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Calibrating Climate Conflict and Poverty in South Asia

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Abstract

South Asia faces multi-dimensional vulnerabilities. The region is one of the densely populated region housing 23 percent of world's population on barely 3 percent of the land area. It accounts for world's 24 percent population living in extreme poverty. Muti-dimensional Poverty which is based on deprivation in terms of health, living standard and education also features South Asia in its lowest. The region is also one of the worst affected by climate change. Adverse effects of climate change are visible in the region in terms of increase in sea level, reduction in agricultural productivity, increase in floods and droughts. Therefore, the primary objective of this article is to show that the combination of the adverse effects of climate change and existing poverty can act as an accelerant of conflict or instability in the countries of the region which can be source of inter-state conflict. This article is based on secondary sources like articles in book, journals, policy reviews and internet sources of relevant international organizations to analyze the same. The paper identifies that the problem of climate refugees and hydrological war is the most pressing source of inter-sate conflict in the region. The paper suggests that pan South Asian institutional mechanism like South Asian Association of Regional Cooperation (SAARC) should be utilized for fighting climate change and associated vulnerabilities. Though SAARC has been rifted due to political difference yet climate change can be a common point of convergence to revive the organization. In the end the paper provides some policy recommendations in context to SAARC that can be included to manage the problem.

Keywords Climate Change, South Asia, Conflict, Poverty

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1. Introduction

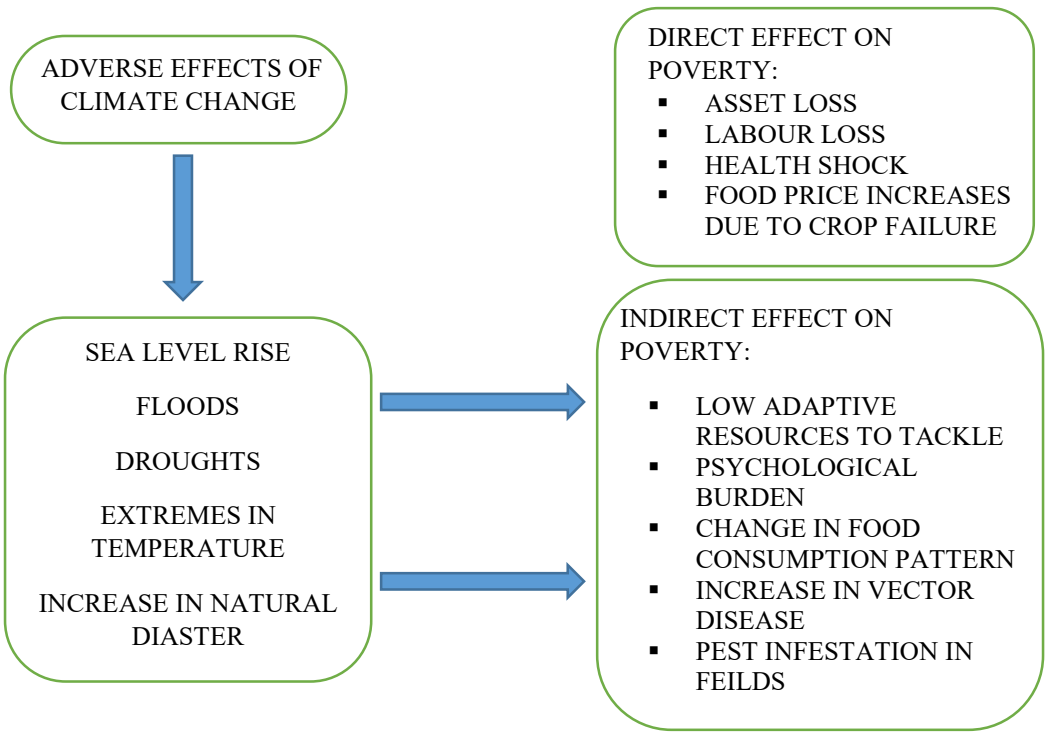
South Asian region comprises of eight countries (India, Pakistan, Bangladesh, Nepal, Bhutan, Sri Lanka, Maldives and Afghanistan) which constitute 1.9 billion people (World Bank, 2023a), roughly translating to 23% of the world's population on 3 % of world's land area. The member countries of South Asia share a common colonial past and similarity of emergence as independent countries. The common colonial past has been also responsible for their economic framework which was based on import substitution growth model. In the early nineties the waves of globalization brought structural economic changes in the countries at a similar juncture, yet this has benefited only a small percentage of its huge population. The region is still shrouded in poverty. It has 24 % of the population which is extremely poor which means that they live below the international poverty line of US 2.15 $. In terms of multi-dimensional poverty the region performs low on the indicators. Besides poverty, the region is exposed to adverse effects of climate change like sea level rise, increase in droughts, flood and reduction in agricultural productivity the combination of the adverse effects of climate change and existing poverty can act as an accelerant of conflict or instability in the countries of the region and be a source of inter-state conflict.

