

Article

Strengthening Collective Action on Climate Change in South Asia

PK Khup Hangzo

Abstract

Countries in South Asia are active participants in global multilateral processes aimed at addressing climate change, the United Nations Framework Convention on Climate Change (UNFCCC) in particular. As part of their commitments to the UNFCCC process, these countries have set out national targets for greenhouse gas emission reduction and decarbonisation. However, there is as yet a lack of collective efforts at the regional level. Given South Asia's vulnerability to climate change, the region has a lot to gain by carving out a regional approach to address its multi-faceted impacts. Reviving a neglected regional agenda such as climate change can help address the inevitable cross-border environmental as well as humanitarian crises and reset the much needed regional multilateralism in the process.

The United Nations Framework Convention on Climate Change (UNFCCC) remains the apex global forum for multilateral discussion on climate change. Among its biggest achievements to date is the landmark Paris Agreement—a global treaty to limit greenhouse gases in order to stay within set temperature limits. However, given the complexity of multilateral discussion and the slow pace of progress of the UNFCCC, there is an urgent need to strengthen regional efforts on climate change. This article argues that countries in South Asia have a lot to gain by carving out a regional approach

PK Khup Hangzo is an Associate Fellow at the Vivekananda International Foundation (VIF) specialising in climate change and national security. He is the lead coordinator of the Climate Change Expert Group at VIF that deliberates on the impact of climate change on India. He has a Master's degree in Strategic Studies from the S. Rajaratnam School of International Studies (RSIS), Nanyang Technological University (NTU), Singapore.

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to address climate change and its impacts. The region is one of the most vulnerable in the world to the impact of climate change, and extreme weather events. Reviving a neglected regional agenda such as climate change can help address cross-border environmental as well as humanitarian crises and reset the much needed regional multilateralism in the process. Going forward, collective action on climate change in South Asia should focus on the following: a) Institute regional framework for Humanitarian Assistance and Disaster Response (HADR); b) Advance effective cooperation on transboundary-rivers; c) Advance credible scientific assessment of glaciers in the Hindu Kush-Himalaya; and d) Prepare legal framework for dealing with climate-induced migration.

A Collective Action Problem

Climate change is a global problem that is caused by the burning of fossil fuels in every country of the world. It is also a deeply individually sourced problem to which virtually everyone contributes. Addressing climate change therefore requires a truly collective action and such action can be achieved only through multilateralism. The United Nations Framework Convention on Climate Change (UNFCCC), an intergovernmental treaty that was signed in 1992 during the United Nations Conference on Environment and Development (also known as the Rio Conference or the Earth Summit) in Brazil, is the most important multilateral forum for global action on climate change. The convention, which entered into force in 1994, called for stabilizing greenhouse gas concentrations “at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.”¹ The 198 countries that have ratified the convention are called “Parties to the Convention.” An annual Conference of the Parties, also known as the COP, has been held annually since 1995. The COP is the apex decision-making body and it has produced landmark international climate agreements such as the Kyoto Protocol and the Paris Agreement.

The Kyoto Protocol was adopted on December 11, 1997 during the Third Session of the COP (COP3) in Kyoto, Japan. It was the first international climate treaty to mandate country-by-country reductions in greenhouse gas emissions. Critically, it mandated developed countries to reduce their greenhouse gas emissions by five percent compared to 1990 levels by 2008-2012 and 18 percent compared to 1990 levels by 2013-2020.² However, the world’s biggest emitter of greenhouse gases at the time, the US, refused to ratify the protocol. The Kyoto Protocol eventually came into force in

2005, but by then, it was largely irrelevant. Eventually, both developed and developing countries agreed for the first time to limit greenhouse gases during the 21st Session of the COP (COP21) that was held in Paris, France, in 2015. The resulting Paris Agreement aimed to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels” by the end of this century.³ It was adopted by 196 Parties on December 12, 2015 and entered into force on November 4, 2016. The adoption of the Paris Agreement and its rapid entry into force marked a new milestone in the history of climate multilateralism.

Since then 1.5°C has been considered a critical threshold beyond which the impact of climate change would intensify. As such, it became the primary focus of international climate action. Limiting global average temperature at that level requires a 50 percent reduction in greenhouse gas emissions by 2030 and reaching net zero by 2050. Net zero means cutting greenhouse gas emissions to as close to zero as possible. In an effort to achieve this, countries worldwide have each formulated their Nationally Determined Contributions (NDCs), a key requirement of the Paris Agreement. NDCs are national plans containing targets on emission cuts, usually pegged to 2030 and some details on how they will be met, and they are required to be submitted to the UNFCCC every five years. Submission of the first round of NDCs took place in 2015 ahead of and during COP21 in Paris. The second round of new or updated NDCs was submitted in 2021 ahead of and during COP26 in Glasgow. A number of countries have included a target for net zero emissions in their new or updated NDCs. In all, around 140 countries, covering close to 90 percent of global emissions, have announced or are considering net zero targets as of November 2022.⁴

The World Meteorological Organization (WMO) found that the atmospheric concentrations of the three main greenhouse gases – carbon dioxide, methane, and nitrous oxide – had reached record highs in 2021.

