

Review Article

NAVIGATING CLIMATE CHANGE: EXTENUATING STRATEGIES TO COMBAT CLIMATE MIGRATION THREATS

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© Ontario International Development Agency. ISSN 1923-6654 (print)
ISSN 1923-6662 (online). Available at <http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html>

Abstract: When we speak of the most prone areas on the globe which will be severely affected by any mishap then it includes mainly Asia and the Pacific region. Not only in terms of the number of natural disasters occurring but also in terms of the population affected. Climate change is the issue that is seeking utmost importance in the present scenario and requires urgent attention. Talking about Asia specifically, South Asia is the focus to get affected by changing climatic conditions. South- Asia will not only see the adverse effects of climate change in future but it had been a stern and quite a frequent victim of climate change and the migration caused thereof. Spot lighting on the situation of Bangladesh, cross-border migration of millions took place to India over a period of time which not only caused internal imbalances but also emerged as a major threat to the security of the nation. History has witnessed many instances which caused not only the loss of lives of many but also gave rise to political and economic disturbances.

This paper aims to test the validity of the hypothesis that **climate change** in the coming years is likely to induce **massive migration** to and from **South Asia**, both within and **across the borders**. This paper analyses impacts of interaction of various adverse climatic events such as **glacial melt, sea level rise, floods, cyclones, erosion** etc, with various **social, political and economic factors** such as poverty, unemployment etc. on the trends of life patterns in South Asia which is among the most populous regions of the world. It further attempts to evaluate **the status of climate change refugees** and protections availed by them at the international level specially the inefficiency of the United Nations High Commissioner for Refugees (UNHCR) and International Organization for Migration (IMO) frameworks and the **Geneva Convention 1951**, in taking into consideration the plight of climate change refugees. It is a modest attempt on part of the authors

to demonstrate with the help of case studies, some of the likely **consequences and threats to security** which are likely to follow climate change migration. It further proceeds with **suggesting some plausible solutions** to the problems of climate change which in itself are a new discipline which has emerged recently and suggests **alleviation, resilience and adjustment** strategies such as, **mitigation, resilience and adaptation**. The authors have also put forth many steps and measures that can be taken both at the global and national level in order to reduce and minimize the risks caused by climate change.

Keywords: Climate Change, Migration, Security, Strategies, Threat.

INTRODUCTION

“What's the use of a fine house if you haven't got a tolerable planet to put it on?”

— Henry David Thoreau

Environment, the first thought that strike in mind considering the term is ‘something natural, the surroundings’. The word environment portrays everything about itself as the term is coined from French words ‘*environ*’ and ‘*ment*’. *Environ* means “to surround” or “to form a ring around” and *ment* means “having to do with”. Therefore environment can be defined as “the surrounding external conditions concerning and influencing the growth and survival of people, animals, plants; living or working conditions etc. the definition in itself has revealed the role of environment as the surroundings protecting the existence of human beings, plants and animals. The problem which arise is that conservation of environment had always been treated an issue of secondary importance and did not receive the same attention and concern as it is receiving in the current scenario. Reckless Exploitation of natural resources has led to serious environmental degradations, most

of them being caused due to depleting forests and increasing greenhouse emissions. It seems that the environment has reached its zero tolerance level and can bear no further. Adverse environmental impacts such as climate change, global warming is nothing more than a demonstration of agitation by the environment. These visible ecological factors have long had an impact on global migration flows, as people have historically left places with ruthless and waning conditions. However, the scale of such flows, both internal and cross-border, is expected to rise as a result of accelerated climate change, with unprecedented impacts on lives and livelihoods.¹ Climate change poses new challenges before the world community to protect the mother earth in order to ensure sustainability to them. After all, we do not inherit earth from our ancestors but we borrow it from our children. This calls for an immediate shift to much less carbon-intensive pattern of economic growth and incorporation of adaption measures to help cope with the adverse effects of climate change such as melting glaciers, global warming, rising sea levels, extreme weather conditions.² It is now increasingly realised that even with the currently agreed regime of emissions control, concentrations of greenhouse gases (GHG) are likely to rise over the next few decades and over the millennia. Climate change is likely to threaten all life forms on earth with the extent of vulnerability³ varying across regions and populations within regions.⁴

¹ See International Organization for Migration. 'Migration and Climate Change', <http://www.iom.int/cms/envmig> (last visited 1st September 2013).

² See Asian Development Bank, "Addressing Climate Change in Asia and The Pacific: Impacts on Food, Fuel, and People" available at <http://www.adb.org/publications/addressing-climate-change-asia-and-pacific-impacts-food-fuel-and-people>, (last visited 1st September, 2013), "*The Asian Development Bank has carried out various studies for assessment of likely impacts of climate change on Asian and Pacific Region and migration patterns that are likely to be observed in pursuance of the said changes. These study reports can be accessed individually as well.*"

³As per Asian Development Bank's Report on 'Addressing Climate Change migration in Asia and the Pacific' "*Though there is no one definition of vulnerability, three main elements can be identified that constitute the conceptual framework of vulnerability which are—exposure, sensitivity, and*

The main focus of the paper will be on the study of Climate change induced migration in South Asian region with predominant emphasis on India, Bangladesh, Pakistan and Sri-Lanka, as these countries are most vulnerable to climate change effects in the near future. Climate change brings with it plethora of extraordinary social and economic problems which the governments will have to deal within a very short period of time, generated because of unchecked global warming.⁵ . According to chapter 10 of the 'Assessment Report' of IPCC which deals specifically with Asia⁶:

"Countries in temperate and tropical Asia are likely to have increased exposure to extreme events, including forest die back and increased fire risk, typhoons and tropical storms, floods and landslides, and severe vector-borne diseases. The stresses of climate change are likely to disrupt the ecology of mountain and highland systems in Asia. Glacial melt is also expected to increase under changed climate conditions. Sea-level rise would cause large-scale inundation along the vast Asian coastline and recession of flat sandy beaches. The ecological

adaptive capacity. First two are directly proportional and the third one being inversely proportional constitute vulnerability."

⁴ See Ulka Kelkar and Suruchi Bhadwal, "South Asian Regional Study on Climate Change Impacts and Adaptation: Implications for Human Development", available at http://hdr.undp.org/en/reports/global/hdr2007-8/papers/Kelkar_Ulka%20and%20Bhadwal_Suruchi.pdf, (last visited 3rd September, 2013); "*Since, developing countries are lacking the capabilities to cope up with these climatic variations, they are more likely to be affected. The poor population living in these countries will be even more exacerbated.*"

⁵See Sudhir Chella Rajan, "Climate migrants in South Asia: Estimates and Solutions", A report by Greenpeace.