2. Climate Change, Poverty and Conflict: Identifying the Relational Dimensions

There is considerable amount of literature concentrating on how climatic shocks and stresses including increased events of drought, extreme rainfall, changes in sea level, storms etc are affecting resource-based livelihoods of populations (Barua, Katyaini, Mili, & Gooch, 2014), (Benessaiah, 2012). Rayor and Malone (2001) points out that climate change and poverty is linked by the issues of vulnerability. Equity issues arises due to qualitative difference in the nature of climate change and policy adopted. These policies impact the poor and the better off differently. Food and Agriculture Organization of United Nations (2015) states that climate change is 'profoundly modifying' conditions under which agriculture has been conducted since ages. Climate change has direct and indirect impact on agricultural production. Changes like increase or decrease in rainfall, temperature can directly effect in reducing the production of agricultural crops. Indirectly changes related to pest infestation, vector and invasive species can also reduce the yield. Both direct and Indirect effects of climate change on agriculture can significantly reduce farmers income and thus jeopardize food security. When income become unstable it can push a significant portion of population into poverty and also be the reason for intra-generational transmission of poverty. When agricultural fields are destroyed due to flood or natural disaster it also leads to loss of labour which could have been a source of income. Similarly, while analyzing climate-change and poverty, Leichenko and

Saliva (2014) has brought about the direct and indirect effects on poverty. Food prices and agricultural production channels are the most direct channels through which climate change can affect poverty. The rural and as well as the urban poor are the most vulnerable sections that are directly affected by vulnerabilities of climate change. While all human systems are integrally dependent upon ecosystem services, poor individuals in developing countries are more directly dependent on these services than wealthier individuals and those living in developed countries who are able to substitute manufactured capital for natural capital and who rely on fossil fuel (Fisher et al., 2013). Impacts on physical and mental health represent another avenue through which climate change can indirectly contribute to impoverishment. Due to excess rainfall and precipitation clean drinking water may be affected in rural areas due to contamination, rising temperature may also lead to deadly pathogen in the freshwater sources. (UNICEF, 2023b). Diseases that like malaria, dengue, dysentery is expected to increase which can lead to lower the improvement in poverty by increasing the spending on healthcare. Therefore climate change is an obstacle to eradicate poverty. Also the fact that poor sections have low safety net in society makes them less adaptive to the vulnerabilities of any sort.

Figure 1: Direct and Indirect effect of climate change on poverty.



Source: Author's own representation

While there is considerable work done to depict the effect of climate change on poverty, there remains a sufficient gap in identifying the way climate change can cause conflicts. Homer-Dixon (1994) presents an analysis of the causal relationship between social effects of environmental changes and conflict. He identifies that four principal social effects may in single or in combination substantially increase the probability of acute conflict in developing countries. The social effects which have the possibility of producing conflict are--decrease in agricultural productivity, economic decline, population displacement and disruption in authoritative institutions. According to Department of Defense (2010), climate change could have 'significant geopolitical impacts around the world', this can happen by contributing to increased poverty, environmental degradation and weakening of fragile government systems around the world. It can jeopardize human security in totality. While climate change alone does not cause conflict, it 'may act as an accelerant of instability or conflict' placing a burden to respond on various civilian institutions and militaries around the world to address the needs. For International Committee of Red Cross Society (2023), in places like Somalia, which has been weakened by decades of conflict people have been forced to be displaced. Coupled with the conflict and instability repeated droughts and floods have added to the miseries. Climate shocks have had a severe effect on the livestock of the local communities. In the Sahel region, an unpredictable climate and environmental degradation make the survival of remote and impoverished communities more difficult. In these regions coping mechanisms are drastically reduced by the violence and instability. According to Conflict and Environment Observatory (2022), "Conflicts generate pollution, create the conditions where polluting practices can flourish, and impede the ability of states to address the harm it causes." Thus the term conflict-pollution is widely used to signify anthropogenic pollution from the direct and indirect consequences of war. Pollution can result from ways that wars are fought and also because of the worsening economic and societal situations associated with the conflicts or war. Institutional collapses and the low priority given to environmental matters in conflict prone areas accentuate pollution and its effect on people and livelihood (UNEP, 2017). Conflict pollution can also inflict physical, psychological and cultural harm on individuals and communities. Direct consequences of conflict pollution is still evident in countries like France and Belgium where some regions suffer from heavy metal contamination due to use of conventional mutations during World War I (Ibid). During the Gulf war in 1990s more than 700 oil fields in Kuwait were burned and smoke engulfed the sky for days creating dense fume. Also more than 11 million barrel of crude oil were poured into the Persian Gulf creating 9 mile long slick. The incident directly contributed for pollution which adds to worries of climate change (The Guardian, 2021). Similarly in conflict affected regions of Syria makeshift oil refineries are operated for income generation and fuel requirement. In these refineries most of the work is done by

