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Abstract

In the prevailing century and even centuries to come, the world will continue to face challenges in the form of Climate Change, which is already impacting all the spheres of human life, ranging from the ecosystem, financial aspects, health, environments, agriculture, livestock, food security and maritime geopolitics. The aspect of Climate Change is also resulting in the rise in temperature, causing various challenges in different geographical zones, leading to severe weather conditions affecting health and food safety. Such challenges are not only threatening the socio –economic facets of human life but are also impacting the global geopolitics. Climate change is making the entire ecological system vulnerable to the aforementioned challenges, requiring early intervention to reduce their impact for a continuous and sustainable availability of all human provisions and safety. This entails the need to have and adopt a pragmatic policy to overcome such challenges in a prudent manner.

Keywords: Climate Change, Health, Food, Agriculture, Geographical Zones, Maritime Geopolitics and Policy

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Evaluating the Impact of Climate Change on Socio-Economic Environments and Maritime Geopolitics

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Abstract

In the prevailing century and even centuries to come, the world will continue to face challenges in the form of Climate Change, which is already impacting all the spheres of human life, ranging from the ecosystem, financial aspects, health, environments, agriculture, livestock, food security and maritime geopolitics. The aspect of Climate Change is also resulting in the rise in temperature, causing various challenges in different geographical zones, leading to severe weather conditions affecting health and food safety. Such challenges are not only threatening the socio – economic facets of human life but are also impacting the global geopolitics. Climate change is making the entire ecological system vulnerable to the aforementioned challenges, requiring early intervention to reduce their impact for a continuous and sustainable availability of all human provisions and safety. This entails the need to have and adopt a pragmatic policy to overcome such challenges in a prudent manner.

Keywords: *Climate Change, Health, Food, Agriculture, Geographical Zones, Maritime Geopolitics and Policy*

Introduction

Climate change is one of the most persistent and ever-increasing challenges of the 21st century, being globally faced, which has enormous and extensive impacts on ecologies, economies, and human comfort. Amongst its severe impacts are agriculture, which is inherently linked to livelihoods, environmental stability and food security. Rising heat, fluctuating rain patterns, and ever-increasing occurrences of extreme weather incidents are upsetting agricultural structures across the world, leading to poor crop yields and diminishing food quality. These changes threaten the livelihoods of millions of farmers and exacerbate global hunger, predominantly in vulnerable areas. Climate change is transforming into Climate vulnerability, which in fact is the degree to which a system is susceptible to, and unable to cope with, the adverse effects of climate change, including climate variability and extremes. It is a function of exposure to people, livelihoods, species, ecosystems, environmental services and resources. This vulnerability leads to adaptive capacity, which is the true sense of the ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences. Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO). It rests on four pillars, including availability, access, utilisation and sustainability. Compelling to be resilient enough to (e.g., communities, institutions, economies, and individuals) to anticipate, absorb, accommodate, adapt to, and transform in the face of climate-induced stressors and shocks.

One of the most noticeable effects of climate change is the adjustment of crop growing periods and shifts in suitable farming areas. Due to the rise in temperature, the agricultural land is less useful, which is forcing the farmers to adopt new and modern means of farming and growing. Meanwhile, the loss of biodiversity caused by environmental degradation and climate change is fading away the ecologies, reducing resilience and

stress caused to environments and genetic diversity, which is imperative for pragmatic corps alteration. The increasing number of pests and diseases is further enhancing the problems both for crops and livestock. Due to warm temperatures and different moisture levels, the crops and livestock are being impacted further. The water scarcity caused by longer periods of drought, unpredictable rainfall and unfortunate wastage is further impacting the crop growers. Climate change, apart from crops and livestock, is also causing food scarcity and price hikes, hence impacting the socio-economic conditions of the farmers. This very vital facet impacts the low-income farmers more, causing malnutrition and food insecurity for those farmers who are growing for the entire humanity.