⁶See Cruz, R.V., H. Harasawa, M. Lal, S. Wu, Y. Anokhin, B. Punsalmaa, Y. Honda, M. Jafari, C. Li and N. Huu Ninh, 2007: Asia. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 469-506.

stability of mangroves and coral reefs around Asia would be put at risk.”

The IPCC goes on to estimate that even under its most conservative scenario, sea level in 2100 will be about 40 cm higher than today, which will cause an additional 80 million coastal residents in Asia alone to be flooded, majority of them being from South-Asia, particularly from India and Bangladesh.⁷ Climate change is threatening food production systems, livelihoods, and the food security of billions of people across the Asian region.⁸ Rapid growth in population and natural resource degradation, with continuing high rates of poverty and food insecurity make South Asia one of the most vulnerable regions to the impacts of climate change.⁹

Part I of the paper talks about the ‘Effects of Climate change in South-Asian Countries’; Part II of the deals with the ‘Migration Induced due to adverse effects of climate change’; Part III of the paper discusses the ‘Resilience, mitigation and adaption strategies’ and Part IV of the paper suggests some other recommendations and strategies needed to be adopted to avoid hustle-bustle at the time of climate migration and Part V concludes the paper.

PART I: CLIMATE CHANGE: WHAT WILL IT LEAD TO?

The consequences of climate change are varied but the ones who will get affected because of the consequences can be quantified into billions all over the globe. Since, the developing countries are not at all ready for such a change; therefore, the ones residing in the developing countries will be affected by the impacts of climate change the most. The adverse outcomes of climate change will not only cause loss of lives of millions alone in South Asia only but will also affect several nations economically as well. Rise in temperature will lead to glacial melt which will ultimately result in the increase in the sea level, thereby, making coastal areas most vulnerable. Nations with coastal borders will have to face losses of billions of dollars damage as an upshot of climate change.

Some common adverse effects that can be seen because of the climate change on the environmental conditions (specifically South Asian Countries) are:

⁷ ADB Report, Supra Note 3

⁸ ADB, Supra Note 2

⁹ See Mannava V.K. Sivakumar and Robert Stefanski, “Climate Change in South Asia” available at www.springer.com/cda/content/.../cda.../9789048195152-c2.pdf. (Last visited 5th September, 2013).

RISING TEMPERATURES:

Scientists have high confidence that global temperatures will continue to rise for decades to come, largely due to greenhouse gasses produced by human activities. The Intergovernmental Panel on Climate Change (IPCC), which includes more than 1,300 scientists from the United States and other countries, forecasts a temperature rise of 2.5 to 10 degrees Fahrenheit over the next century.¹⁰ The IPCC predicts that increases in global mean temperature of less than 1.8 to 5.4 degrees Fahrenheit (1 to 3 degrees Celsius) will produce beneficial impacts in some regions and harmful ones in others. Net annual costs will increase over time as global temperatures increase.¹¹ A report released by the World Bank estimates that by the end of this century, world would be warmer by 4° Celsius which would severely impact agricultural production, water resources, coastal ecosystems as well as the cities. This is in comparison to the pre-industrialization days.¹² This is likely to result in a 50% dip in water availability. In a grim finding, the report suggests that sea levels may rise by 50 cm as early as 2050 and by 100 cm by 2100. This could result in several heavily populated portions of land going under water.¹³ Freshwater availability projected to decrease in Central, South, East and Southeast Asia by the 2050s; coastal areas will be at risk due to increased flooding; death rate from disease associated with floods and droughts expected to rise in some regions.¹⁴ Across India, the frequency of “hot days” has been increasing gradually while the frequency of “cold days” shows a significant drop during the pre-monsoon season over the 1970–2005 period.¹⁵ As climate change is expected to worsen over the coming decades, the

¹⁰ See National Aeronautics and Space Administration, “The current and future consequences of global change” available at <http://climate.nasa.gov/effects>, (Last visited 2nd September, 2013).

¹¹ Id.

¹² See The Hindu, “South Asia among regions to take worst hit of climate change: Study”, available at <http://www.thehindubusinessline.com/news/south-asia-among-regions-to-take-worst-hit-of-climate-change-study/article4829899.ece>, (last visited 7th September, 2013).

¹³ Id.

¹⁴ See IPCC 2007, Summary for Policymakers, in Climate Change 2007: Synthesis Report, p. 11.

¹⁵ See Department of Economic and Social Affairs-Population Division, Population Estimates and Projections Section, “World Population Prospects, the 2010 Revision” (United Nations, 2010.); P.No. 29

average temperature of “hot days” will increase and annual mean surface air temperatures will rise to between 3.1°F (1.7°C) and 3.6°F (2°C) by the 2030s.¹⁶ In the Himalayan region, higher temperatures will increase glacier melt, creating the potential for flash floods and large-scale landslides. Viable agricultural land may rapidly decrease under these conditions, with land covered up by water or washed away by landslides.¹⁷ In the last 10 years severe cold waves have become common in Bangladesh (Roach, 2005), temperatures as low as 5°C were recorded in January 2007 which were the lowest in 38 years in Bangladesh and also affected the north of India and Nepal killing over 130 people.¹⁸ In Bangladesh a study of the Chittagong Hill Tracts has indicated that increased temperatures due to climate change in this already high rainfall areas will increase the number of cases of malaria. This pattern is likely to be repeated in other areas of Bangladesh in the north and east.¹⁹ Higher temperatures will result in increased glacier melt, increasing runoff from the neighbouring Himalayas into the Ganges and Brahmaputra rivers in the short term, with the possibility of them drying up in the long term.²⁰ The recent Intergovernmental Panel on Climate Change IPCC Fourth Assessment Report (FAR) states that glaciers in the Himalayas are

receding faster than in any other part of the world, and this can be attributed primarily to global warming.