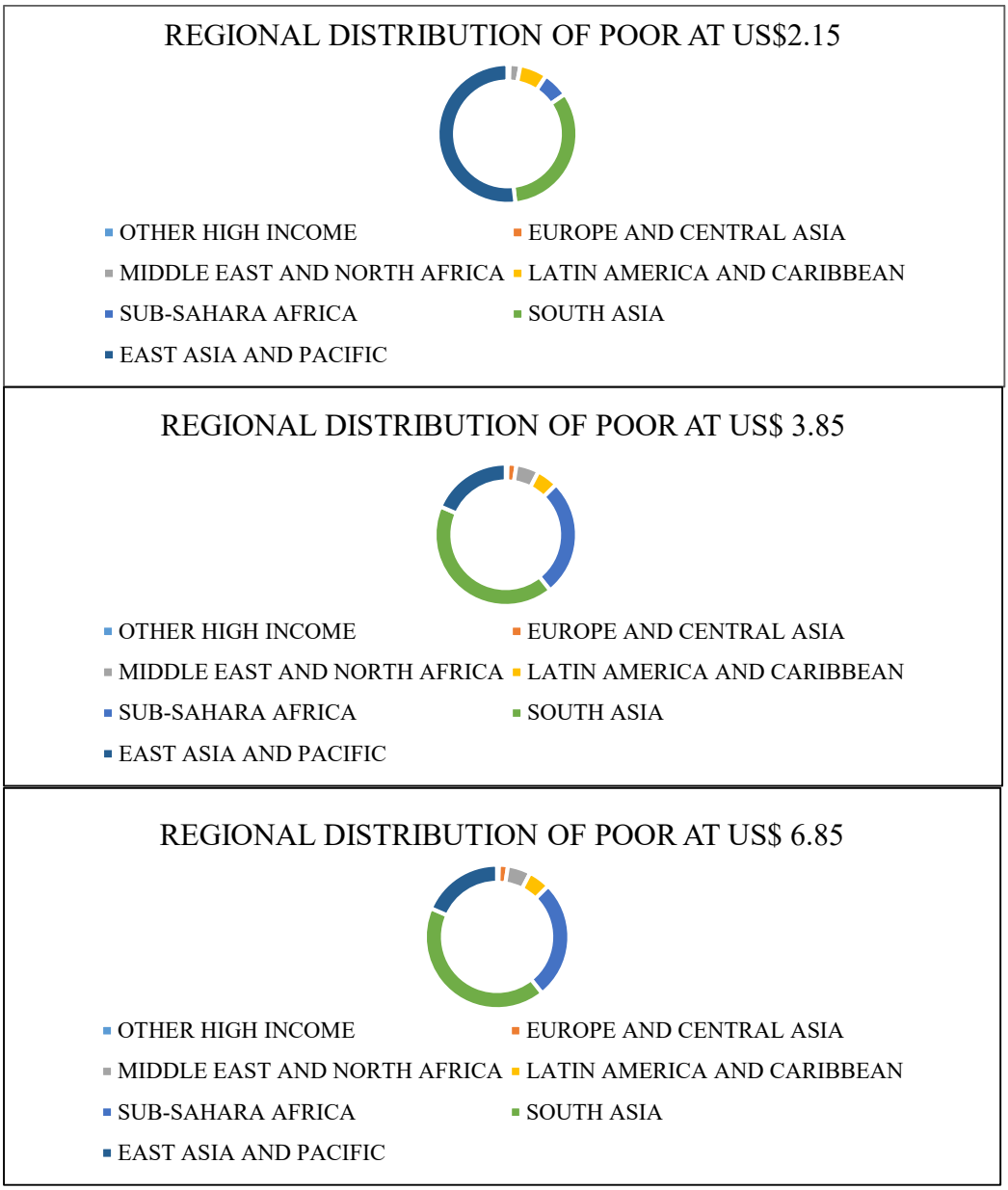
children and the refining process creates fumes and smoke dangerous to health and environment. (UNEP, 2017). Climate change is often seen as a multiplier of conflict in areas with vulnerabilities of various sort. For example, in already conflict prone countries like Afghanistan, The New York Times (2021), reports that warming resulting from global climate change acts as a significant trigger that can amplify conflicts over water and other natural resources thereby affecting earning and income. Is it also estimated that Afghanistan will face severe water shortage not because of less precipitation but increasing temperature which will raise the rate of evapotranspiration leading to water stress and diminished ground water resources. (Stockholm International Peace Research Institute, 2022). This in general will affect the Afghan society which is highly depended on agriculture based on irrigation. Parenti (2015) shows that the water stress and drought has led to a remarkable shift in the cultivation pattern in Afghanistan. Poppy seed cultivation which requires much less water has come to replace most of the crops in vast areas of Afghanistan as farmers are left with little choices of alternative earrings. The money which comes from selling of poppy seed is used in funding various terrorist outfits. According to United Nations Office of Drugs and Crime (UNODC) the areas under cultivation of poppy seeds in Afghanistan increased by over 32% in 2022 but at the same time the yield per hector declined by 10% due to drought conditions. (United Nations Office of Drugs and Crime, 2022). In the above case it is not difficult to co-relate that drought and water stress is causing a shift in the pattern of cultivation as alternative crops are more difficult and costly to produce but at the same time poppy yields per hector have declined due to water shortage. It will not be so difficult to predict that if this trend continues along with Taliban's ban on poppy cultivation, conflict will be evident due to socio-economic and environmental factors.

3. Poverty in South Asia

According to Intergovernmental Panel on Climate Change (2023), in regions like South Asia the per capita emission of Green House Gases (GHG) is one of the lowest in comparison to the global average yet the region has high vulnerability to climatic hazards. Also the report notes that the continued rate of warming climate related changes in food availability and diet quality is going to be impacted. Nutrition related disease and number of undernourished people will increase in the region. Agarwal, Balasundharam, Blagrave, Cerutti, Gudmundsson, and Moussa (2021) notes that with high population density and high level of poverty, South Asia is considered one of the most vulnerable regions of the world affected by climate change. According to World Bank (2021), The region is living through a "new climate normal" in which intensifying heat waves, cyclones, droughts, and floods are opening new challenges to the institutional structures of the concerned countries. More than 750 million people in the eight

countries in South Asia is effected by one or more climate related disasters. The region which is already reeling under poverty adverse impacts of climate change will make things worse. In Figure 2, the regional distribution of global poor is shown at three levels of International Poverty Lines.

Figure 2: Regional Distribution of Poor:



Source: World Bank (2023b)

In the below figure 2, data shows that 160.94 million people lived below US$ 2.15 in South Asia, the figure reaches to 840.41 million people if poverty is taken at US$3.65, while for US$6.85 it is 1527.24 million. Below table 1 gives the profile of individual countries of South Asia with total population along and the percentage of people living below the income level of US$ 2.15, US$ 3.65 and US$ 6.85.