Climate change is causing health issues as well among the agrarian societies across the globe. The issues like respiratory diseases and malnutrition are making humans, crops and animals vulnerable to more diseases. The socio-economic situation and the condition of governance are also upsetting. Due to limited resources like decreasing arable land, compelling need for sweet water, conflict over land and migrations, the socio-agricultural problems are further compounding and are causing instability. This socio-economic factor is affecting the children's education, as due to limited resources, the children are becoming more and more vulnerable to forced labour. At a larger scale, ocean acidification is making the marine ecosystems and fishers more vulnerable, which is challenging for food security in coastal areas. Melting of glaciers is further causing water scarcity, hence impacting the sweet water distribution system. More deforestation is being caused by agricultural and societal expansion, causing climate change and affecting biodiversity.

Food security is one of the very basic and vital components of human social life as it dominantly relates to life, the very existence of life, hence its value cannot be ignored (Burchi & De Muro, 2012). Apart from the facet of an ever-increasing population, another ever-increasing effect of climate change is further aggravating the need for food security and nutritious food. Rising temperatures, changing precipitation patterns, and increased extreme weather conditions like droughts and floods are further impacting the crop yields (Syed et al., 2022), livestock and fisheries. Such conditions can lead to the following socio-economic challenges.

Reduced Crop Yields and Food Security

Climate change is rigorously impacting cultivation in Asia, leading to reduced crop yields and deteriorating quality. Rising temperatures, unpredictable rainfall, and catastrophic weather events like floods, droughts, and cyclones disturb the crops' growing spells and harm them. In the South and Southeast Asian region, staple crops such as wheat, rice, and maize are becoming predominantly susceptible. Upper temperatures quicken crop maturing, hence plummeting grain quantity and total yield. According to studies, South Asia faces noteworthy yield reductions because of climate change, with prognostications showing substantial drops by 2050 as wheat yields may decline up to 50%, rice by 17%, and maize by 6%. Central Asia is struggling with water shortage, anticipated to reduce agricultural water availability by up to 30% by 2025, consequently affecting irrigated staples like wheat and cotton. Climate change, including glacier melting and temperature rises above global averages, impede yields by 60%. West Asia is also facing similar challenges to those of South and Central Asia. The Far East, including China and Southeast Asia, appreciates varied trends. China has reduced air pollution by 40.8% since 2014; however, soybean production is down t0n22.4%. Food Security is also being impacted due to the Russia-Ukraine War since 2022, as Ukraine and Russia are not only the global food basket but also produce much-needed fertilisers. All the grain and fertilisers pass through the Bosphorus Strait and the Strait of Hormuz, which is also vulnerable due to conflict between Iran and the U.S.-Israel, which, apart from food security, is also impacting geopolitics.

Water shortage aggravates the problems, as many nations of the Asian region rely on monsoon showers for irrigation. Lengthy drought periods reduce soil moisture, while extreme rainfall causes waterlogging and nutrient discharge. In Nepal and Pakistan, erratic monsoons have led to noteworthy rice and wheat losses. Furthermore, enhanced salinity from increasing sea levels impedes coastal farmlands in Indonesia and Vietnam, reducing rice yield and quality.

Climate change also encourages diseases and pests, further diminishing crop quality. Warmer temperatures are enhancing the species of insects such as the brown plant hopper, which damages rice paddies all across the Asian region. Contamination of mycotoxin in maize and ground nuts is increasing due to high heat and humidity.

Small farmers who are doing agriculture in Asia are being affected due to food insecurity and income reduction. There is a dire need to adopt modern procedures to grow crops in water shortage areas by adopting better irrigation techniques and sustainable practices with a view to mitigating such challenges.

Changes in Corps Growing Seasons and Areas

Escalating temperatures and unstable rainfall patterns have prolonged the growing seasons in a few regions, such as Central Asia and China, while shortening those in tropical zones like South and Southeast Asia. In nations like Bangladesh and India, unpredictable monsoon rains have already prolonged the droughts, hence disrupting traditional sowing cycles, decreasing the harvest yields of staple crops such as wheat and rice. Equally, warmer climates allow farming in previously inapt areas, like the high-altitude regions of Bhutan and Nepal. However, such gains are frequently counterbalanced by increased diseases caused by pests and extreme weather events like floods and heatwaves. Furthermore, saltwater intrusion in coastal zones, predominantly in Indonesia and Vietnam, impairs rice crops. Small landowner farmers, who dominate Asia's agricultural sector, face sensitive susceptibilities due to limited adaptive volume. Without effective alleviation and adaptation policies, climate change could aggravate food insecurity, rural poverty, and cause migration pressures all across the Asian continent and is increasing the facet of dependence over deterrence in diplomacy (Yaser, 2015).