CHANGES IN PRECIPITATION

An increase in the intensity of summer precipitation in the north-eastern region would lead to more runoff and landslides during summer rains. In the Western Ghats mountain range—an important biodiversity hotspot spanning 1,000 miles from Bangalore region in the south to Mumbai—unpredictable rains will impact cash crops such as coffee and tea, while increased rainfall in the northern region of the Western Indian mountain range may impact flooding and soil erosion.²¹ The rainfall extremes are increasing on average globally. They show that there is a 7% increase in extreme rainfall intensity for every degree increase in global atmospheric temperature. Assuming an increase in global average temperature by 3 to 5 degrees Celsius by the end of the 21st century, this could mean very substantial increases in rainfall intensity as a result of climate change.²² Dr Westra, a Senior Lecturer with the University of Adelaide's School of Civil, Environmental and Mining Engineering and member of the Environment Institute, said, “The results show that rainfall extremes were increasing over this period, and appear to be linked to the increase in global temperature of nearly a degree which also took place over this time and If extreme rainfall events continue to intensify, we can expect to see floods occurring more frequently around the world specially the Tropical countries.”²³ As temperatures rise, the likelihood of precipitation falling as rain rather than snow increases, especially in autumn and spring at the beginning and end of the snow season, and in areas where temperatures are near freezing.²⁴

SEA- LEVEL RISE AND FLOOD

The region's long and heavily settled coastlines are seriously threatened by sea-level rise. In Bangladesh alone, sea level is predicted to rise 45 centimetres by

¹⁶ See Arpita Bhattacharya and Michael Werz, “Climate Change Migration Conflict in South Asia,” P. No. 10, available at http://www.boell.org/downloads/Bhattacharyya-Werz_ClimateChange-Migration-Conflict-in-South-Asia.pdf, (last visited 20th August, 2013).

¹⁷ Id, P.No. 11, “*Rising temperature may have some secondary impacts as well, such as forest fires which may in turn result in loss of wood which is the only remedy available to the rural and tribal people during winters. Hot and humid climate may further exacerbate their difficulties facilitating the spread of Malaria causing Mosquito.*”

¹⁸ See James S.Pender, “What is Climate Change? And How it Will Effect Bangladesh?” available at <http://www.kirkensnodhjelp.no/Documents/Kirkens%20N%C3%B8dhjelp/Publikasjoner/Temahefter/FINAL%20Draft%20WHAT%20IS%20CLIMATE%20CHANGE%20AND%20HOW%20IT%20MAY%20AFFECT%20BANGLADESH.pdf>, (last visited 4th September, 2013).

¹⁹ Id

²⁰ William Alex Litchfield, “Climate Change Induced Extreme Weather Events & Sea Level Rise in Bangladesh leading to Migration and Conflict”, available at <http://www1.american.edu/ted/ice/Bangladesh.html> (last visited 3rd September, 2013).

²¹ Supra Note 15

²² See Science Daily, “Increases in Extreme Rainfall Linked to Global Warming”, available at <http://www.sciencedaily.com/releases/2013/02/130201100036.htm>, (last visited 29th August 2013).

²³ Id, “*Most of the Tropical countries are more prone to devastation as they are developing countries and are not self-sufficient in adapting to the risk of flood.*”

²⁴ IPCC, “The IPCC Explains... Changes in Precipitation,” available at <http://co2now.org/Knowledge-Changing-Climate/Climate-Changes/ipcc-faq-changes-in-precipitation.html>, (last visited 30th August, 2013).

2050, affecting 10%–15% of the land area and an estimated 35 million people.²⁵ Sea level is also projected to rise by around 15–38 centimetres in India by 2050, placing major cities driving regional growth at risk, including Kochi, Kolkata, and Mumbai. A high proportion of Sri Lankan coastal land is less than 1 meter above sea level, and could be submerged with the rising tides, along with critical transport infrastructure.²⁶ The Maldives' very survival is in jeopardy, as the average height of its islands is 1.5 meters above sea level, and its highest point is less than 2 meters above sea level.²⁷ Significant portions of Bangladesh, India, Nepal, and Sri Lanka are prone to recurrent flooding due to such factors as heavy monsoon rains, blocked natural drainage, and low elevation. Melting glaciers and rising seas with greater probability of flooding and storm surges caused by climate change will put Bangladesh at particular risk, as three large river systems converge there, merging the rainwater they collect from a catchment area 12 times the size of the country.²⁸ In the three South Asian countries sharing a coast line—Bangladesh, Pakistan and India, nearly 130 million people currently live in the area of about 160 thousand kilometres known as “Low Elevation Coastal Zone”, which comprises the coastal region that is between 10 metres above sea level.²⁹ The most vulnerable communities of coastal populations are those having the most exposure to stresses such as storm, surges and coastal erosion combined with inadequacy of institutions and infrastructure to cope with the accompanying physical and societal changes.

GLACIAL MELT

The Himalayas are a lifeline to some 1.5 billion people living directly in the floodplains of its many rivers. About 10% of the volume of Himalayan Rivers comes from melting water from glaciers, which are essential to sustain river flows during dry

seasons.³⁰ Evidences have been conclusive enough to make glacier melting as an important indicator for climate change. The net shrinkage and retreat of glaciers causing the increase in size and number of glacial lakes and thereby the possibility of increase in frequency of GLOFs in coming years.³¹ Earlier studies on selected glaciers of Indian Himalaya indicate that most of the glaciers are retreating discontinuously since post-glacial time. Of these, the Siachen and Pindari Glaciers retreated at a rate of 31.5m and 23.5m per year respectively (Vohra, 1981). Gangotri Glacier is retreating at an average rate of 18m per year Thakur et al. (1991). Shukla and Siddiqui (1999) monitored the Milam Glacier in the Kumaon Himalaya and estimated that the ice retreated at an average rate of 9.1m per year between 1901 and 1997.³²

CYCLONE AND EROSION

Cyclonic activity in the Bay of Bengal and the Arabian Sea are both expected to intensify. The deltas of the major Indian rivers—including the Ganges, Brahmaputra, Godavari, Krishna and Mahanadi—will experience more frequent flooding due to increased rainfall from cyclones and storms.³³ The hazard of coastal flooding is likely to be significantly increased in Bangladesh, in India in West Bengal and along the coast south to Chennai, and along a coastal strip from Karachi to Mumbai.³⁴ Cyclones, sea level rise etc. resulting in increasing floods in the region are contributing to soil erosion which is even worsening the conditions. In India, 26% of the coastline is prone to erosion, with 450 hectares of land lost every year. Sri Lanka's coastline is subject to significant erosion in certain areas, while the hill country is prone to frequent landslides. In

²⁵ Government of Bangladesh, Department of Environment. 2007. Climate Change Cell. Dhaka

²⁶ Asian Development Bank, Climate Change in South Asia: Strong responses for Building a Sustainable future” P. No. 7 available at <http://www.geasiapacifico.org/documents/Climate%20Change%20in%20South%20Asia.pdf>, (last visited 2nd September, 2013)

²⁷ Id, “Maldives is already troubled by the intrusion of water due to rising sea levels.”