Table 1: Poverty Percent of South Asian Countries at Different International Poverty Lines:

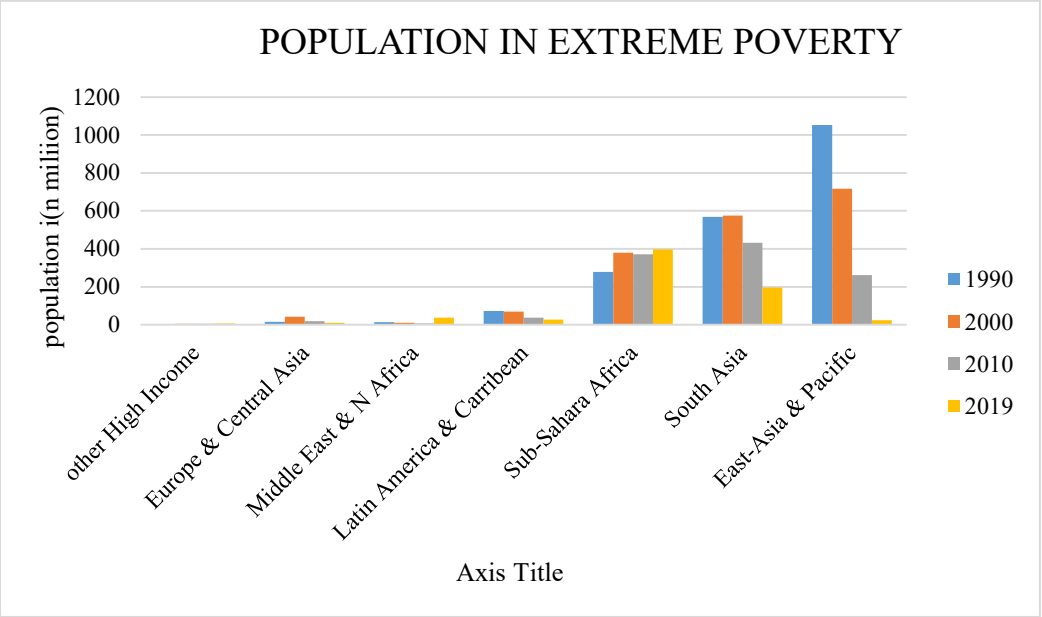
Countries	Total population (In million)	Poverty rate at US$ 2.15 (% of population)	Poverty rate at US$ 3.85 (% of population)	Poverty rate at US$ 6.85 (% of population)
Bangladesh	169.36	15.99	50.46	87.13
Bhutan	0.78	1.26	11.30	39.54
Nepal	30.04	9.80	37.94	80.03
India	1407.56	8.32	42.52	84.31
Maldives	0.52	0	0	4.31
Pakistan	231.40	6.40	42.44	85.16
Sri Lanka	22.16	1.21	10.73	50.35
Afghanistan				

Note: Blank space indicates that data for Afghanistan was not available.

Source: World Bank (2023b)

Table 1 shows the distribution of percentage of population at three different international poverty lines. Bangladesh figures out having the highest percentage of population who lives at US $2.15, followed by India and Nepal. The category of population who lives below the level of US $ 2.15 is counted as extremely poor. From figure 3, the regional distribution of population living below US$ 2.15 is shown on a decadal basis from 1990. South Asia accounts for 156.28 million people who lives below US$ 2.15, this makes up to about 24% of the world's population. (For 2019)

Figure 3: Region Wise Population Living in Extreme Poverty



Source: World Bank (2023b)

Poverty erodes or nullifies economic and social rights such as the right to health, adequate housing, food and safe water, and the right to education. The same is true for civil and political rights, such as the right to a fair trial, political participation and security of the person. For the better understanding of poverty it becomes important to include the aspect of Multi-dimensional Poverty (MDP). The Multi-dimensional Poverty Index (MPI) takes into account-health, education and living standards to measure the deprivation that otherwise cannot be just measured by monetary considerations. MPI was developed by Oxford Poverty and Human Development Initiative (OPHDI) along with UNDP and is published regularly in UNDP's Human Development Reports ever since 2010.

The measures represent the deprivation that make the lives of poor more vulnerable. People who are multi-dimensionally poor are already vulnerable and on top of its climate shocks and degradation make them more vulnerable. For example, apart from putting large number of people at risk due to food availability and livelihood changes, nutrition and quality of food is also affected due to climate shock. Years of schooling and school attendance can also be seriously impacted due to climate change. According to World Economic Forum (2023) the education of more than 40 million children is being disrupted each year due to effects of climate change. Directly climate change related disaster can lead to destruction of education infrastructure and degrading of learning environment, while indirectly it can reduce physical and mental strength.

Migration due to climatic disaster and extremes can also affect education. Similarly, use of traditional cooking fuel especially in rural areas are impacted due to climate change. As forests dries up, people are often forced to travel long distances to collect their fuel (like woods and leaves) which adds to their vulnerability. Availability of reliable and affordable energy sources are jeopardized when traditional use of energy impacts climate and is best reflected in instable supply and increased price which affects the poor. Often heavy rain contaminates drinking water leading to disease spread and search for safer options. Costal erosion, floods, landslides effect housing especially in the rural areas. Out-migration from rural to urban areas also lead to development of slum cluster with little or no basic facilities. Table 2, shows the regional share of population deprived in indicators of-educational attainment, educational enrollment, electricity, sanitation and drinking water, while table 3 give the individual profile of each South Asian countries.

