelihood practices of these communities.

## LESSONS FROM PAST SHARED EXPERIENCES

Given the importance of the Himalaya, Bay of Bengal, Arabian Sea, Indian Ocean, as well as the monsoon cycles, in defining the region's watery landscape—it is crucial that stable political dialogue be put in place to ensure cooperation between upstream and downstream co-riparians. This can reduce vulnerability by a significant degree. The present arrangement in the form of treaties—for instance between Bangladesh and India or India and Pakistan—should be brought under a comprehensive regional scope. This is possible only through the strength of political will amongst the countries. There is obviously a fresh need for evaluating the present arrangement of treaties signed in the last century to ensure whether they had fulfilled the desired goals and how they have benefitted local communities. Community perspectives will only serve to benefit the process of rethinking these diplomatic and legal apparatuses.

There should be a well-informed system of assessment of flood- or drought-induced damages across the region. This will help in better governance of relief and rehabilitation. Good practices of relief must be comprehensively appreciated. Communities can take the lead in assessing and comparing these measures. Mountain regions and island nations have found many ways to cope with these challenges and these must be shared. Further, there is the imperative for a stronger social and political framework in the region to understand and explain human strategies to adapt to the climate-induced changes in hydrological regimes as chronic, weather-related threats. For instance, the large-scale migration of poor peasant communities across the region due to increasing environmental risks, requires wider public discussion. Moreover, there has to be a recalibration of the present status of engineering knowledge, which are in use for mechanisms to protect against flood-like embankments. Communities have experienced the benefits of these technological answers in different ways.

The region can also collectively enhance their village-based censuses to incorporate detailed information including those on water rights, water resources, and flood-plain-based livelihood practices. The quality of such information is highly variable across areas, and communities can be made aware of the significance of these sets of information in building their capabilities.

## WAYS THROUGH: ENVIRONMENT AS COLLECTIVE RESPONSIBILITY

The collective sharing of data on water will be the hallmark of any meaningful initiative to engage with climate change. Data collection methods and technologies should be sufficiently modernised. Given that current data-sharing mechanisms are not only inadequate but surrounded by secrecy as well, they have failed to help the countries in an effective and sustainable manner. This is particularly true for trans-border rivers. Variables for data collection also need to take into account local communities' expertise and knowledge. Rainfall data, sedimentation data or historical data on monsoon patterns, are some examples of relevant knowledge.

Building up collective research programmes on river systems and floods will have to be a part of any knowledge-building and sharing strategy. Here, universities and other academic institutions should be provided with governmental support. There is no doubt that such research, both in the fields of science and social sciences, is lacking severely. There is also an urgent need to redefine the research agenda related to water management of the region. In the second half of the 20th century, for most of these countries, focus has always been on structural solutions to flood or river engineering to produce hydro-power. Water research should also focus on understanding the relationship between communities' expertise to live alongside the waterscape.

Communities who are located in critical areas or are vulnerable to low-lying or flood-prone habitats should be allowed greater access to resources. This access to resources should take nothing less than a legal form, through the

creation of appropriate legislative mechanisms. It will be a worthwhile experiment if such rights could be uniformly extended to the entire region.

Nations must collectively share historical experiences of co-existence with natural calamities. Such experiences may be gathered from the wide range of everyday life practices of communities living across these nations. This include housing patterns in flood-prone areas, agricultural practices, and management of domestic animals.

The important fact—which must be kept in mind by policymakers sitting at the high table—is that communities across these nations have been coping throughout their lives with the dramatic ups and downs of natural disturbances. These communities have responded to these crises in an organic and dynamic manner; they are the first line of experts.

Legislators from this region should increasingly exchange ideas to address climate-induced water challenges. Experiences of the past few decades in water sharing, water engineering can be appropriately shared by the legislative institutions. There should be wider political engagement on water. Water receives little attention in terms of legislative deliberation and discourse.

Given the complexity and vastness of the geography, the region's nations should engage with the practice of decentralised water bureaucracy. This will help integration of local experiences both in terms of adaptive technology as well as cultural framework. The highly centralised water bureaucracy for each nation often ignores local environmental settings. Such a practice also has a tendency to speak for a generalised and uniform environmental pattern. Yet there is no one size that fits all, and decentralising institutions will enhance the participation of marginalised communities.


Given the chance of rise in floodwater levels, one crucial aspect would be to look for those crops which were traditionally used by agrarian communities and effort should be made to wider dispersal of such practices within the region.

Similar activities should be encouraged for drought-prone regions.

Governments of these nations should discourage further human settlement in the exceedingly flood-vulnerable areas. Low-lying areas were historically cultivated during the winter. Historically this was the practice across flood-plains. Communities with active support from their governments should be encouraged to delineate exceedingly flood-vulnerable plains. Such demarcation should be based on both new and existing risk factors. Decentralised institutions should be put in place to ensure implementation of these flood plains zoning. Communities should be encouraged to secure suitable lands from the governments and customary holdings to settle additional people.

Unlike drought, floods were always seen as a great source of fertility and consolidation of agrarian productivity. After the arrival of technological responses to floods, perceptions changed. The region now makes attempts to take a closer look into this. The experiences of Bangladesh, for example, will be of great help for other governments in this regard.

The existing agricultural universities and research organisations must be more sensitive to climate change. Governments from this region can fund long-term research programmes which can help restore those crops and agricultural practices which had historically withstood the furies of nature.

Perhaps most importantly, and from where policymaking should begin—it begs to be accepted that environmental concerns are bound to affect larger areas in South Asia, irrespective of political boundaries. SAARC member nations must quickly recognise this, and to view the region as a conglomeration of few environmental zones sharing an overarching dependence on monsoon rains and connected by river systems. This paradigm shift should pave the way for a more comprehensive view of the threats of climate-induced vulnerabilities, and help achieve better environmental planning for the region. 

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REFERENCES:

- M. Monirul Qader Mirza & Q. K. Ahmad, *Climate Change and Water Resources in South Asia*, A.a. Balkema Publishers, Leiden, 2005.
- Sangam Shrestha, *Climate Change Impacts and Adaptation in Water Resources and Water Use Sectors: Case studies from Southeast Asia*, Springer: London, 2014.
- Kenneth D. Frederick, David C. Major, 'Climate Change and Water Resource', *Climatic Change*, 37, 1 (1997), pp.7-23.
- W. Neil Adger, et. All, 'Adaptation to climate change in the developing world', *Progress in Development Studies* 3,3 (2003) pp. 179–195.



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