Loss of Biodiversity

Climate change has meaningfully exacerbated biodiversity loss all across the Asian region, threatening environments and species survival. Rising temperatures, irregular rainfall, and extreme climate events disturb environments, compelling species to migrate or face extinction. For example, coral reefs in Southeast Asia suffer from bleaching due to warm oceans, though Himalayan glaciers melt, imperilling freshwater species and downstream environments. Deforestation, compounded by climate change, decreases habitats for animal species like monkeys, tigers, and pandas. Wetlands and mangroves, which are dangerous for migratory birds and oceanic life, are decreasing due to rising sea levels and salinity intrusion. Without urgent mitigation and adaptation strategies, rich Asian biodiversity, significant for ecological balance, food security, and cultural heritage, will continue to decline, aggravating environmental and socio-economic disasters in the Asian region.

Water Scarcity

Climate change has meaningfully worsened water shortages all across the Asian region, threatening environments, farming, and human livelihoods. Increasing temperatures, erratic rainfall patterns, and melting glaciers disrupt freshwater availability, particularly in South and Southeast Asia. Countries like India, Bangladesh, and Pakistan face severe droughts and declining groundwater levels, while the Himalayan glacier retreat threatens major rivers like the Ganges and Indus. Meanwhile, monsoon variability increases floods and droughts, reducing water security for millions. Urbanisation and population growth further stress resources, deteriorating inequities in water access. In arid areas like Central Asia, reduced river flows from snowmelt escalate transboundary water conflicts. Furthermore, saltwater intrusion in coastal areas, such as the Mekong Delta, contaminates freshwater supplies. The Indus River provided 25 per cent of Pakistan's GDP, providing water for nearly 90 per cent of the food production in the country. With regard to water security issues, Pakistan is possibly at risk of facing an extreme food shortage in the times to come. As per The World Bank report of 2020-2021, it is estimated that the water shortage will increase to 32 per cent by 2025, which will result in a food scarcity measuring 70 million tons (Janjua et al., 2021). As per another report from the World Bank, by 2050, water availability in Asia could drop by 20 to 50 per cent in some areas, threatening food safety and livelihoods for over 1.6 billion people. The South Asian region, home to virtually a quarter of the global population, is predominantly vulnerable, with India alone facing a 40 per cent freshwater shortfall by 2030 due to climate-caused changes and over-extraction. The Himalayan glaciers, which feed major rivers like the Ganges, Indus, and Brahmaputra, are melting at an alarming rate of half a meter per annum, hence reducing water for 750 million people downstream. Meanwhile, the Southeast Asian region faces dangerous weather conditions, with countries like Thailand and Vietnam suffering from severe droughts and intense floods, disturbing agriculture and urban water systems. The Mekong River provides a livelihood for approximately 60 million people; recently, a historically low water level drop has been observed because of little rain and the

construction of an upstream dam. As per the estimates of ADB, around 3.4 billion Asians will be affected due to water shortage by 2050, mostly in urban centres like Karachi, Delhi, Jakarta, and Manila, as these are already water-stressed.

Food Deficiency

In Southeast Asia, due to ever-increasing temperatures, reduced rainfall, and emerging water shortages, the yield of wheat and rice is decreasing. In coastal areas, arable land is being reduced because of saltwater intrusion. Ocean acidification and the warming of the sea water are affecting the fishing. Due to such reasons, small farmers in Asia are continuously getting more and more socio-economically vulnerable due to low yields and high living costs. The facet of food deficiency is also increasing the cost of crops and food.