²⁸ Supra Note 24.

²⁹ Supra Note 4, “A major segment of the people in India and Bangladesh lives in rural areas, which makes them even more vulnerable.”

³⁰ ADB. 2009. Building Climate Resilience in the Agriculture Sector in Asia and the Pacific. Manila: ADB / International Food Policy Research Institute;

³¹ Samjwal Ratna Bajracharya, Pradeep Kumar Mool, Basanta Raj Shrestha, “Global Climate Change and Melting of Himalayan Glaciers” available at <http://geoportal.icimod.org/Publication/Files/cf894b1a-d2df-46ca-9e7a-e0577d24ea4f.pdf>, (last visited 3rd September, 2013). “The ultimate target of these climatic changes will be people residing in mountains and hilly areas.”

³² Id.

³³ Supra Note 15

³⁴ Asian Development Bank, “Addressing Climate Change and Migration in Asia and the Pacific: the final report”, P. no. 23, available at http://reliefweb.int/sites/reliefweb.int/files/resources/addressing-climate-change-migration_0.pdf. (Last visited 20th August 2013).

mountain communities in Bhutan, India, and Nepal, landslides are occurring with disturbing regularity.³⁵

PART II: MIGRATION INDUCED DUE TO ADVERSE EFFECTS OF CLIMATE CHANGE

While the movement of people as a result of changes in the environment is not a new phenomenon, it is only in the last two decades that the international community has begun to recognise the wider implications that a changing climate and environment have for human mobility³⁶. While some states may cease to exist due to rising sea levels and floods etc., others may lose portions of territorial lands, which would in turn spur migration. The First Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR1) in 1990 noted that the greatest single impact of climate change might be on human migration. The report estimated that by 2050, 150 million people could be displaced by climate change related phenomenon like desertification, increasing water scarcity, floods and storm etc.³⁷ More recent studies on the impact of climate change estimates even more people to be displaced by the same period; for instance, Professor Norman Myers of Oxford University argued that ‘when global warming takes hold there could be as many as 200 million people displaced by 2050 by the disruptions of monsoon systems and other rainfall regimes, by droughts of unprecedented severity and duration, and by sea level rise and coastal flooding.’³⁸ Melting glaciers in the Himalayas are already causing sea levels to rise here, and scientists say Bangladesh may lose up to 20 percent of its land by 2030 as a result of flooding. That Bangladesh is among the most vulnerable countries on the planet to climate change is a tragedy for its 150 million people, most of whom are

destitute.³⁹ Scientists in Dhaka, the capital, predict that as many as 20 million people in Bangladesh will become "climate refugees" by 2030, unable to farm or survive on their flooded land.⁴⁰ The migration has already started. In 1995, half of Bhola Island, Bangladesh's biggest island, was swallowed by rising sea levels, leaving 500,000 people homeless.⁴¹ As per the fourth assessment report of IPCC⁴²:

“Climate-related disruptions of human populations and consequent migrations can be expected over the coming decades. Such climate-induced movements can have effects in source areas, along migration routes and in the receiving areas, often well beyond national borders. Periods when precipitation shortfalls coincide with adverse economic conditions for farmers (such as low crop prices) would be those most likely to lead to sudden spikes in rural-to-urban migration levels in PRC and India. Climatic changes in Pakistan and Bangladesh would likely exacerbate present environmental conditions that give rise to land degradation, shortfalls in food production, rural poverty and urban unrest. Circular migration patterns, such as those punctuated by shocks of migrants following extreme weather events, could be expected. Such changes would likely affect not only internal migration patterns, but also migration movements to other western countries.”

Observing various aspects of migration ADB in its final report on ‘Addressing Climate change’ mentions two very important points that depict the trends in migration⁴³:

The massive growth in mega cities in coastal areas significantly increases the population exposed to the risks posed by climate change. This is of particular importance where high-risk areas have experienced high levels of damage. Because damage exerts post-disaster employment opportunities, there is the great risk of higher migration rates in cities that are often damaged than in cities that are less affected. People

³⁵ Supra Note 25, “In south Asian Region, majority of the population resides in rural areas and is dependent on land for their survival especially on agricultural activities. Loss of Land due to erosion therefore results in loss of livelihood and shelter to the rural people.”

³⁶ Philippe Bancour, “Climate Change, Environment and Migration”, available at <http://climate-l.iisd.org/guest-articles/climate-change-environment-and-migration/>, last visited 2nd September, 2013

³⁷ http://www.ipcc.ch/publications_and_data/publications_ipcc_first_assessment_1990_wg2.shtml, (last visited 6th September, 2013).

³⁸ Myers, Norman, ‘Environmental Refugees: An emergent security issue’, 13th Economic Forum, May 2005, Prague, available at <http://www.osce.org/documents/eea/2005/05/14488-en.pdf>, (last visited 4th September, 2013).

³⁹ Emily Wax, In Flood-Prone Bangladesh, a Future That Floats, WASHINGTON POST, Sept. 27, 2007, at A1, available at <http://www.washingtonpost.com/wp-dyn/content/article/2007/09/26/AR2007092602582.html>, (last visited 4th September, 2013).

⁴⁰ *Id*

⁴¹ *Id*

⁴² IPCC, Climate change 2007: Synthesis Report, available at http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm, (last visited 4th September, 2013).

⁴³ Supra Note 33, at 15.

are likely to move to places of high vulnerability, not only away from them.

Temporary, cyclical, and permanent rural–urban flows are creating strong rural–urban links. Across Asia and the Pacific, such migration is generated by real and perceived inequality of opportunity, and increasing impoverishment in rural areas.