Table 2: Share of Population Deprived in Each Indicators:

Region	Educational attainment (%)	Educational enrollment (%)	Electricity (%)	Sanitation (%)	Drinking water (%)
East Asia & Pacific	7.6	2.4	2.4	15.3	7.5
Europe and Central Asia	0.9	1.6	1.7	7.1	4.5
Latin America and Caribbean	9.4	1.6	1.0	16.6	3.0
Middle East & North Africa	8.2	2.6	0.3	2.7	1.1
South Asia	20.5	19.2	14.6	35.6	5.2
Sub-Sahara Africa	35.9	19.5	48.0	65.6	30.5
Rest of the world	0.9	0.3	0.0	0.2	0.2
All region	12.7	8.9	12.1	23.1	10.5

Source: Multi-dimensional Poverty Index (Diaz-Bonilla, Sabatino Gonzalez, Wu, & Nguyen, 2023)

Table 3: MDP of the South Asian Countries:

Countries	Population in Severe MDP (IN %)	Population Vulnerable to MDP (In %)	Contribution to Deprivation to Overall MDPI (% of MDPI attributed to deprivation in each dimension)		
			Health	Education	Living standard
Bangladesh	6.5	18.2	17.3	37.6	45.1
Bhutan					
Nepal	4.9	17.8	23.2	33.9	43.0
Pakistan	21.5	12.9	27.6	41.3	31.1
India	4.2	18.7	32.2	28.2	39.7
Afghanistan	24.9	18.1	10.0	45.0	45.0
Sri Lanka	0.3	14.3	32.5	24.4	43.0
Maldives	0.0	4.8	80.7	15.1	4.2

Source: Statistical Table, Oxford Poverty and Human Development Initiative, 2023. Blank space indicates no data available.

From the above table 2 and 3 a picture of MDP for the South Asian countries can be drawn. In table, the comparison of the South Asian region in terms of share of population deprived is drawn. In all the indicators South Asia as region comes in the bottom two. When table 3 is Standard of living emerges as one of the prominent areas of deprivation in all the South Asian countries except Maldives.

In the given context, if the effects of climate change are taken into consideration, it can be safely asserted that the region will face tremendous pressure in dealing with adverse effects of climate change. For example, nutrition amongst the children in the region is poor, according to UNICEF more than 64 million children in the region suffers from severe food poverty as their diet do not include bare minimum that is needed for proper growth (UNICEF, 2023a). Therefore, if climate change effects the growth of crops especially the food crop it will lead to a spiral of reduce production, less availability and price rise which has the potential to further harm the nutrition levels in the children. In South Asia public health infrastructure is overwhelmed and under-resourced. It is far from sufficient to tackle the existing burden of diseases in the society, climate change related health risk affects healthy people and thus adds to the burden. It is also important to note that 35.6% (from table 2) share of population in the South Asian region is deprived of proper sanitation. This can further increase with water scarcity through climate change. The result is the increase in the cost of water leading to inequitable access. This may deprive households of opportunities to collect the amount of safe water needed for proper handwashing and hygiene thereby

limiting children's ability to grow up healthy and strong. Also reduced water availability impacts piped sewer systems, as these systems rely on adequate water to remove waste. Limited water availability due to drought can increase pollutant concentration resulting in more contaminated wastewater which when discharged untreated can be more harmful.

The next section of the paper will highlight on the challenges of climate change in South Asian region.

4. Challenges of Climate Change in South Asia

The symptoms of climate change are multi-faceted, which includes sea-level rise, retreating glaciers, changes in temperature and precipitation patterns, and increasing frequency of events such as storms and droughts. The future of many South Asian countries like that of Maldives, southern coastal areas of Bangladesh, coastal areas of India and Sri Lanka are uncertain. Maldives and Bangladesh especially deserve special mention as they are the most affected parts of South Asia. German Watch (2021), list three South Asian countries in its list of top ten countries in the world which are most effected by weather events as shown in table 4.

Table 4: Countries Most Effected by Weather Events (2000-2019)

Rank	Countries affected by extreme weather events (2000-2019)
1	Puetro Rico
2	Myanmar
3	Haiti
4	Phillipines
5	Mozambique
6	The Bahamas
7	Bangladesh
8	Pakistan
9	Thailand
10	Nepal

Source: German Watch (2021)

The above table 4 indicates that Bangladesh, Pakistan and Nepal from the South Asian region were worst affected countries and only if 2019 extreme weather events is taken into account India and Afghanistan has been the most effected one. (German Watch, 2021)

Let's now identify the challenges of climate change in South Asia.

Sea-level rise and melting of glacier: GHGs which have resulted in global warming are significant cause for sea-level rise and melting of glaciers.

Sea-level rise is the increase in the level of the oceans around the world due to the effect of global warming. In South Asia, the coastal regions are heavily populated and settlement has grown there since centuries. In Bangladesh and India, it is estimated that by 2050, the sea-level will rise of 45 centimeter (cm) and 15-38 cm respectively. Major cities like that of Kolkata, Mumbai, Chennai, and Dhaka will be facing the existential threat. In Sri Lanka high proportion of coastal land is less than 1 meter above the sea-level and in Maldives the highest point is less than 2 meters above sea level and this could submerge with the rising tides and lead to erosion and damage to property and habitat loss. (Asian Development Bank, 2010).

Himalayan glaciers are important for the South Asian region as it feeds its rivers. However with the rising temperature, ice sheets of Himalayas are retreating faster than that of the global average. Increased warming might result in increased flows of water in the rivers initially, but in course of time the flow of rivers will start diminishing as the glacier diminishes. According to the International Centre for Integrated Mountain Development (ICIMOD) depending on the rate of global warming two-third glaciers over Himalayas, Hindu Kush, Karakoram and the Pamir Knot which forms an arc over vast areas of Pakistan, Afghanistan, Nepal, Bhutan and India will disappear by 2100.

