



IMPACT OF CLIMATE CHANGE ON SOUTH ASIA: PROBLEMS AND POSSIBLE SOLUTIONS

Social Science

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ABSTRACT

This paper tries to explain the impacts of climate change on South Asia, one of the world's most vulnerable regions and biggest victim of natural disasters due to over population, food insecurity and poverty. Against a backdrop, continuing increase in the emission of greenhouse gases (GHGs) that are responsible for global climate change, energy consumption and use of fossil fuels in South Asia are growing rapidly which leads to high temperatures, droughts, typhoons, flooding etc. It is predicted that the temperature will increase by the end of the century in South Asia by 3.3 °C with the min-max range as 2.7 – 4.7 °C. In terms of economic, the region will be at risk of losing up to 8.8 percent of their GDP by 2100 due to climate change. This paper attempts to study ways in which legislatures can ensure technology transfer which will lead towards low-carbon and green development in South Asia.

KEYWORDS:

Greenhouse Gases (GHGs), South Asia, Climate Change, Peace.

The Maldives:

The Maldives Islands are exceptionally vulnerable to climate change and its effects. The islands are surrounded by the Indian Ocean and are merely two meters above sea level and the highest point is only eight feet above sea level which makes them as the world's lowest country in elevation. Warmer air temperatures are the main cause of Climate Change. Climate change threatens to melt sea ice (glaciers and giant ice sheets on Antarctica and Greenland) and subsequently raise sea levels and place low-lying lands underwater. Ironically, these islands contribute a tiny fraction of global carbon dioxide and greenhouse gas emissions. Sea level has been rising faster in recent years i.e. on average, about one inch every seven or eight years. The effects of global warming are; high temperatures, glaciers and ice sheets melting, sea levels rising, frequent flooding during large storms, harm to coastal infrastructure such as ports and to coastal ecosystems like coral reefs, water displacement and could lead to submerging. Coastal ecosystems provide benefits, such as protecting the shores from seasonal monsoon storms. If sea level continues to rise rapidly, these benefits could be lost.

Bangladesh:

Bangladesh is a low-lying country formed by the alluvial plain of the Ganges, the Brahmaputra and the Meghna river system. An extensive sea coastline of Bangladesh influences the impact of natural hazards on the area. Bangladesh suffers from floods, cyclones, storm surge, river bank erosion, earthquake, drought, salinity intrusion, fire and tsunami. Cyclones occurred in 2013 (Viyaru) 2015 (Komen) and 2016 (Roanu) and killed 17,132 and 26 people respectively. In July 31, 2016, floods have caused widespread damage to habitation, crops, roads and highways across vast areas of the three northern districts - Jamalpur, Kurigram and Gaibandha and took away 14 lives. [1] People left homeless and 21 died after flood and subsequent landslides hit Kurigram district in 2015. The worst of the flooding had been reported in July 25, 2016 in 16 districts: Bogra, Faridpur, Gaibandha, Jamalpur, Kurigram, Kustia, Lalmonirhat, Madaripur, Manikganj, Nilphamary, Rajbari, Rangpur, Shariatpur, Sirajgonj, Sunamgonj and Tangail. Due to this 25,000 people were displaced, 38 drowned and 4 were killed from snake bites. Rising sea level can also harm important coastal ecosystems like mangrove forests such as Sunderbans, the Ganges delta region of India and Bangladesh. It contains about 100,000 hectares of mangrove forest habitat. The mangrove forests of the Sunderbans provide an important defence in limiting climate change impacts, providing protection to coastal areas from tsunamis and cyclones. Mangroves have been long considered as "bio-guards" for coastal settlements because they protect inland human communities from damage caused by coastal erosion and storm surge landslides and flooding. On June 12, 2017, heavy monsoon rain triggered a series of landslides and floods in three hilly districts namely Rangamati, Chittagong and Bandarban and killed at least 152 people. [2]

Sri Lanka

Sri Lanka has a low lying coastal plains running inland from the northern and eastern shores. It is an equatorial island which hosts 85% of diverse endemic species. Rise in sea level will directly affect the

overall abundance and security of endemic species. As sea level rises, salt water from the ocean will travel farther upstream into rivers and mix with fresh water. In low-lying countries such as Bangladesh and Sri Lanka people get water for drinking and irrigating crops from rivers near the coast. Climate change has been affecting Sri Lankan seasonal monsoon patterns which cause intermittent flooding of some areas during the monsoon season followed by a dry season that takes up the rest of the year. In November 2012 and 2013, at least 500,000 people have died in central, northern and eastern Sri Lanka and many others have been affected by floods that have submerged villages, washed away 50 % of the paddy fields, destroyed vast quantities of stored produce. Another example, Meeriyabadda landslide affected to one village and many people die in 2015. Last year on May 15, 2016, more than 104 people have died in and hundreds of thousands have been evacuated after monsoon rains flooded three villages in Aranayake of Kegalle district.