Altered Crop Growing Seasons

Increasing temperatures and unpredictable rain patterns are causing early spring and delaying the winter season. In South Asia, random monsoons and prolonged droughts delay rice sowing, while excessive rainfall damages crops during the yield. Southeast Asian countries like Vietnam and Thailand face erratic weather, reducing rice and coffee yields. Meanwhile, in the East Asian region, warm temperatures extend growing times for some crops but upsurge vermin and diseases, intimidating food safety. Central Asian wheat production deteriorates due to abridged snowfall and water shortage, while melting glaciers in the Himalayas endanger long-time irrigation. Such changes require agriculturalists to adapt by changing crop varieties or planting times, but with many dearth resources, waning rural scarcity. Deprived of effective climate mitigation and adaptive strategies, the Asian agricultural sector and its food supply remain highly vulnerable to further climatic shifts. For instance, studies reveal that every 1°C increase in temperature can reduce rice yields by up to 10 per cent (FHA, 2024).

Soil Degradation

Soil degradation, driven by augmented erosion and damage to fertility due to severe climate, poses a noteworthy threat to global yield production. Due to strong winds and heavy rain showers, the earth is losing its nutrients, which is impacting the land's capability to grow crops. Because of soil deterioration, energetic minerals and much-needed organic matter are being reduced, which leads to lower yield. In accordance with the FAO estimates, almost 40 per cent of Asian land is sullied. Among Asian nations such as China and India, the soil erosion rates have exceeded 40 tons per hectare annually. The ADB estimates that crop yield is likely to drop up to 50 per cent by 2050.

Desertification

Desertification is the phenomenon by which fertile land is converted into desert, which is a serious agricultural challenge for the Asian countries hosting almost 60 per cent of the global population. As per UNCCD estimates, almost 40 per cent of Asian land has turned into dry or semi-arid. Presently, countries including India, China and Mongolia are experiencing the worst desertification. Correspondingly, within India, more than 30 per cent of land has already degraded, severely affecting the states of Gujarat and Rajasthan, causing up to 30 per cent yield drop. In Mongolia, almost 77 per cent of the land has already degraded. In accordance with IPCC estimates, the temperature in South Asia can rise up to 2.5°C by 2050. Initiatives like China's "Great Green Wall" aim to plant 100 billion trees by 2050, but regional cooperation and climate adaptation policies are crucial to reversing this crisis before more arable land turns to dust.

Agricultural Economic Instability due to the loss of Farmers' Livelihood

Climate change has considerably enhanced economic losses for farmers and societies all across the Asian region. Smallholder farmers, who rely on rain-fed farming, are mainly vulnerable, facing declining incomes and rising debt. Coastal communities also suffer from saltwater intrusion and loss of arable land. The Asian Development Bank estimates climate-related disasters worth $ U.S 100 billion annually by 2050 (Noelle O'Brien, 2024). Climate change has expressively aggravated fiscal instability and loss of livelihoods all across the Asian region, which is

highly susceptible to environmental disruption. Increasing temperatures, erratic monsoons, and extreme weather, natural calamities like floods, cyclones, and droughts have devastated farming, which employs a large portion of the population. In countries like Bangladesh, India and Pakistan, crop reductions have led to rising food prices, reduced incomes, and increased rural poverty. Rising temperatures, erratic monsoons, and extreme weather events like floods and droughts are displacing billions, chiefly in vulnerable regions such as South Asia and Southeast Asia. In the case of Bangladesh, the continuously rising sea levels and cyclones are forcing the people living along the coast to migrate to urban centres, hence increasing further pressure on limited resources. Similarly, in India and Pakistan, water shortage due to melting glaciers and declining river flows worsens tensions between farming communities and industries. In Southeast Asia, long droughts and deforestation disrupt agricultural livelihoods, pushing rural populations toward cities or neighbouring countries. Competition over dwindling resources, such as freshwater and arable land, has also sparked conflicts in regions like the Mekong Delta and the Indus Basin.

Malnutrition and Hunger

Deprived of adaptive measures like climate-resilient farming and social protection programs, malnutrition will deteriorate, undermining Asian development toward the Sustainable Development Goals. In South Asia, the occurrence of malnutrition has shown noteworthy improvement, declining from 7.9% in 2022 to 6.7% in 2024. Adolescent girls, with 65% of the world's underweight girls and 41% of anaemic girls. However, Central Asia has attained noteworthy progress, reducing hunger fivefold over two decades, with undernourishment dropping from 13.1% in 2005 to 2.8% in 2024. However, healthy diets remain a challenge for 14% of people. In West Asia, hunger has risen sharply, with an estimated 12.7% of the population (over 39 million people) facing undernourishment in 2024. The Far East, including countries like China and Southeast Asia, is not directly covered in the search results, but broader Asian trends indicate a decline in hunger to 6.7% in 2024, impacting nutrition outcomes such as rising anaemia among women, 30.7% in 2023 and still a child birth rate of 6.6%.