Yet vast uncertainties exist on how people will respond to these long term environmental changes. The relationship between climate change and migration flows is often thought to be of a deterministic nature, where all populations living in regions affected by climate change would be forced to relocate. Many empirical studies show, however, that this relationship is far more complex, and is compounded by a wide range of social, economic, and political factors.⁴⁴ With so many other social, economic and environmental factors at work establishing a linear, causative relationship between anthropogenic climate change and forced migration has, to date, been difficult. The meteorological impact of climate change can be divided into two distinct drivers of migration; climate processes such as sea-level rise, salinization of agricultural land, desertification and growing water scarcity, and climate events such as flooding, storms and glacial lake outburst floods.⁴⁵ But non-climate drivers, such as government policy, population growth and community-level resilience to natural disaster, are also important. All contribute to more vulnerable people living in more marginal areas.⁴⁶ Another Complexity which lies here is in the definition of ‘Climate migrants’. Various terms are generally used to address them are climate refugees, environmental refugees, environmentally induced migrants, climate refugees etc. The issue was tried to be settled for the first time by the United Nations Environment Programme (UNEP)⁴⁷ by designating them as ‘environmental refugees’. However, the term

‘refugee’ as defined under the 1951 Geneva Convention is very restricted in scope and includes within its ambit only a person who is "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country or ; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it."⁴⁸

Since, the element of persecution is missing in case of climate refugees and there are chances of getting them back to their country of origin, the term ‘refugee’ defined above does not include ‘climate refugees’. Therefore the terms ‘environmental refugees’ or ‘climate refugee’ have no legal basis in ‘International Refugee Law’. Even the In this context, the office of the United Nations High Commissioner for Refugees (UNHCR)⁴⁹ and International Organization for Migration (IMO)⁵⁰ have advised that the terms like ‘Climate Refugees’ or Environmental Refugees’ should be avoided in order not to undermine the international legal regime for the protection of refugees.⁵¹ However, the terminology itself is problematic. It may be asked as

⁴⁴ Id, at 1.

⁴⁵ Oli Brown, “Climate change and forced migration: Observations, projections and implications” p. no. 2, available at http://hdr.undp.org/en/reports/global/hdr2007-8/papers/brown_oli.pdf, (last visited 7th September 2013).

⁴⁶ Id

⁴⁷ “*The United Nations Environment Programme (UNEP) is an international that coordinates United Nations environmental activities, assisting developing countries in implementing environmentally sound policies and practices. It was founded as a result of the United Nations Conference on the Human Environment in June 1972.*”

⁴⁸ 1951 United Nations Convention Relating to the Status of Refugees (the Refugee Convention)

⁴⁹ The UN refugee agency is governed by the UN General Assembly and the Economic and Social Council (ECOSOC). As head of the organization, the High Commissioner is responsible for the direction and control of UNHCR. He/she directs the work of UNHCR with the assistance of a Deputy High Commissioner and Assistant High Commissioners for Protection and Operations.

⁵⁰ The International Organization for Migration is an intergovernmental organization. It was initially established in 1951 as the Intergovernmental Committee for European Migration (ICEM) to help resettle people displaced by World War II. It is the principal intergovernmental organization in the field of migration. IOM is dedicated to promoting humane and orderly migration for the benefit of all. It does so by providing services and advice to governments and migrants.

⁵¹ Biermann, Frank and Ingrid Boas; “Protecting Climate Refugees: The Case for a Global Protocol”, available at <http://www.environmentmagazine.org/Archives/Back%20Issues/November-December%202008/Biermann-Boas-full.html>, (last visited 2nd September, 2013).

to why call them 'Environmentally displaced people or Environmental Refugees or climate Refugees' because it's not only the environment or the climate that is responsible for displacement. In fact, a wide array of political, economic, social and environmental factors such as poverty, population, availability of resources etc. along with environmental hazards and climatic changes contribute towards the determination of Migration. Moreover, why should only a particular segment of poor people mostly belonging to developing countries should be forced to bear the outcomes of the wrong-doings of the richer nations?⁵² Therefore, this call for a need for a separate recognition of the status of 'Climate change induced migrants' and additionally, a separate legal framework should also be created to address the issues of forced displacement or climate induced migration. Because, the problems and displacements arising out of climate change are of recent origin and involve multi-disciplinary issues which are not solely confined to any one of human rights and International Environmental Law regime, but both and will not be addressed adequately if forced within legal frameworks (such as UNFCCC and Geneva Convention 1951) not designed to handle it. Therefore, may be a separate convention on 'Protection of Rights of Climate Change Refugees' can be framed.⁵³

The impacts of climate change may be more severe or may be something for which developing nations in the tropical region may not be even prepared for. For instance, along with other extreme weather events like flooding and tropical cyclone, sea level rise is an impending threat to the coastal areas in Bangladesh which has long and densely populated coastlines with many low-lying remote islands. In the severe climate change scenario, sea level rise poses an existential threat that would inundate 18 percent of Bangladesh's total land, directly impacting 11 percent of the country's population. Salt water intrusion from sea level rise in low-lying agricultural plains, along with other hazards, could lead to 40

percent decrease in food grain production and would increase forced migration to the urban slum areas.⁵⁴ Estimates show that with just a 1 to 2 degree increase in temperature would force physical dislocation of more than 35 million people in Bangladesh. It's a question of survival for such low-lying coastal countries and low-lying islands nations, for instance it's a concern of existence of the people of the Maldives that are located only few meters above sea level. About 85 per cent of the Maldives' main island, which contains the capital Male, would be swamped. Most of the Maldives would be turned into sandbars, forcing 300,000 people to flee to India or Sri Lanka. Vietnam could lose 500,000 hectares of land in the Red River Delta and another 2 million hectares in the Mekong Delta, displacing roughly 10 million people. In West Africa, up to 70 per cent of the Nigerian coast would be inundated by a one-meter rise, affecting more than 2.7 million hectares and pushing some beaches three kilometres inland. Gambia's capital, Banjul, would be entirely submerged. In the Mediterranean, Egypt would lose at least 2 million hectares of land in the fertile Nile Delta, displacing 8–10 million people, including nearly the entire population of Alexandria. The demise of this historic city would cost the country over \$32 billion, close to a third of its annual gross national product (GNP) in 1999. South American cities would suffer some of the worst economic effects. In Guyana 600,000 people would be displaced – 80 per cent of the population. The cost would be \$4 billion, or 1,000 per cent of Guyana's tiny GNP.⁵⁵

Another problem that lies is with internally displaced persons (IDPs). Most of the governments decline to provide any aid and assistance to the IDPs. IDPs are persons who are forced to leave their homes but don't not cross borders and shift to some other place in the native country. This requires that Internally displaced persons should also be a part of the framework to deal with climate change displacement more broadly, because sometimes, situation may arise where the

⁵² The one who created the mess, should clean it up, "Polluter Pays Principle." Therefore the richer nations should come forward and the states who contributed the most to the Problem should take up the responsibility of providing relief to those who are suffering its effects.