Despite these efforts, global greenhouse gas emissions have not receded. The World Meteorological Organization (WMO), a specialized agency of the United Nations, found that the atmospheric concentrations of the three main greenhouse gases – carbon dioxide, methane, and nitrous oxide – had reached record highs in 2021.⁵ The concentration of carbon dioxide reached 415.7 ± 0.2 parts per million (ppm) or 149 percent of pre-

industrial (1750) levels. The concentration of methane, a greenhouse gas that is more than 25 times more potent than carbon dioxide at trapping heat in the atmosphere, reached $1,908 \pm 2$ parts per billion (ppb) or 262 percent of pre-industrial levels. That was the largest increase in methane concentration ever recorded in history. Meanwhile, the concentration of nitrous oxide, another greenhouse gas that is more potent than carbon dioxide, reached 334.5 ± 0.1 ppb or 124 percent of pre-industrial levels. The WMO further observed that the global average temperature reached 1.15°C above the 1850-1900 average in 2022. Thus the 1.5°C temperature threshold is now perilously close to being breached. A 2022 report by the United Nations Environment Programme (UNEP) underlined the daunting tasks ahead. It observed that even if current pledges for action by 2030 are delivered in full, global average temperature would rise by 2.5°C by the end of this century.⁶ And if the long-term pledges by countries to hit net zero emissions by 2050 were delivered, global temperature would still rise by 1.8°C . The only way forward then is to go beyond what has already been pledged. In other words, more drastic emissions reduction is needed. Even in the face of this, the 27th Session of the COP (COP27) that was held in Sharm el-Sheikh, Egypt, from 6-27 November 2022, failed to secure stronger emissions reduction pledges. In fact, a proposal by India to phase down all fossil fuels failed to find a mention in the final outcome document. COP27, therefore can be deemed a failure, although it did secure an agreement to establish and operationalise a new loss and damage fund.

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The Case for Collective Action in South Asia

Countries in South Asia are enthusiastic participants in the UNFCCC process. Not only are they parties to all the key international treaties and conventions, they have also made national pledges for emissions reduction both for the short-term, i.e., 2030, as well as the long-term net zero emissions (See Table 1). However, given the slow pace of emission reduction globally, these efforts may not be enough to ward off the escalating impact of climate change in the region. It is, therefore, imperative that countries in the region strengthen regional cooperation to collectively tackle the escalating impact of climate change.

Table 1: Commitments of Countries in South Asia

Countries	Short-term pledges for action (by 2030)	Long-term pledges for action (net zero emissions)
Afghanistan	<ul style="list-style-type: none"> • 13.6% reduction in greenhouse gas emissions by 2030. 	No commitment
Bangladesh	<ul style="list-style-type: none"> • 21.85% reduction in greenhouse gas emissions by 2030. • 96.1% emissions reduction from energy sector. • 1.16% emissions reduction from agriculture and livestock, forestry. • 2.74% emissions reduction from municipal solid waste and wastewater. 	No commitment
Bhutan	<ul style="list-style-type: none"> • Currently carbon negative (it is the first country in the world to reach carbon neutrality and carbon negative). • Maintain 436 million tonnes of forest carbon stock outside protected area system. • 50% of total land area to be protected area. 	Net zero by 2030
India	<ul style="list-style-type: none"> • 50% cumulative electric power installed capacity to be derived from non-fossil fuel-based energy resources by 2030. • 45% reduction in emissions intensity of GDP by 2030. • Creation of additional carbon sinks of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover. 	Net zero by 2070
Maldives	<ul style="list-style-type: none"> • 26% reduction of emissions by 2030. 	Net-zero by 2030
Nepal	<ul style="list-style-type: none"> • 15% of total energy demand to be derived from clean energy sources by 2030. • 45% forest cover by 2030. 	Net zero by 2045
Pakistan	<ul style="list-style-type: none"> • 60% of total energy demand to be derived from clean energy sources by 2030. • 50% reduction in greenhouse gas emissions by 2030. • 30% electric vehicles by 2030. • Complete ban on imported coal. 	No commitment
Sri Lanka	<ul style="list-style-type: none"> • 70% of total energy demand to be derived from renewable sources by 2030. • 14.5% reduction in greenhouse gas emissions by 2030. • 32% increase in forest cover by 2030. 	Net zero by 2050

Source: Compiled by the author

South Asia is one of the most vulnerable regions to the impact of extreme weather events. Extreme weather events are “weather phenomena that are at the extremes of the historical distribution and are rare for a particular place and/or time, especially severe or unseasonal weather.”⁷ It includes heat waves, floods, tropical cyclones, tropical storms, etc. These extreme weather events are abrupt, have an immediate impact, and are highly visible. Not surprisingly, they are considered to be the “day-to-day face” of climate change.⁸ While extreme weather events are a natural feature of the climate system, their frequency, intensity, and impacts have worsened as global temperature rises. According to the *Climate Risk Index 2021*, an annual publication of a German think tank that analyses the extent to which countries have been affected by the impacts of extreme weather events, the majority of countries in South Asia were ranked within the top 20 most affected countries in the world in 2019 (See Table 2). In fact, the majority of countries in the region were ranked within the top 20 most affected countries from 2000-2019 (See Table 3).