Decrease in Fisheries and Ocean Acidification

Marine heating and acidification considerably impact marine environments, leading to disturbances in fish numbers and reduced fishing productivity. The increasing temperatures are forcing the fish to move towards cooler regions, which is making the coastal communities vulnerable to food shortages and migrations. Ocean acidification, which happens due to increased CO_2 absorption, deteriorates shellfish and impacts coral reefs, impacting the food chain and plummeting the much-needed biodiversity. Without adapting pragmatic policies, the rise of sea water temperature and ocean acidification will continue to threaten global food security and the livelihoods of millions dependent on maritime resources.

Melting Ice Caps and Glaciers

Climate change is causing polar ice and glaciers to melt faster and more intensely. In Asia, the melting of ice and glaciers is severely affecting the coastal environment, economies and societies. The high altitude Himalayan glaciers, often termed as "Third Pole," are melting much faster compared to the average of other mountain regions; losing approximately eight billion tons of ice per annum, hence impacting the lives of almost 2 billion people depending upon rivers including the Brahmaputra, Ganges, and Yangtze. Sea levels in Asia are rising at a rate of up to 5 mm every year. The sea level rise is making Bangladesh, the Maldives, and Indonesia extremely vulnerable. It is estimated that by the year 2050, more than 151 million people in the Asian population are likely to be displaced because of floods along the coasts. In the case of Pakistan, it faced devastating floods during 2022, due to which almost 33 million people were affected. Additionally, the economic losses of Asian countries could reach up to $ U.S 167 billion per annum by 2050. During the 2022 monsoon season, Pakistan faced more than 1,700 deaths, with damage estimated at around $ U.S 15 billion (Furman & Haq, 2022). Crucial action, including pragmatic and prudent climate strategies, should be taken to mitigate the challenges.

Climate Change and Its Impact on Maritime Geopolitics

As anticipated, global temperature is likely to increase to 4.8 °C from 0.3 °C over the 21st century, which will raise the sea level by up to 4 feet, consequently melting almost the same depth of snow, hence making the seas more navigable. The Antarctic Ocean mostly remains ice-covered in winter; however, the melting ice sheet will enhance shipping activities in the North, allowing more shipping and affecting the environment. Offshore

exploration and mining of hydrocarbon reserves will be easier at the cost of heavy wave pressure in offshore areas. (Eskeland, Flottorp, 2006). Apart from physically affecting the Atlantic Ocean, these Climatic Changes will also geopolitically affect it along the Sixth Island Chain in the Atlantic (Malik & Anderlini, 2024).

Figure 1

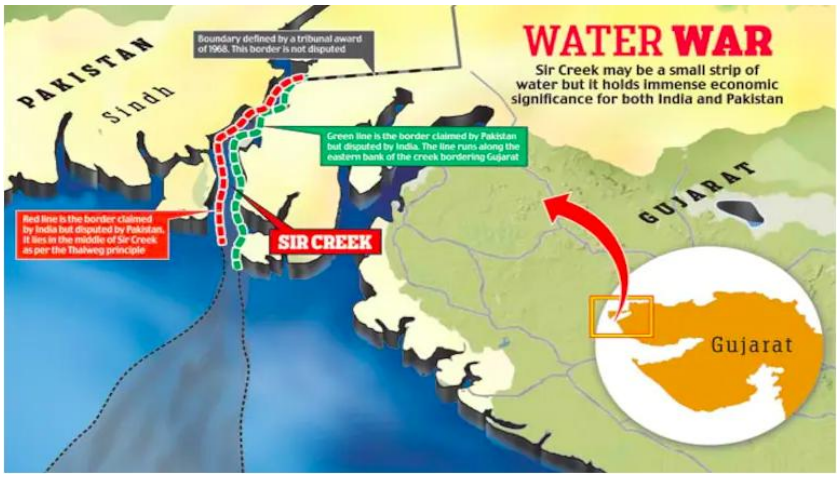
North and Existing Sea Route Comparison

(Source: https://www.google.com/search?q=Northern+see+route&sca)

In South Asia, rising sea levels can convert the 96 km long Sir Creek into a navigable water channel, which would reinforce the Indian claim leadi, leading to a nuclear conflict in the Indian Ocean. Expansion will also affect water environments (Malik, 2026).