Floods: Floods are nothing new for the South Asian countries. Significant portions of India, Bangladesh, Sri Lanka, and Nepal have seen regular floods. The incidence of glacier melting, sea level rise and changes in the weather extremes has led to the increasing incidence of flood in the region. Even some of the driest parts of the region are experiencing flood like in Rajasthan India. Due to the geographical reasons, flood in Bangladesh can last up to nine months a year. One of the most devastating floods was in 2007 in the region which affected 30 million people of the region. In the recent year, the intensity of tropical cyclones has increased due to climate change resulting in large scale destruction and flood. The 2020 incidence of Amphan in West Bengal and Bangladesh, 1999 super cyclone in Odisha is relatable to the havoc that cyclones can bring in.

Droughts: While some parts of South Asia may be flooded the other parts faces the problem of drought. Increasingly new areas are coming under the areas of drought in South Asia. Due to the climate change weather in some of the areas has changed and so have the precipitation level. The incidences of drought significantly affect the agricultural activities of mainly agriculture.

Changes in the pattern of rainfall: Parts of South Asia have already seen a slow but prominent change in the rate of rainfall and this is likely to increase in the near future. Due to the effect of climate change the monsoon which is the most important source of water in the region, gets either delayed or comes earlier and affects agriculture. As agriculture in South Asia is highly dependent on monsoons any change in the rate of rainfall and timing can affect

the productivity of agriculture and related livelihood of the people. Due to changes in the rate of precipitation groundwater levels in many areas of South Asia will be depleted while other parts will be over-flooded. If there is less rainfall, it will push the people to pump more groundwater for agriculture and other uses; this will significantly bring down the level of ground water in the region.

Adverse effect on Agricultural production and ecosystem: Due to changes in the temperature, rainfall will increase the vulnerability of agricultural production. The changes in the geographical conditions can lead to crop failure. It is also predicted severe consequences particularly its agricultural sectors will have negative impact on the income of the people as agriculture employs more than 60 percent of the region's labour force.

Incidence of Increased diseases: Changes in climate may alter the distribution of important vector species (for example, mosquitoes) and may increase the spread of disease to new areas that lack a strong public health infrastructure. Warmer and wetter conditions will increase the potential for a higher incidence of heat-related and infectious diseases. Climate change may increase the possibility of malaria, dengue, Kala-azar and encephalitis. (Rocklov and Dubrow 2020; WHO, 2014) In the aftermath of flood the possibility of such diseases increases due to stagnated water, availability of clean water, lack of medicines. Contamination of water due to flood may also lead to epidemics to cholera, diarrhea. Every year hundreds of lives are lost across the region due to incidence of malaria and dengue which are predominant in the tropical region. These have a direct effect on mental and social health of the people of the region.

5. Identifying Challenges of Climate Change on Poverty and Conflict in South Asia

The primary effect of climate change on poverty is through the decrease in agricultural productivity and hence the resulting food insecurity. Overall, the agriculture sector contributes 18% of the South Asian regional GDP and provides 42% of total employment, constituting the largest source of regional employment (World Bank, 2021). Moreover, sea level increases in the South Asian region threaten low-lying coastal areas such as the Maldives, Sri Lanka, Bangladesh, and India thereby decreasing the arable land due to flooding and water logging. Given this current state of affair agriculturally dependent South Asian economies are at grave risk from climate change impacts on their socio-economic structure. In South Asia region it is predicted that the annual average maximum temperature may increase by 1.4–1.8 °C in 2030 and 2.1–2.6 °C in 2050, thereby increasing the heat stress in the region by 12% in 2030 and 21% in 2050 (Tesfaye et al. 2017). It is also estimated that the Indo-Gangetic plains

which is the major wheat producer will become inappropriate for wheat cultivation by 2050 (Ortiz et al. 2008). It is also estimated that in India and Bangladesh there will be devastating effect on the rice cultivation. In Bangladesh the impact on rice cultivation in terms of yield will be between 6-14 percent less, as substantial areas will remain flooded. In Nepal and Bhutan climate change is expected to result in increasing weather extremes which will increase occurrence of landslides. In India production of wheat might drop by 3 percent in the event of extreme climatic changes in the wheat growing regions of northern India. (The Times of India, 2022). In already arid areas of Afghanistan due to further decrease in rainfall water intensive crops will be less attractive to the farmers and there might be more attention towards those crops which can withstand droughts including those of poppy seed from which opium is produce. In Sri Lanka most of the crops like coarse grain, legumes, vegetables, and potato are likely to be affected. Importantly the yield of tea in Sri Lanka which is world famous is likely to get affected impacting foreign exchange earnings and employment. In Pakistan changes in the flow of river Indus is likely to affect the cotton producing areas thereby affecting peoples' income level.

Apart from effect on food security, climate change can also aggravate the problems of availability of clean drinking water, energy resources and housing. For example, in Maldives which is facing a survival issue due to climate change, the right to housing is challenged due to inundation and scarcity of land, approximately one-third of the population of Maldives is concentrated in the city of Male, as there has been huge migration from the other atolls. As necessary resources become scares poor people will be the worst affected as the fight for diminishing resources.

The secondary effect of climate change on poverty in South Asia are the more indirect effect which occurs due to impact that climate change has on environment and ecology. The increase in the vector-borne diseases due to rising rainfall and humidity is one of the health hazards on the people of South Asia. Vector-borne diseases also have wider socioeconomic impacts like increasing health inequities amongst the poor and the rich. The increase in spending also acts as a brake on socioeconomic development. Frequency of dengue, malaria and chikungunya in the region is a testimony to this fact. Since the region is has high rate of poverty it is expected that this section of population will be out of the social safety net. Large section of population which are poor have housing in places with low sanitation and close to breeding site of the vector-borne diseases that makes them more susceptible to diseases.