South Asia is one of the most vulnerable regions to the impact of extreme weather events.

Table 2: Climate Risk Index for 2019⁹

Most affected country in 2019	CRI Rank	Fatalities in 2019 (Rank)	Losses in million US\$ (PPP) (Rank)	Losses per unit GDP in % (Rank)
Afghanistan	6	11	33	15
India	7	1	1	13
Nepal	12	10	42	27
Bangladesh	13	7	20	28
Pakistan	15	8	14	25
Sri Lanka	30	33	48	61
Maldives	111	106	114	76
Bhutan	130	106	130	130

Table 3: Climate Risk Index for 2000-2019¹⁰

Most affected country, 2000-2019	CRI Rank	Average fatalities 2000-2019 (Rank)	Average losses in million US\$ (PPP) 2000-2019 (Rank)	Average losses per unit GDP in % 2000-2019 (Rank)
Bangladesh	7	9	13	37
Pakistan	8	11	7	33
Nepal	10	16	56	40
Afghanistan	17	12	75	56
India	20	3	2	52
Sri Lanka	23	35	28	45
Bhutan	105	131	154	90
Maldives	174	172	171	157

South Asia's vulnerability to extreme weather events was clearer than ever in 2022. For example, in March of that year, north-western India and eastern part of Pakistan were struck by an unusually early, intense, and prolonged heat wave. As a result, India recorded its hottest-ever March and April since records began to be kept in 1901. Also, by May, large parts of India recorded temperatures between 45°C and 50°C. Similar trends were also observed in Pakistan. The record-breaking heat wave was estimated to have led to at least 90 deaths across both countries. It also reduced India's wheat crop yields. A shortage of coal further led to power outages in the country and limited access to cooling. The heat wave triggered an extreme Glacial Lake Outburst Flood (GLOF) in northern Pakistan, destroying homes, hydropower plants, and bridges. It also triggered forest fires in India. Scientists have projected that parts of South Asia, northern India in particular, may soon become the region of the worst heat waves on the planet after the Persian Gulf.¹¹ However, the impact of extreme heat in South Asia could be vastly more severe. This is because the highest concentrations of heat in the Persian Gulf would be out over the waters of the Gulf itself, with lesser levels over inhabited land. But in South Asia, the highest concentrations of heat would be over densely populated land.

Then, from mid-June until the end of August last year, Pakistan was struck by an apocalyptic flood caused by record-breaking monsoonal rainfall. The flood submerged over 30 percent of the country's territory.¹² In all, more than 33 million people were

affected and 1,500 died. The flood also destroyed 1.7 million homes, 6,700 kilometers of road, 269 bridges, and 1,460 health facilities. Around 18,000 square kilometers of cropland were also ruined, including roughly 45 percent of the cotton crop – one of Pakistan’s key exports. In all, total damages are estimated to exceed USD 14.9 billion.¹³ Total economic losses in turn were estimated at USD 15.2 billion. It is important to note that floods are a recurrent phenomenon in mainland South Asia, and they are the single most frequent disaster faced by countries of the region.

Beyond these sudden-onset events, South Asia is also threatened by slow-onset events that occur over the course of a prolonged period of months to years. Consider, for example, sea level rise. It is caused by a combination of melted water from glaciers and ice sheets, and the thermal expansion of seawater as it warms. The global mean sea level has risen by about 8-9 inches since 1880. By 2100, it was projected to rise by at least 12 inches. According to India’s Ministry of Earth Sciences (MoES), the North Indian Ocean has risen by 0.04-0.06 inch per year during 1874-2004 but has accelerated to 0.12 inch per year during 1993-2017.¹⁴ Sea level rise threatens South Asia’s long and heavily populated coastlines. Countries like the Maldives are especially vulnerable to it. With no ground surface higher than 9.9 feet (3 meters) and 80 percent of the land area lying below 3.3 feet (1 meter) above average sea level, the Maldives is the flattest and the lowest-lying country on Earth.¹⁵ Sea levels and coastal erosion, therefore, pose a grave threat to its very existence. Thus, sea-level rise could trigger large-scale migration in South Asia, with ripple effects across borders. It could also lead to saline water intrusion, threatening drinking water supply, agriculture, and aquaculture.