Figure 2

Sur Creek Dispute



(Source: https://www.google.com/search?q=sir+creek+dispute&sca_esv)

The Himalayas are generally snow-covered, because of which most of their passes remain closed, hence denying vital trade routes. An important 220 km long and 64 km wide Wahkhan Corridor at a height of 4827 m in Northern Afghanistan linking China and Afghanistan provides a politico-economic trade route between Central Asia and the Arabian Sea, which will also become navigable. Temperature will also impact the conflict zones like Siachin Glacier, where the glaciers are melting, so snow is causing multiple effects on the mountainous conflict zone. On one side, the melting of ice is making the movement easy. However, on the other side, it will make the deployed troops more vulnerable to enemy observation and action. An increase in temperature is

causing hazardous slides and avalanches. The unfortunate Gayari Glacier Incident of 12 April 2012 are still fresh, where 138 soldiers and civilians were buried alive under the avalanche.

Pollution and Contamination.

Climate change has exacerbated flooding across Asia, leading to severe pollution and contamination of water sources. Heavy precipitation and rising sea levels cause frequent floods, washing agrarian pesticides, industrial waste, and untreated sewage into rivers and lakes. According to the World Bank, South Asia alone faces over $ U.S 215 billion in annual flood-related damages, with water contamination being a major consequence.

Increased Invasive Species

Invasive species are spreading in Asia because the environment is being affected, and biodiversity is being threatened. Increasing temperatures create favourable situations for non-native species to thrive, outcompeting indigenous flora and fauna. For instance, the water hyacinth, originally from South America, has attacked waterways in India, Bangladesh, and Southeast Asia, blocking rivers and reducing oxygen levels, which harms aquatic life. In the Philippines, invasive golden apple snails have devastated rice paddies, causing annual losses of over. Similarly, the red imported fire ant, native to South America, has spread to China and Japan, posing risks to agriculture and human health. In marine ecosystems, warmer waters have facilitated the spread of lionfish in the Indian Ocean, marauding on native fish and disturbing coral reefs. A 2021 study by the Intergovernmental Panel on Climate Change warned that invasive species in Asia could increase by 20 to 30 per cent by 2050 if warming continues. The economic cost of invasive species in Asia is estimated at $ U.S 100 billion per annum, including control measures and lost agricultural productivity.

Figure 3

Loss of Traditional Ecological Knowledge

Source (https://www.google.com/search?q= mg#vhid=P50bJLdoVX7HrM&vssid=mosaic)

Traditional Ecological Knowledge (TEK), accrued over generations by indigenous and domestic societies in the Asian region, is increasingly under threat because of climate change. Asia, which holds diverse environments and rich traditional culture, relies heavily on TEK for sustainable cultivation, forest management, and disaster relief. However, increasing heat, fitful precipitation, and severe weather conditions are disrupting traditional practices, leading to a rapid erosion in the Himalayan region. Indigenous communities such as Ladakh and Sherpas have long trusted TEK for forecasting weather patterns and managing water sources. Hitherto, glacial melting and erratic monsoons have rendered their knowledge and skills less reliable, compelling them to

abandon age-old practices. Correspondingly, in the Southeast Asian region, native rice growers in Thailand and Vietnam traditionally used lunar cycles and animal behaviour to determine planting seasons, but shifting climate patterns have reduced crop yields by 15 to 20 per cent, pushing growers towards modern, often unsustainable, changes. In the Pacific Islands, coastal societies in Indonesia and the Philippines are facing the crisis of rising sea levels, threatening traditional fishing practices that have sustained them for centuries. The 2021 IPCC report highlights that almost 70 per cent of Asia's indigenous populations are at risk of losing their TEK by 2050 because of climate-induced migrations and cultural integration. Additionally, a UN study estimates that above 50 per cent of Asian region traditional medicinal plants, vital for the healthcare of indigenous people, are at risk of extinction due to habitat loss and climate change and climate shifts. The waning of TEK not only threatens biodiversity but also weakens climate adaptation approaches, as domestic knowledge often holds solutions for resilience. Without urgently addressing the issues to document and integrate TEK into climatic strategies, the Asian region risks losing a vital source to fight against environmental predicaments.