The dry months which follow are increasingly more arid, causing widespread drought and consequently killing the dry season crops which help sustain the rural population. The country has reported droughts at least once in every three year. On February 12, 2017 Prime Minister Ranil Wickremesinghe presented a note to Cabinet titled "Formal Declaration of Emergency in view of the impending severe drought". Presently, there are 14 districts directly affected by the water shortage due to the prevailing dry weather condition across the country namely Trincomalee, Gampaha, Hambantota, Moneragala, Anuradhapura, Jaffna, Mulaitivu, Kilinochchi, Vavuniya, Ratnapura, Kegalle, Karunegala, Puttalam and Kandy. In the village of Kaluganga, more than 200,000 people were affected due to lack of access to clean drinking water. Contamination has been detected in water supplies in the town of Kalutara. Farmers have been badly hit by the dry spell as they have managed to plant only a third of the usual 800,000 hectares of paddy fields - the lowest in 30 years. [3]

Afghanistan and Pakistan

Both the countries are no strangers to the wild monsoon rains that strike South Asia every year. In August 2013, over 180 people died in Pakistan and eastern Afghanistan in flash floods. The floods have caused extensive damage to property in both countries. Over 80 % of Afghanistan's households depend on agriculture as their principal means of livelihood. Inadequate rains and snowfall during 2008 to 2010 in parts of Afghanistan caused significant failure of the rain-fed crops in the six provinces: Herat, Jawzjan, Balkh, Badghis, Faryab and Sar-e-Pul.

In mid-November 2016, Kabul residents and farmers were started fleeing to Pakistan. They were anxious about the depletion of their major source of water i.e snowfall. Addressing this issue, Kazim Humayun, the deputy director of Afghanistan's National Environment Protection Agency (NEPA) said "snow has decreased dramatically and the landscape is not made to absorb rain water. Droughts and land degradation can contribute to terrorism". He cited example from 2015 when due to less snow the insurgents were used to conduct hit and run attacks in northern and central Afghanistan because it was easy for

them to remain mobile and continue fight.

However, in February 5, 2017 Afghanistan's long drought has ended due to heavy snow when its National Disaster Management Authority (NDMA) announced extraordinary snowfall that had affected 22 of country's 34 provinces and destroyed more than 150 homes and killed more than 200 people. [4] Neighboring Pakistan was also hit by this powerful snowstorm. The worst hit areas were north-eastern province of Badakhshan, Nangarhar in the east and Parwan near Kabul. Glaciers in Hindu Kush of the Himalayas have been losing mass faster than glaciers in other parts of the world. Without doubt the main driving force behind the rapid melting of Himalayan glaciers and formation of the catastrophic Glacial Lake Outburst Floods (GLOFs) is warming due to climate change.

Nepal

In May 3, 2016 Nepal was hit by the most intense wave of drought in 40 years. The Karnali region which did not receive rain since July 2015 suffered the most. Lack of rain made the conditions of the farmers and residents in the districts of Humla, Dolpa, Kalikot, Jumla and Mugu very pathetic.

On April 25, 2015, a powerful earthquake killed nearly 9,000 people and destroyed more than 824,000 homes in Nepal. Tremors were felt in the neighboring Indian states of Bihar, Uttar Pradesh, Assam, West Bengal, Sikkim, Jharkhand, Uttarakhand, Gujarat, in the National capital region around New Delhi and as far south as Karnataka. On February 27, 2017, Nepal was hit by two earthquakes and sparked panic among the people which compelled them to rush out from their homes onto the streets.

Bhutan

The torrential rainfall, since 19 July, 2016 triggered multiple landslides in Bhutan. Four districts of Samtse, Chhukha, Tsirang and Sarpang in the southern part of Bhutan are worst affected by floods. Landslides damaged or in some cases destroyed many of the roads and cut off Athang, Laya, Lunana and Lhamoizingkhag villages. People faced scarcity of food and other consumer items. Sub-tropical diseases like dengue and malaria are beginning to emerge in the temperate climate of Bhutan.