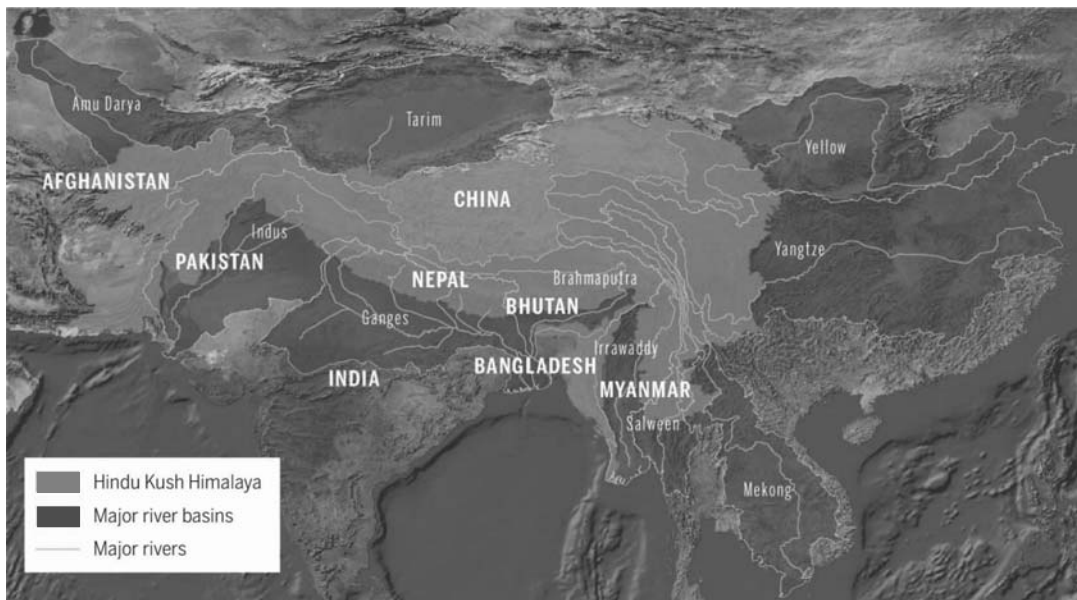
Another slow-onset event that could have a devastating impact in South Asia is the melting of glaciers of the Hindu Kush and the Himalaya. The Hindu Kush-Himalaya extends over 3,500 kilometers across eight countries, namely Afghanistan, Pakistan, India, Nepal, Bhutan, China, Bangladesh, and Myanmar. In all, the region contains an estimated 54,000 glaciers.¹⁶ This is the largest concentration of glaciers in the world after the Arctic and the Antarctic. As a result, the Hindu Kush-Himalaya is also referred to as “the third pole.” The Tibetan Plateau in Southwest China contains the largest concentration of glaciers in the Hindu Kush-Himalaya, about 46,000 or 14.5 percent of the global total.¹⁷ The glaciers of the Hindu Kush-Himalaya, those located in the Tibetan Plateau in particular, are the source of ten of Asia’s largest rivers, namely Amu Darya, Brahmaputra, Ganges, Indus, Irrawaddy, Mekong, Salween, Tarim, Yangtze, and Yellow. As a result, the Hindu Kush-Himalaya is aptly referred to as Asia’s “water tower.” An

estimated 1.9 billion people living in the mountains and downstream benefitted directly and indirectly from the rivers that originated from the Hindu Kush-Himalaya.

Glaciers of the Hindu Kush-Himalaya face a growing threat from rising temperatures. The Tibetan Plateau, like the other two poles, has warmed at a rate up to three times as fast as the global average. A 2019 landmark report by the Kathmandu-based International Centre for Integrated Mountain Development (ICIMOD) warned that even if the Paris Agreement's goal of limiting global warming to 1.5°C above pre-industrial levels by 2100 is met through rapid cut in carbon emissions, the Hindu Kush-Himalaya will still

Glaciers of the Hindu Kush-Himalaya face growing threat from rising temperature.

experience more than 2°C of warming.¹⁸ As a result, at least 36 percent of the region's glaciers will melt. However, if emissions are not reduced, temperature could rise by 5°C and 66 percent of the glaciers will melt. That will have adverse impacts on rivers that originated from the region. Besides changing the water flow regime of transboundary-rivers, accelerated melting of glaciers could also trigger landslides and GLOF, aggravate the impact of extreme rainfall, affect the safety and productivity of hydropower dams, and cause food and water security risks in South Asia and beyond.