Migration and Displacement

Climate change is gradually compelling people to migrate, building an increasing population due to "climate refugees." Increasing sea levels, severe weather conditions, desertification and droughts are destroying livelihoods, and turning regions into uninhabitable. Coastline societies face flooding, whereas agriculturalists residing in arid zones suffer crop failures, forcing them to relocate in search of shelter and resources. The World Bank estimates that by the year 2050, over 216 million people could be displaced within their own countries because of climate influences (World Economic Forum, 2021). Migration outlines through South Asia, Central Asia, West Asia, and the Far East expose different regional crescendos. In South Asia, over 40% of refugees, which accounts for about 115 million, were from Asia during 2020, with intraregional displacement increasing to 69 million. Central Asia's migration is influenced mainly by regional stability and economic issues. In West Asia, Syria is the largest source of refugees globally, with about 6.5 million migrants as of 2022, followed by Afghanistan with approximately 5.7 million. While Türkiye, Iran, and Pakistan are the regional host countries. As far as the Far East is concerned, it is experiencing significant intraregional labour migration to Singapore, Malaysia, and Thailand.

Conflicts due to Resources Scarcity

Shortage of food and water, exaggerated by climate change, often leads to communal pressures leading to violent conflicts. Increasing temperatures, lengthy and intense droughts, and inconsistent precipitation disturb agricultural production, decreasing food provisions and hiking prices. Drying up water sources, compelling societies to strive for limited provisions.

Decreased Access to Education.

In the Asia region, climate change is intensifying food anxiety, forcing many lower-income families to prioritise child labour over education to manage financial needs. Escalating temperatures, irregular precipitation, and severe weather situations like droughts and floods harshly impacted agrarian output, a key source of maintenance for billions. AS per the Asian Development Bank, climate-related calamities in the South and Southeast Asian region have pushed about 130 million people into poverty, with rural households excessively impacted. In countries like Bangladesh, India, and Cambodia, where agriculture employs above 40 per cent of the workforce, crop failures due to climate shocks have led to income losses, pushing families to rely on child labour to supplement household earnings. The International Labour Organisation estimates that Asia-Pacific accounts for 62 million of the world's 160 million child labourers, out of which 63 million are females and 97 million are male children, accounting for nearly one in ten of all children worldwide (International Labour Organisation, 2025), many of whom work in agriculture to help their families survive food shortages. In India alone, 10.1 million children are engaged in labour, with climate-induced distress migration further disrupting schooling. In the Philippines, due to typhoons and prolonged droughts, 1.5 million children are forced to be out of school. AS per the estimates of the World Food Programme, over 500 million people in Asia suffer from food insecurity, which needs the earliest attention by adopting measures to mitigate this crucial challenge as soon as possible.

Conclusion

Climate change is deeply impacting the lives of all human beings in one way or another. It has been evaluated that climate change has made a profound impact on crop yield, biodiversity, food volatility, alteration in crop growing patterns and the agriculture domain in the Asian Region. The loss of biodiversity weakens ecosystems' resilience, while ever-increasing pests are further straining crops and livestock. This vital facet has impacted the health aspects of human and animal lives on land and sea. The study also signifies that all the above-mentioned impacts have influenced other aspects of human life, such as diplomacy and geopolitics. It is pragmatic to understand and follow that it is a moral responsibility for which qualities like patience and tolerance are vital. Such facets are in line with the Sustainable Development Goals for Climate Change in accordance with the Paris Agreement of 2015, based on the United Nations Framework on Climate Change, so as to bring all nations together for a common cause of reducing the impact of climate change.

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