India

India is highly vulnerable to natural hazards especially severe cyclones and unexpected floods, droughts, unseasonal rainfall in unimaginable quantities, landslides, thunderstorm, extreme weather, failing monsoons and farmer suicides etc. The most devastating tropical cyclone called **Hudhud hit the Visakhapatnam coast and Nepal during** October 2014. This caused heavy rainfall in Andhra Pradesh and snowfall in Nepal. At least 124 people have been killed due to the cyclone. Unexpected heavy floods caused the deaths of 280 people and displaced thousands from their homes in Chennai in December 2015. [5] This was due to climatic change that affects the equatorial Pacific region called the **El Nino effect**. Another recurring phenomenon is heavy rainfall. For instance, June 2013, **Uttarakhand** multi-day cloudburst which caused devastating floods and landslides not only in Uttarakhand but some parts of Western Nepal and Tibet also experienced heavy rainfall. As of July 16, 2013, according to figures provided by the Uttarakhand government, more than 5,700 people were "presumed dead". [6] Similarly, heavy monsoon rain and flash floods hit the state of Jammu and Kashmir as well as Pakistan administered Azad Kashmir, Gilgit-Baltistan and Punjab in September 2014 and killed nearly 277 people in India [7] and about 280 people in Pakistan. In May 2015, India reached the highest recorded temperature since 1995, a disgusting 55°C. Few months later in November, Jammu & Kashmir experienced a frigid -14.5°C, temperatures in **Punjab and Haryana** dropped to as low as 0.2°C and **Mumbai** faced one of its coldest days in history at 8.8°C. In May 2016, a new record was set in Phalodi, Rajasthan. In 2013, after receiving inadequate rainfall (less than 50% of the regional average), **Maharashtra** was forced to declare a drought. This rapidly became the region's worst drought in 40 years, with nearly 12000 villages suffering from widespread failure of crops. Jowar, bajra, cotton and tur crops were completely wiped out in the Kharif season, and the Rabi season saw the same result with the wheat, jowar and cotton crops. Other crops like sugarcane and wheat also failed. In 2013, at least 3146 farmers killed themselves in the face of endless loss, making farmer suicides 47% higher than suicides among the rest of the population. India is an agro-economy and so climate change is possibly one of the most detrimental things to happen to our

population and GDP. In 2016, inadequate rainfall (0-25%) raised concerns for Maharashtra. Nashik district was amongst the worst affected as ten talukas had received negligible rainfall. Indian agriculture is sensitive to climate change and variability. The major effects can be generalized as changes in the geographical limits to agriculture, changes in crop yields and impacts on agricultural system.

Possible Solutions

1. Seawater could flood much of the Maldives by 2080. Inter-Parliamentary Union (IPU) leaders of South Asia should discuss about the risks and can decide what they should do to protect Maldives from submerging into Indian Ocean. One way countries can prepare is by relocating people to safer places at higher elevations. Countries can pool resources and funds towards building artificial barrier islands that are higher above sea level. Maldives can build protective barriers like seawalls and dikes to stop the ocean from flooding the land. Developed world should extend help in this regard by directing developmental aid to the South Asian countries. Special Task Committees should be set up to look into how are the developing world using funds in protecting natural coastal barriers. However, to be successful, South Asian countries must rapidly accelerate the implementation of proven solutions such as building protective barriers like seawalls and dikes to stop the ocean from flooding the land, installation of solar panels capable of providing at least 35-40 MW of energy, use of natural gas etc.
2. IPU should work towards providing sustainable finance and technical support to Afghanistan. Government of Afghanistan should work towards developing inter-ministerial environmental capacity building methods. Government should develop and impart a curriculum for environmental education not only in schools, colleges but also in public-private sectors.
3. There are several structural methods can be taken by India, Bangladesh, Pakistan, Nepal, Sri Lanka, and Bhutan for disaster management of cyclones. The methods include construction of cyclone shelters, construction of cyclone resistant buildings, saline embankments etc. South Asian countries can approach developed countries for technology transfer (TOT) as well for use of clean technologies.
4. India should pass on its early warning dissemination systems techniques or technology to its counterpart countries.
5. Focus should be on conducting awareness generation programs on energy efficiency, workshops on development of renewable energy, training programs for the usage of renewable energy, and conferences with the aim towards low-carbon growth in South Asia.

Conclusion

According to the "Food Security: Near Future Projections of the Impact of Drought in Asia" report published by the Centre for Low Carbon Futures in 2012, a larger part of Asia is projected to experience increased risk of severe droughts with multiple impacts. Resource scarcity, severe droughts, heat waves, and conflict happen in South Asia have an impact on Middle East, South East Asia and Europe etc. Today, developed world cannot just isolate themselves from problems happening in other parts of the world. Similarly, South Asian region should prepare itself to pay little more towards Carbon Taxes as all the countries of South Asia has now signed the Paris Agreement for climate control. Every community should come forward to support the just cause by stop polluting our environment. Financial aid given by the developed world should be rightfully used by the developing world.

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