The Hindu Kush-Himalaya region¹⁹

Key Areas for Collective Action

The South Asian Association for Regional Cooperation (SAARC) remains the preeminent organisation for intra-regional cooperation on climate change in South Asia. SAARC was established in 1985 and it includes Afghanistan, Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka. Climate change has increasingly emerged as a key issue for SAARC. For example, the Dhaka Declaration on Climate Change that was adopted during the SAARC Ministerial Meeting on Climate Change in Dhaka, Bangladesh in 2008 committed member states to “promote programmes for advocacy and mass awareness raising on climate change and to inculcate habits towards a low carbon society.”²⁰ It also called for enhanced cooperation on capacity building, exchanges of best practices, adaptation, etc. Critically, the SAARC Action Plan on Climate Change was also adopted during the meeting. The plan sought to identify and create opportunities for regional cooperation around seven thematic areas - adaptation, mitigation, technology transfer, finance and investment, education and awareness, management of impacts and risks due to climate change, and capacity building for international negotiations. The Thimphu Statement on Climate Change that was adopted during the Sixteenth SAARC Summit in Thimphu, Bhutan in 2010 further committed member states to review the implementation of the Dhaka Declaration and the SAARC Action Plan on Climate Change; undertake advocacy and awareness programmes to promote the use of green technology and best practices to promote low-carbon sustainable and inclusive development; establish institutional linkages to facilitate the sharing of knowledge, information, and capacity building programmes, etc.²¹ The statement also called upon SAARC to commission an inter-governmental expert group on climate change and to undertake four initiatives pertaining to the ocean, the mountains, the monsoon, and disasters.

Besides SAARC, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) has also been leveraged for collective action on climate change in South Asia and beyond. BIMSTEC was founded in 1997 and it currently has seven members - Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand. BIMSTEC aims to enhance cooperation among its members in agriculture, climate change, culture, counterterrorism and transnational crimes, energy, environment and disaster management, fisheries, people-to-people contacts, poverty alleviation, public health, tourism, trade and investment, technology, and transport and communication. Climate change has also emerged as a growing area of interest for BIMSTEC. During the Third

BIMSTEC Summit that was held in Nay Pyi Taw, Myanmar in 2014, the Memorandum of Association (MoA) on the establishment of the BIMSTEC Centre on Weather and Climate (BCWC) was signed. Soon thereafter, BCWC was set up at the National Centre for Medium-Range Weather Forecasting (NCMRWF) in Uttar Pradesh, India. It focuses on weather forecasts, early warning, capacity building, etc. Furthermore, during the Seventeenth BIMSTEC Ministerial Meeting that was held virtually in Colombo, Sri Lanka, in 2021, a Joint Working Group on Environment and Climate Change was established. The working group is expected to prepare a plan of action on climate change soon.

Despite the aforementioned initiatives, South Asia has struggled to advance effective regional cooperation on climate change owing to a number of factors. Chief among them is the historical tensions and conflict between India and Pakistan, the two biggest members of SAARC, over their contested borders and territories. That has produced political sensitivities and a deficit of trust between them. As a result, SAARC has often been unable to advance its climate agendas. However, it is clear that there is a growing need for collective action in South Asia. Indeed, there is a lot to be gained by countries in the region carving out a regional approach to climate change and the potential benefits of such cooperation are limitless. Going forward, South Asia should continue to strengthen regional cooperation in the following areas that are of common concern to countries of the region.

There is a lot to be gained by countries in the region carving out a regional approach to climate change.

a. Institute a Regional Framework for Humanitarian Assistance and Disaster Response (HADR)

The 2004 Indian Ocean tsunami highlighted the need for effective regional mechanisms for Humanitarian Assistance and Disaster Response (HADR) in South Asia. The SAARC Disaster Management Centre (SDMC) that was established in 2006, aimed to facilitate joint emergency preparedness and response among member states. SDMC has since produced some useful guidelines and conducted important technical disaster response trainings. Then in 2011, SAARC approved the Agreement on Rapid Response to Natural Disasters (SARRND) with the aim of setting up a dedicated rapid action force for disaster management. However, SAARC leaders failed to gather consensus on the issue, and this remains a point of contention. Disaster management also finds a place among BIMSTEC's priority areas of cooperation. Certain policy initiatives have

been undertaken, including the establishment of the BIMSTEC Centre for Weather and Climate (BCWC). The BCWC has held a workshop on building disaster-warning systems for member countries. Also, joint exercises on disaster responses have been carried out from time to time under the auspices of BIMSTEC. Clearly, the legal and institutional frameworks for joint HADR have been put in place in South Asia. But their implementation remains a major challenge. Unsurprisingly, no SAARC or BIMSTEC level contingent has ever been deployed during emergencies in South Asia. With the projected increase in the frequency and intensity of extreme weather events, the need for SAARC or BIMSTEC to build a regional mechanism for coordinated efforts on HADR will grow. HADR can thus act as a tool for reviving and strengthening regional cooperation in South Asia and beyond.