⁵³ See Bonnie Docherty and Tyler Giannini, "Confronting A Rising Tide: A Proposal For A Convention On Climate Change Refugees", available at http://www.law.harvard.edu/students/orgs/elr/vol133_2/Docherty%20Giannini.pdf, (last visited 30th August, 2013)

⁵⁴ See Karim, Z., S. G. Hussain, and A. U. Ahmed. 1999. Climate Change Vulnerability of Crop Agriculture. In *Vulnerability and Adaptation to Climate Change for Bangladesh*, eds. S. Huq, Z. Karim, M. Asaduzzaman, and F. Mahtab. Kluwer Academic Publishers

⁵⁵ Md Shamsuddoha and Rezaul Karim Chowdhury, "Climate Change Induced Forced Migrants: in need of dignified recognition under a new Protocol", available at <http://www.glogov.org/images/doc/equitybd.pdf>, (last visited 29th August, 2013).

local governments may not be in a position may be due to economic or other reasons to protect the community. This is where the role of international community comes in play and this aspect deserves attention as the international community develops ways to deal with climate change migration. The proposed definition of 'climate refugees' may include the following elements in order to consider a refugee, a victim of climate change:⁵⁶

(a) Forced migration; (b) Temporary or permanent relocation; (c) Movement across national borders;(d) Disruption consistent with climate change; (e) Sudden or gradual environmental disruption; and (f) A "more likely than not" standard for human contribution to the disruption.

LEARNING FROM PAST EXPERIENCES

Assam is located in North-eastern region of India forming a part of the seven sisters. It shares international border with the neighbouring country, Bangladesh. Though, Assam is not that much affected by the climate change consequences, perhaps, it is most vulnerable when it comes to threat caused by the displacement of millions of migrants because of climate change. The reason behind such a threat to Assam is because of Bangladesh which is referred to as most vulnerable country in South Asia to climate change impacts. As per the report of the Asian Development Bank⁵⁷ the migrants pushed into Assam from Bangladesh ranks first in the world followed by migrants from Mexico to United States of America. Assam faces a lot of straight and roundabout effects of climate change.

Studies reveals that in September 2012, because of the flood alongside the Brahmaputra river in 18 of 27 districts approximately 1.4 million⁵⁸ people expatriated and around 6 million people were migrated in July. Bangladesh gets severely affected by the impacts of the climate change is due to its low lying geography and dense population. Since all these migrations are unplanned, therefore, Assam is becoming more and more prone to internal security

⁵⁶ Supra Note 50, "The definition of climate change refugee also specifically requires that the refugees be forced not just to relocate, but to relocate across borders. This important detail ensures that migrants do not have incentives to leave their state unnecessarily, potentially precipitating an international crisis, because they believe they will receive better protections elsewhere."

⁵⁷ ADB Report, Supra note 2.

⁵⁸ Zarir Hussain, India floods displace nearly 1.5 million people, (September 24, 2012), http://www.google.com/hostednews/afp/article/ALeqM5h_cC4Urn1lOsuI6vwZlJbWDqBOrA.

threat as well. These migrations results in a sudden increase of population causing land issues as well since the availability of land is very much restricted and the ones claiming its ownership increases. Climate change results in a lot of land erosion in the hilly areas. This set hurdles for Assam to pre-plan infrastructure as the migration depends on the severity of the factor that led to migration.

STRESS EVOLVED

In the year 1980, there was a group in Assam namely All Assam Student Union began a movement for deportation of illegal Bangladeshi migrants to Assam. They claimed that those migrants were directly and severely affecting the economy of the state and is also increasing a threat of internal security within the state. The movement lasted for five years and the death toll was above 7,000.

Looking at a picture more recently, in the year 2012 there was again a clash between the Bodo tribe and Muslims in Assam and Bodo tribe demanded for the deportation of illegal Bangladeshi migrants to Assam. The main issue of conflict between the two communities was because of the building of a mosque. This led to reallocating of almost half a million to relief camps⁵⁹. Politicians as well as the members of the Bodo tribe blamed the increasing number of illegal Bangladeshi migrants to Assam for such stress and upheaval in the region⁶⁰. The situation got even worse when text messages and e-mails were circulated stating that muslim community is planning for a big attack against the Assamese residing in several parts of India, particularly in Bangalore and Chennai. Even till October 2012 almost 1,33,000 people were still there in the relief camps⁶¹. Assamese strictly demanded for the identification and deportation of illegal Bangladeshi migrants.

PART III: ALLEVIATION, RESILIENCE AND ADJUSTMENT STRATEGIES

⁵⁹ IBN Live, "Assam violence: Bodo areas calm, rehabilitation starts," September 3, 2012, available at <http://ibnlive.in.com/news/assam-bodo-areas-calm-rehabilitation-starts/287786-3-251.html>.

⁶⁰ Gaurav Vivek Bhatnagar, "It's locals vs. outsiders in Assam, says Gadkari." The Hindu, August 7, 2012, available at <http://www.thehindu.com/news/states/other-states/article3738326.ece>.

⁶¹ The Times of India, "Centre wants Assam to resettle all BTAD Muslim riot victims," October 13, 2012, available at http://articles.timesofindia.indiatimes.com/2012-10-13/guwahati/34430325_1_btc-areas-btc-accord-reliefcamps.

CLIMATE CHANGE MITIGATION

Climate Change Mitigation refers to efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour. It can be as complex as a plan for a new city, or as a simple as improvements to a cook stove design. Efforts underway around the world range from high-tech subway systems to bicycling paths and walkways. Protecting natural carbon sinks like forests and oceans, or creating new sinks through silviculture or green agriculture are also elements of mitigation.⁶² Mitigation is the main response that must be made to prevent future impacts of climate change.⁶³ This calls for a need of restructuring the entire society, polity as well as economy in a manner sufficient enough to operate at a low carbon level and hence mitigate the future possibilities of climate change. The following sectors require a new way of thinking to ease the pressure on the environment. These are:

AGRICULTURE

Agriculture operations currently produce 13 percent of human-based global GHG emissions. The environment is paying a huge price in biodiversity loss and deforestation, while the global economy leaks billions of US dollars per year on conventional agriculture's economic side effects.⁶⁴ However, GHG emissions from agriculture sector can be controlled and minimised even with a little attention and caution and can be indemnified by reducing agricultural wastes and inefficiency with small investments in simple farming and storage technologies along with

promotion of research and capacity building.⁶⁵ The respective governments can start awareness programs and promote reduction in chemical fertilizers, increasing soil fertility by growing leguminous crops in rotation with other crops, increasing rice production for increasing soil carbon stock and reduction of CO₂ from air etc.