The other significant secondary effect of climate change on poverty is through the increase in natural disasters. It is the increased frequency of natural disasters that negatively impacts the economy, for example natural disaster can lead to labour loss, crop failures, destruction of supply system such as roads

and railways. Managing the loss and reconstruction after the disaster requires funds which puts an extra pressure on the system. Table 5, shows the loss in PPP and GDP of the South Asian countries due to natural disasters while Table 6 shows the most notable natural disasters in the South Asian countries along with projection of loss in GDP by 2100 AD.

Table 5: Effect of Climate Change on Loss of Ppp and Gdp in South Asia:

CRI Rank	Country	Fatalities 2019 rank	Fatalities per 100000 inhabitants rank	Loss in PPP (In million US$)	Loss per unit GDP (%) rank
13	Bangladesh	7	29	20	28
130	Bhutan	106	106	130	130
12	India	1	36	1	13
7	Nepal	10	7	42	27
111	Maldives	106	106	114	76
15	Pakistan	8	39	14	25
30	Sri Lanka	33	24	48	61
6	Afghanistan	11	11	33	15

Source: German Watch (2021)

Table 6: Natural Hazards and Loss in Gdp by 2100 Ad

Countries	Most Notable Natural Diaster Due To Climate Change	Gdp Loss by 2100 Ad (In Percent)
Bangladesh	Increase in tropical cyclones Coastal flooding due to sea level rise	9
Bhutan	Landslides Flash floods	6.6
India	Increase in tropical cyclones Heatwaves Landslides, floods	10
Nepal	Landslides and floods	13
Maldives	Floods and inundation of land due to sea level rise	12
Afghanistan	Cold waves Floods and droughts	-
Pakistan	Landslides Heatwaves Floods	10
Sri Lanka	Floods and landslides	10

Source: World Bank (2021)

As the impact from climate change intensifies, the primary and secondary effect of climate change on poverty is likely to increase as well. Therefore a substantial portion of population will be associated with migration-whether internally or externally. Increase in frequency of natural disasters will also add to the volume of internally displaced people in the region. For example, according to Internal Displacement Monitoring Centre (IDMC) India records the highest number of internally displaced persons due to natural disasters (Internal Displacement Monitoring Centre, 2023). While in Afghanistan desertification has affected 75% of the land area in the country's north, south and western provinces resulting in internal displacement of people. However it is challenging and an arduous proposition to draw a linear line between the internally displaced person or migrations to be only contributed by climate change. Yet climate change affects the mobility of the people by affecting public health, livelihood opportunities and food security. UNCHR acknowledges the fact that climate change germinates the seed of conflict and causes human displacement much more worse as it occurs. (UNCHR, 2016)

Since South Asia is an integrated landmass with porous borders along with historical, familial and cultural ties amongst the countries, migration across the border takes place due to climate induced factors. Often labelled as the 'climate refugees' this category of migrants creates conflictual situations. Specific attention can be drawn to Bangladesh and its shared border with Northeast India, a region with a long history of insurgency and terrorism. Cross-border migration from Bangladesh into India threatens to escalate existing tensions between Indians and Bangladeshi migrants, particularly based on identity. Violent identity movements within Northeast India are already common and a key grievance has been Bangladeshi presence in the region. These grievances have historically given rise to multiple separatist and terrorist organizations threatening the security of the region. Similar is the case with the Nepali migrants in India particularly in the states of West Bengal and Assam, most of which have left their original home because of the increased number of natural disasters and crop failure which the countries have faced. Similarly there are hundreds of Afghans who have infiltrated into Pakistan to escape long standing droughts that are more frequent in the country. In cross-border migration, usually the migrants move to big cities for jobs however not all mange to get a decent living and therefore potentially offers insurgents fertile recruiting grounds. The migrants in cross-border migration faces hardship in their place of destination. Usually they take up petty work with no legal protection and the wages are highly discriminated (Jolly & Ahmad 2019).

Apart from Refugee crisis, the region is also vulnerable to trans-boundary water conflict. Major rivers in South Asia are cross border in nature and the sharing of water between or amongst state has been a contentious issue. For example the sharing of Indus water between Pakistan and India has seen major

disputes over the years. It is true that the Indus water treaty has been upheld even in the times of extreme political tensions yet the climate extremes shown in the region by frequent droughts and floods may question the endurance of the treaty. Irrigation and energy demand in the region has gone up and there are also plans to build 70 major hydro-electric projects particularly on Chenab river which will spread across India and Pakistan. The construction of dams has already been a source of conflict between India and Pakistan, especially with the flow regarding the western rivers that are under Pakistan. The change in waterflow in the river basin due to climate change is likely to set the ball rolling for a long future conflict. Similar is the also the case with river Brahmaputra, which flows through China, India and Bangladesh. The challenges for cooperatively managing the Brahmaputra are heightened by a changing monsoon season and melting glaciers, the complete absence of formal water sharing agreements, a limited history of even basic hydrologic data exchange and strained diplomatic relations. In addition, China has shown little interest in cooperative transboundary water management in the Brahmaputra or elsewhere. As the upstream state, China controls more than half the Brahmaputra basin's area and is building infrastructure — in particular dams — to control water without consultation with downstream neighbours (Giodano & Wahal, 2022). The Mahakali river treaty signed between India and Nepal signed in 1996 has not yet been implemented as there are apprehensions that upstream country might use the flow of water to its advantages. India also shares water with Bhutan, there are many rivers from Bhutan which flow downstream to Assam to meet Brahmaputra. While on the Bhutan sides the hills are lush green but on the Indian side of the border there are dry patches of land depending on the flow of water from Bhutan. The flow in these rivers have changed dramatically due to climate change resulting in flash floods, siltation and dryness. Also there are no formal agreement between India and Bhutan regarding water sharing which makes the situation more precarious and unpredictable.