b. Advance Effective Cooperation on Transboundary Rivers

Countries in South Asia have signed rules-based and legally binding water-sharing and management treaties among them. Examples include the 1960 Indus Water Treaty between India and Pakistan, the 1996 Mahakali Treaty between India and Nepal, and the 1996 Ganges Treaty between India and Bangladesh. However, no such treaty existed between countries in South Asia and China, arguably the most important upper riparian country. For China, transboundary rivers are “sovereign resources” that should be exploited in an unrestricted manner. As such, the country viewed rules-based and legally binding, multilateral or bilateral water-sharing treaties as an infringement upon its sovereignty and hence detrimental to its national interests. Not surprisingly, China has spurned India’s proposal to institute a water commission, an inter-governmental dialogue, or a water-sharing treaty between them. The absence of rules-based and legally binding water sharing and management treaties between China and its riparian neighbours in South Asia has allowed the country to build dams unilaterally on its section of rivers, such as the Brahmaputra. That has raised tensions between the country and its riparian neighbours from time to time. However, the prospect of accelerated melting of glaciers in the Hindu Kush-Himalaya due to rising global temperatures has transformed the context for cooperation. Countries in South Asia need to band together under the auspices of SAARC and they should call upon China to join them in establishing a regional framework for cooperation on transboundary-rivers.

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c. Advance Credible Scientific Assessment of Glaciers

Glaciers play an important role in sustaining the perennial water supply to transboundary rivers that originated from the Hindu Kush-Himalaya. As such, information about them is critical for assessing regional water resources, hazard management applications, and climate change impact studies. However, there is a lack of data on the snow and glacial resources of the Hindu Kush-Himalaya due to the absence of a comprehensive and coordinated assessment. Besides, there are also disagreements, and even confusion, within the scientific community over the probable rate of glacier melting and its potential socio-economic, political, and ecological impacts. For example, the Intergovernmental Panel on Climate Change (IPCC) estimated in 2007 that glaciers in the Himalayas could disappear by 2035.²² But that was later found to be “unrealistic”²³ and was retracted. This high-profile “error” from the world’s top climate science body underscored the need for a long-term consistent glacier database to support assessments of the status of glaciers across the region.

Countries of the Hindu Kush-Himalaya region have already shown interests in forging cooperation in this regard. For example, India and China had attempted to cooperate on glacial research in 2009 but that has since been deferred. More recently, Afghanistan, Bhutan, India, Nepal, and Pakistan formed the Hindu Kush-Himalaya Glaciers and Mountain Economy Network in 2018 to develop joint strategies to slow down glacier and snowmelt caused by climate change and pollution. The absence of China, however, left a gaping hole in the effort. A regional platform for comprehensive and coordinated assessment of glaciers, therefore, is needed. Such a platform can help increase evidence-informed understanding and decision-making at all levels of public policy, discourse, and action.

A regional platform for comprehensive and coordinated assessment of glaciers is needed.

d. Enhance Intra-regional Electricity Trade

South Asia currently does not have an integrated electricity market and existing intra-regional electricity trade in the region is limited to India-Bhutan, India-Bangladesh and India-Nepal. However, growing demand for electricity, along with the region’s commitment to decarbonisation has led to growing interest in building intra-regional electricity interconnection throughout the region and even beyond. For example, the

SAARC Energy Ring – an interconnected electricity system covering the entire region – was mooted during the Twelfth SAARC Summit that was held in Islamabad, Pakistan, in 2004. That was followed by the signing of the SAARC Framework Agreement for Energy Cooperation (Electricity) during the Eighteenth SAARC Summit in Kathmandu, Nepal in 2014. The agreement aimed to create an interconnected power system to facilitate cross-border electricity trade throughout South Asia. During the Fourth BIMSTEC Summit that was held in Kathmandu, Nepal, in 2018, member countries signed a MoU for the establishment of the BIMSTEC Grid Interconnection. The MoU laid down the broad contours for grid interconnections and electricity trade among BIMSTEC member states. The first meeting of the BIMSTEC Grid Interconnection Coordination Committee (BGICC) was held virtually in Nay Pyi Taw, Myanmar in 2021. The meeting discussed, among other things, the need to formulate a BIMSTEC Policy for Transmission of Electricity and a BIMSTEC Policy for Trade, Exchange of Electricity and Tariff Mechanism. Clearly, institutional arrangements for intra-regional electricity trade have taken shape in South Asia. Despite this, progress has been slow and much more needs to be done to harmonise electricity laws, regulatory mechanisms, grid codes, etc.