FOREST

Deforestation and forest degradation through agricultural expansion, conversion to pasture, infrastructure development, destructive logging, fires etc., account for nearly 20 per cent of global greenhouse gas emissions - more than the entire global transport sector and second only to the energy sector.⁶⁶ There is huge potential for tree planting, forest protection and agroforestry in South Asian countries especially India and Bangladesh to mitigate climate change. Furthermore the presence of trees and forests benefits communities in many ways such as: Adapting to climate change impacts, maintaining natural resources and promoting sustainable development⁶⁷. It is now clear that in order to constrain the impact of climate change within limits that society will reasonably be able to tolerate, global average temperatures must be stabilized within two degrees Celsius.⁶⁸ What is needed is a stable global regime that would attract investment in forest-derived goods and assure their equitable and sustainable production.⁶⁹ To help the developing nations achieve these goals, United Nations has come up with 'The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries' also known as UN-REDD programme⁷⁰ with a mandate to assist

⁶² Climate change Migration, available at <http://www.unep.org/climatechange/mitigation/Default.aspx>, (last visited 9th September, 2013).

⁶³ Pender, J.S. 2008. What Is Climate Change? And How It Will Effect Bangladesh. Briefing Paper. (Final Draft). Dhaka, Bangladesh: Church of Bangladesh Social Development Programme. available at <http://www.kirkensnodhjelp.no/Documents/Kirkens%20N%C3%B8dhjelp/Publikasjoner/Temahefter/FINAL%20Draft%20WHAT%20IS%20CLIMATE%20CHANGE%20AND%20HOW%20IT%20MAY%20AFFECT%20BANGLADESH.pdf> (last visited 7th September, 2013).

⁶⁴ See United Nations Environment Programme , Climate Change Migration, 'Agriculture'; available at: <http://www.unep.org/climatechange/mitigation/Agriculture/tabid/104336/Default.aspx>; (last visited 10th September, 2013).

⁶⁵ Id

⁶⁶ See United Nations Environment Programme , Climate Change Migration, 'Redd Plus' ; available at <http://www.unep.org/climatechange/reddplus/Default.aspx>, (last visited 10th September, 2013).

⁶⁷ Supra Note 62.

⁶⁸ Id

⁶⁹ See United Nations Environment Programme , Climate Change Migration, 'Forests' available at: <http://www.unep.org/climatechange/mitigation/Forests/tabid/104338/Default.aspx>, (last visited 10th September, 2013).

⁷⁰ The UN-REDD Programme is the United Nations collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD+) in developing countries. The Programme was launched in 2008 and builds on the convening role and technical expertise of the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP)

developing countries to build capacity to reduce emissions and to participate in a future REDD+ mechanism. For the purpose of this strategy, REDD+⁷¹ refers to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.⁷²

ENERGY

While the global community wrestles with climate change, it must also grapple with a host of issues resulting from current patterns of energy consumption, including energy security, pollution, and enduring energy poverty.⁷³ The current fossil fuel-heavy energy system is not only environmentally unsustainable, but also highly inequitable, leaving some 1.4 billion people without access to electricity and much of this growing energy demand is occurring in developing countries, where rising fossil fuel prices and resources constraints are putting additional pressure on the environment and the economy.⁷⁴ Therefore, as far as practicable alternative sources of energy (renewable sources) should be used.

TRANSPORT

Transport sector is responsible for 1/4th of the energy related GHG emissions. Therefore, public transport should be promoted over private transport. For this transformation to happen, however, there needs to be a major shift in the way we think about investing in transport. UNEP proposes a three-pronged strategy: Avoid–Shift–Clean. Help users avoid or reduce trips—without restricting mobility—through smarter city planning and land use options. Shift passengers away from private vehicles to public and non-motorized transport, and freight users from trucks to rail or water transport. Finally, make vehicles cleaner,

through both efficiency improvements and cleaner fuels.⁷⁵

WASTE

Turning the waste stream a brighter shade of green, however, can actually create economic opportunities. Managing waste, from collection to recycling, is a growing market, currently estimated at US\$ 410 billion per year, not including the substantial informal segment in developing countries.⁷⁶ Recycling, in particular, will grow with a greening of the waste sector, and actually creates more jobs than it replaces. Investment in greener waste management can produce many environmental and economic benefits, including resource savings, nature protection, and employment and business opportunities.⁷⁷

A systemized approach has also been taken by UNFCCC to deal with mitigation of climate change and it requires all Parties, taking into account their responsibilities and capabilities, to formulate and implement programmes containing measures to mitigate climate change.⁷⁸ Mitigation actions could be economy-wide, cover several or single sectors, such as energy supply and demand, transport, buildings, industry, agriculture, forestry and waste management. There is a number of mitigation options, which Parties may use taken into account their national circumstances, availability of technology and financial resources, mitigation potential and the policy implementation issues.⁷⁹

The Kyoto Protocol "operationalizes" the Convention by committing industrialized countries to limit greenhouse gas emissions. Overall, emission limitation or reduction targets add up to, at minimum, five per cent emissions reduction compared to 1990 levels over the five-year period 2008 to 2012.

and the United Nations Environment Programme (UNEP).

⁷¹ RED+ is a nationally led mission under UN-REDD programme and includes conservation, sustainable forest management, and enhancing forest stocks.

⁷² The UN-REDD Programme Strategy 2011-2015, available at <http://www.un-redd.org/PolicyBoard/tabid/102628/Default.aspx>

⁷³ See United Nations Environment Programme , Climate Change Migration, 'Energy' available at: <http://www.unep.org/climatechange/mitigation/Energy/tabid/104339/Default.aspx>, (last visited 10th September, 2013).

⁷⁴ Id

⁷⁵ See United Nations Environment Programme , Climate Change Migration, 'Transport', available at <http://www.unep.org/climatechange/mitigation/Transport/tabid/104346/Default.aspx>, (last visited 10th September, 2013).

⁷⁶ United Nations Environment Programme , Climate Change Migration, 'waste' , available at <http://www.unep.org/climatechange/mitigation/Waste/tabid/104349/Default.aspx>, (last visited 10th September, 2013).

⁷⁷ Id

⁷⁸ United Nations Framework Convention of Climate Change, Mitigation - Action on mitigation: Reducing emissions and enhancing sinks <https://unfccc.int/focus/mitigation/items/7171.php> (last visited 9th September 2013).

⁷⁹ Id

Negotiations are currently on-going to decide on a second commitment period of the Protocol.