6. Can SAARC find a Way?

Climate change is a trans-boundary problem, which requires joint efforts of the countries in the region. Though SAARC has acknowledged the effects of climate change and has taken some important steps like-SAARC Environment Action Plan, (1997), SAARC Declaration on Climate Change (2007), Thimpu Statement on Climate Change (2010), SAARC Convention on Cooperation on Environment (2010), SAARC Agreement on Rapid Response to Natural Disasters (2011). The working of SAARC has been disrupted due to the conflictual relations amongst the states of the region. Even after a quarter-century when it came into existence, SAARC still remains an under-performing regional association. As climate change mitigation depends on robust capacities

across the governments, this remains unfortunately missing. There is also lack of proper understanding of the effects of climate change on the region. For example, South Asian region has produced and received refugees from one country to another, yet the SAARC countries are slow in recognizing the role of climate change in migration and displacement. Climate change is still absent in the human displacement discourse in South Asia and most of the studies on climate change come from the Maldives and Bangladesh, which do not adequately document empirical evidence and address the climate factors in human displacement in entire South Asia. (Jolly & Ahmad, 2019). This raises lot of questions which can affect the stability of South Asia by leading to inter-state conflict. Questions like who will take the responsibility for the climate refugees? Would climate refugees ever be recognized as refugees under the international law?, how to identify the hot-spot of climate change refugees remains to be identified. Similarly SAARC do not have any action plan on regional water sharing or a body to monitor the effects of climate change on the riparian health of the region. The region which is sustained by income generated by agricultural income, river water sharing and river health has not found any special place in the conscience of the SAARC's action on climate change. The sharing of information, data and technologies for the management of water resources in the region have to be prioritized within a mutually agreed frameworks of co-operation. Also South Asia being one of the poorest region needs an urgent framework of action because there will be direct and indirect effects of climate change on poverty. SAARC Plan of Action on Poverty Alleviation do talk about strategies and programmes for tackling poverty in the region and SAARC Social Charter Reports of Individual member countries can serve as a major guidance. The charter also indicates that implementation of the Social Charter shall be facilitated by a national coordination committee as decided by the member country. Information on such mechanisms will be exchanged amongst the states through SAARC secretariat (SAARC Secretariate, 2024).

7. Policy Recommendations to Tackle the Effect of Climate Change on Poverty and Conflict

South Asia needs a strong regional cooperation mechanism where climate change mitigation and adoptive strategies should be given utmost importance. Therefore South Asia urgently needs a regional environmental governance. The very starting point of such governance is to de-securitize climate change. It is natural that the years of conflict have produced mistrust and suspicion in the region yet small but concrete takes can be taken for meaningful change. It is the urgent nature of climate change problem that securitization in the region should pave the way for disaster-diplomacy, which examine evidence

on why disaster-response activities creates increased cooperation among countries that otherwise may not engage in constructive cooperation. The glaring example is the 2001 and 2005 earthquake mutual assistance given by India and Pakistan. In 2005 Kashmir earthquake even restrictions were lessened along the Line of Control to enables families to contact each other. In 2010 when devastating floods happened in Pakistan, India offered assistance of US $ 25 million for food relief. (Government of India, 2010). In 2022 when Pakistan again faced a devastating flood India came forward to send help.

A corpus of climate fund should be set up by the countries in the region under SAARC. It should be based on equitable contribution based on the size of the economy. Once a fund is earmarked it can be utilized for adaptive and mitigative strategies -like building shelters for climate refugees and investment in climate smart agricultural strategies. The countries of the region should identify cross -border areas which has high intensity of destruction due to cyclones, landslides, droughts and floods as those will see maximum displacement of population across the border. Initially bilateral or trilateral cooperation based on such natural disaster can take place which will serve as the stepping stone to build up a regional framework. Risk identification, risk awareness, risk mitigation and improving institutional capacity and awareness among people in disaster-prone areas should be prioritized.

Since the region is agriculturally dependent for income generation any change in the agricultural production can jeopardize the economic and food security, therefore alternative form of employment opportunity should be created. A good example can be agroforestry which can contribute to climate change adaptive strategies. SAARC environment assessment report which has been talked in the SAARC Action Plan 1997 should be meticulously formulated to prudently manage the effects of climate change on agriculture. Imparting education and training of climate smart agriculture and adaptive strategies including collaboration between technical experts and public administrators and Non-Governmental Organizations should be endorsed. Climate change policies should be de-centralized to an extent that local authorities should be in a position to tackle the issues of climate change themselves.

In managing the adverse effects of climate change help from other regional organization's approach can be taken. Like that of European Union and ASEAN. EU's constant effort to adopt climate neutral policies and strategies as reflected in the latest EU Green Deal Communication can serve the purpose of guidance. The 'protected area' strategy of EU can be also followed to emphasis special attention to vulnerable areas.

8. Conclusion

The existing poverty and the adverse effect of climate change in the region has made South Asia one of the most vulnerable regions of the world. The inter-state conflicts in the region resulting from climate change will have repercussions in the long term for peace and stability of the already volatile region. Instead South Asian countries should come together to realize that climate change and the problems associated with it will not respect national boundaries and hence they should find a regional solution. SAARC in that case is an excellent form to work for adaptive and mitigative strategies. Once the platform and framework in the regional level becomes robust, it can pitch together for a common agenda in the bargaining of world environmental governance.

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