e. Prepare Legal Framework for Dealing with Climate Change-induced Migration

To date, there are only a few cases where climate change is the sole factor prompting migration. Despite this, it is widely recognised that climate change could be a contributing and exacerbating factor in future migration. The International Organisation for Migration (IOM) has cited estimates of as many as one billion “environmental migrants” in the next 30 years.²⁴ More recent projections pointed to 1.2 billion by 2050²⁵ and 1.4 billion by 2060.²⁶ After 2050, that figure is expected to soar as the world warms further and the global population rises to its predicted peak in the mid-2060s. Hotspots of climate migration may start to emerge as early as 2030, as people leave places that can no longer sustain them and go to areas that offer opportunities. South Asia is unlikely to be immune from this phenomenon. Already, an estimated one million people in Bangladesh are displaced by floods, cyclones, riverbank erosion, etc., every year. It was predicted that by 2050, one in every seven people in the country will be displaced from their place of origin due to climate change.²⁷ Besides, rising sea levels may prompt people living in the Maldives and low-lying coastal regions in South Asia to migrate. On the whole, the World Bank projected that there could be 40 million internal climate

migrants in South Asia by 2050.²⁸ As yet, there is no legal mechanism to address such migration. Existing legal protections afforded to refugees do not extend to them. Thus, the intersection of climate change and migration requires new, nimble, and comprehensive solutions to the multidimensional challenges it creates.

Epilogue

The impact of climate change is already being felt across South Asia. More than anything else, this is evident in the growing frequency and intensity of extreme weather events, including heat waves, floods, tropical cyclones, etc. Although countries in the region are active participants in the global multilateral process aimed at addressing climate change, there is a lack of collective efforts at the collective level. Given its vulnerability, South Asia has a lot to gain by carving out a regional approach to address the impact of climate change. Towards this end, SAARC has been instrumental in pushing through key policy initiatives that included, among other things, the SAARC Action Plan on Climate Change, the SAARC Agreement on Rapid Response to Natural Disasters, and the SAARC Framework Agreement for Energy Cooperation (Electricity). Although SAARC has lost momentum in recent years, member states should not abandon these initiatives and instead should build upon them. Meanwhile, BIMSTEC has also emerged as a critical platform for advancing cross-border electricity trade and regional architecture for HADR. Beyond these, there is an urgent need to institute a framework for comprehensive, credible, and coordinated assessment of glaciers in the Hindu Kush-Himalaya belt. Comprehensive and credible information on the glaciers of the Hindu Kush-Himalaya is critical for assessing regional water resources, hazard management applications, and climate change impact studies. Finally, countries in South Asia should stay ahead of the curve with respect to climate change-induced migration by initiating discussions on the required policy and legal frameworks. SAARC and BIMSTEC, therefore, have a vital role to play in bringing the discussions on these pertinent issues beyond the policy dialogue and turning them into tangible actions and solutions. Doing so will greatly enhance South Asia's ability to lessen the impact of climate change.

References

1. "United Nations Framework Convention on Climate Change - UNFCCC." FCCC/INFORMAL/84 GE.05-62220 (E) 200705, Secretariat of the United Nations Framework Convention on Climate Change, Bonn, 1992. <https://unfccc.int/resource/docs/convkp/conveng.pdf>.

2. "Kyoto Protocol to the United Nations Framework Convention on Climate Change." United Nations Framework Convention on Climate Change (UNFCCC), 1998. <https://unfccc.int/resource/docs/convkp/kpeng.pdf>.
3. "Paris Agreement - No. 54113." United Nations, December 12, 2015. <https://treaties.un.org/doc/Publication/UNTS/No%20Volume/54113/Part/I-54113-0800000280458f37.pdf>.
4. "CAT Net Zero Target Evaluations." Climate Action Tracker (CAT), November 2022. <https://climateactiontracker.org/global/cat-net-zero-target-evaluations/>.
5. "WMO Provisional State of the Global Climate 2022." World Meteorological Organization (WMO), 2022. https://library.wmo.int/doc_num.php?explnum_id=11359.
6. "Emissions Gap Report 2022: The Closing Window - Climate Crisis Calls for Rapid Transformation of Societies." United Nations Environment Programme (UNEP), 2022. <https://www.unep.org/resources/emissions-gap-report-2022>.
7. Institute of Medicine (US) Forum on Microbial Threats. *Global Climate Change and Extreme Weather Events: Understanding the Contributions to Infectious Disease Emergence: Workshop Summary*. Washington DC: National Academies Press (US), 2008. <https://www.ncbi.nlm.nih.gov/books/NBK45750/>.
8. "Four Key Climate Change Indicators Break Records in 2021." World Meteorological Organization (WMO), Press Release, Number 18052022, May 18, 2022. <https://public.wmo.int/en/media/press-release/four-key-climate-change-indicators-break-records-2021>.
9. Eckstein, David, Vera Kunzel, and Laura Schafer. "Global Climate Risk Index 2021." Germanwatch, January 2021. https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_1.pdf.
10. Ibid.
11. Chandler, David L. "Deadly Heat Waves Could Hit South Asia This Century." MIT News| Massachusetts Institute of Technology, August 2, 2017. <https://news.mit.edu/2017/deadly-heat-waves-could-hit-south-asia-century-0802>.
12. Otto, Friederike E. L. et al., "Climate Change likely Increased Extreme Monsoon Rainfall, Flooding Highly Vulnerable Communities in Pakistan." World Weather Attribution, September 14, 2022. <https://www.worldweatherattribution.org/wp-content/uploads/Pakistan-floods-scientific-report.pdf>.
13. The Government of Pakistan, Asian Development Bank, European Union, United Nations

- Development Programme, World Bank. Rep. *Pakistan Floods 2022: Post-Disaster Needs Assessment*, October 2022. <https://thedocs.worldbank.org/en/doc/4a0114eb7d1cecbbf2f65c5ce0789db-0310012022/original/Pakistan-Floods-2022-PDNA-Main-Report.pdf>.
14. Krishnan, R. et al (eds.), "Assessment of Climate Change over the Indian Region: A Report of the Ministry of Earth Sciences (MoES), Government of India - India." Ministry of Earth Sciences (MoES), Government of India, June 2020. <https://reliefweb.int/report/india/assessment-climate-change-over-indian-region-report-ministry-earth-sciences-moes>.
 15. "Republic of Maldives." Climate Hot Map-Global Warming Effects Around the World, Union of Concerned Scientists, 2011. <https://www.climatehotmap.org/global-warming-locations/republic-of-maldives.html#:~:text=With%20no%20ground%20surface%20higher,the%20flattest%20country%20on%20Earth>.
 16. Bajracharya, Samjwal Ratna and Basanta Shrestha (eds.), "The Status of Glaciers in the Hindu Kush-Himalayan Region," International Centre for Integrated Mountain Development (ICIMOD), 2011. https://www.preventionweb.net/files/24231_icimodthestatusofglaciersinthehindu.pdf.
 17. "Tibet's Glaciers Retreat, Even as Protection Advances." Chinese Academy of Sciences (CAS), April 23, 2015. https://english.cas.cn/newsroom/archive/china_archive/cn2015/201504/t20150423_146594.shtml.
 18. Wester, Philippus et al., (eds.), *The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People*. Cham: Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP), International Centre for Integrated Mountain Development (ICIMOD), Springer, 2019. <https://link.springer.com/book/10.1007/978-3-319-92288-1>.
 19. Wester, Philippus et al., "The Hindu Kush Himalaya Call to Action: Sustaining Mountain Environments and Improving Livelihoods." *Mountain Research and Development* 40, No. 1 (2020). <https://doi.org/10.1659/mrd-journal-d-20-00040.1>.
 20. "SAARC Environment Ministers Dhaka Declaration on Climate Change." South Asian Association for Regional Cooperation (SAARC), July 3, 2008. https://thimaaveshi.files.wordpress.com/2009/10/saarc-declaration_dhaka.pdf.
 21. "Thimphu Statement on Climate Change." Ministry of External Affairs (MEA), Government of India, 2010. https://www.mea.gov.in/Uploads/PublicationDocs/3808_30th-april-2012-bil.pdf.
 22. Parry, Martin et al., (eds.), Rep. *Climate Change 2007 – Impacts, Adaptation and Vulnerability*.

- Cambridge, UK: Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Intergovernmental Panel on Climate Change (IPCC), Cambridge University Press, 2007. https://www.ipcc.ch/site/assets/uploads/2018/03/ar4_wg2_full_report.pdf.
23. Carrington, Damian. "IPCC Officials Admit Mistake over Melting Himalayan Glaciers." *The Guardian*, January 20, 2010. <https://www.theguardian.com/environment/2010/jan/20/ipcc-himalayan-glaciers-mistake>.
 24. Brown, Oli. "Migration and Climate Change." IOM Migration Research Series. No. 31, International Organization for Migration (IOM), 2008. <https://publications.iom.int/books/mrs-no-31-migration-and-climate-change>.
 25. "Over One Billion People at Threat of Being Displaced by 2050 Due to Environmental Change, Conflict and Civil Unrest." Institute for Economics and Peace, September 9, 2020. <https://www.economicsandpeace.org/wp-content/uploads/2020/09/Ecological-Threat-Register-Press-Release-27.08-FINAL.pdf>.
 26. Geisler, Charles, and Ben Currens. "Impediments to Inland Resettlement under Conditions of Accelerated Sea Level Rise." *Land Use Policy* 66 (2017): 322–30. <https://doi.org/10.1016/j.landusepol.2017.03.029>.
 27. Chowdhury, Md. Arif et al., "Climate Change Impacts and Adaptations on Health of Internally Displaced People (IDP): An Exploratory Study on Coastal Areas of Bangladesh." *Heliyon* 6, No. 9 (2020). <https://doi.org/10.1016/j.heliyon.2020.e05018>.
 28. Clement, Viviane et al., "Groundswell Part 2: Acting on Internal Climate Migration." International Bank for Reconstruction and Development / The World Bank, 2021. <https://openknowledge.worldbank.org/handle/10986/36248>.