NATIONALLY APPROPRIATE MITIGATION ACTIONS

Developing country Parties have been contributing to global mitigation efforts in several ways. The clean development mechanism (CDM) has been an important avenue of action for these countries to implement project activities that reduce emissions and enhance sinks. More recently, developing countries have agreed to implement Nationally Appropriate Mitigation actions, or NAMAs, with support from developed countries.

BUILDING RESILIENCE AND ADAPTATION

Resilience to climate change is related to a community's adaptive capacity, which depends on a range of factors. Although poverty remains a major challenge in building resilience, disaster risk reduction is the first line of defence in adapting to climate change. For a few decades there was a clear move towards strengthening preparedness, and ensuring a more effective and efficient response. From the 'preparedness saves lives' approach came the insight that economics played a significant role and a recognition that a longer-term approach was required to reduce disaster risk and build resilience.⁸⁰ Resilience depends on a variety of factors including financial resources, governance, information, social resources, infrastructure, and technology. Improvement in these factors can reduce the need for people to migrate, but migration can also be a way to improve these factors.⁸¹ Slow-onset environmental changes may lead to declining farm yields and other economic impacts that can be addressed through social protection measures that create new income-earning possibilities. Food cash transfers can protect against poverty and hunger when natural disasters strike.⁸² The Hyogo Framework for Action (HFA)⁸³,

⁸⁰ UNISDR, WMO, "UN System Task Team on the Post 2015 UN Development Agenda, http://www.un.org/millenniumgoals/pdf/Think%20Pices/3_disaster_risk_resilience.pdf

⁸¹ Supra Note 33

⁸² Id

⁸³ The World Conference on Disaster Reduction was held from 18 to 22 January 2005 in Kobe, Hyogo, Japan, and adopted the present Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (here after referred to as the "Framework for Action"). The Conference provided a unique opportunity to promote a strategic and systematic approach to reducing vulnerabilities and risks to hazards.

which is the first plan to explain, describe and detail the work that is required from all different sectors and actors to reduce disaster losses⁸⁴ adopted the five priorities for action⁸⁵:

(a) Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation. (b) Identify, assess and monitor disaster risks and enhance early warning. (c) Use knowledge, innovation and education to build a culture of safety and resilience at all levels. (d) Reduce the underlying risk factors. (e) Strengthen disaster preparedness for effective response at all levels

Beyond providing the means for recovering from a disaster for insurance policyholders, insurance policies are designed to encourage policyholders to take prudent measures to reduce their risks.⁸⁶ Because insurance is priced to reflect the risk assumed by the insurance company, actions that reduce risk may be rewarded with reduced insurance premiums.⁸⁷

URBAN RESILIENCE

Urban systems include infrastructure and ecosystems that support the high density of human occupation and economic activity in cities, and are essential to create the productive opportunities central to urban life.⁸⁸ Yet, most cities are unprepared to address these challenges characteristic of our 21st century world. What's more, poor and vulnerable populations tend to face more constraints in terms of means to cope and recover, due to inadequate infrastructure and services⁸⁹ and lack of safety nets. The results are

⁸⁴ UNISDR, 'Hyogo Framework for Action' available at <http://www.unisdr.org/we/coordinate/hfa>, (last visited 5th September, 2013).

⁸⁵ World Conference on Disaster Reduction, 'Hyogo Framework for action 2005-15' available at <http://www.unisdr.org/2005/wcdr/intergov/official-doc/L-docs/Hyogo-framework-for-action-english.pdf>, (last visited 9th September 2013).

⁸⁶ Supra note 33

⁸⁷ Id

⁸⁸ The world Bank, 'Building Urban Resilience Principles, Tools, and Practice' available at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/03/08/000356161_20130308155433/Rendered/PDF/758450PUB0EPI0001300PUBD ATE02028013.pdf, (last visited 10th September 2013).

⁸⁹ Ashvin Dayal, 'Building Urban Resilience,' The Nation, Opinion, 2013, May 14, available at <http://www.nationmultimedia.com/opinion/Building-urban-resilience-30206024.html>.

disrupted livelihoods and increasing inequality. When arriving in urban areas, new migrants particularly from poor rural backgrounds, often settle in slums at the outer urban regions or near construction sites and other places of economic opportunity. The high population densities, unregulated and limited water supply, and lacking sanitation and sewage operations are favourable conditions for spreading diseases.⁹⁰

Migration can itself be used as an adaptation strategy. If used in a constructive manner, migration can be beneficial for the country of origin as well as the host country. Migration from the country of origin alleviates the risk as the number of people vulnerable to climate change decreases and the remittances sent by the migrated people to the native country are a boon to the economy of the native country. Similarly, if the anti-immigrant attitudes of the host countries are torn apart and the basic human rights of the migrants are protected and they are provided with humanitarian aids and basic rights such as health care, education, and political participation, then they human resource, potential and manpower can be utilised in a constructive manner by the host country by providing them services, livelihood, land, accommodation etc.

However, none of these objectives can be achieved without the co-operation and assistance of international community at large. Therefore, it is recommended that Acceptance and protection of the climate refugees should be made a top priority among the political agendas of all the countries.

PART-IV: RECOMMENDATIONS PROPOSED

WHAT CAN BE DONE AT NATIONAL LEVEL

Reducing the vulnerability of the poor through adaptation: The first and foremost step needed to be taken is to aware people about the consequences of the climate change. Governments should take steps to spread awareness amongst the people residing in regions which are likely to get affected by the outcomes of climate change. Mock drills should be conducted for those who are poor and illiterate for their better understanding about the situation. People shall be told as to how to act in certain emergency situations like flood or landslide and how to escape from such scenes. Also, they must be made aware as to where to mobilise during such conditions and circumstances.

Implementation of governmental policies: What can be done on part of the governments is to implement certain policies that can be implemented at the time of the climate change migration.

Government shall allocate funds in advance in order to meet the requirements at the time of the climate change migration. Also, the funds thus allocated, shall be in accordance with an approximately number of the people who are likely to get affected due to climate change.

Alternative Evacuation Plan: People will be rehabilitated to a certain place once they are stuck because of the consequence of the climate change.

Emergency Response Team or Disaster Management team: This team should comprise of experts in the area to handle the situation so as to mitigate the effects of the disaster and can respond instantly during the situation.

Control Illegal migrations: Strict regulatory policies shall be made so as to control illegal migration. This is one of the major and most essential step which needs to be implemented especially in India because if such a step is not taken in India instantly then there are chances that India will have to face a lot of more internal tensions and stress as a result of illegal migration like the one in 1980 and 2012.

Improvising Infrastructure: Another major step that shall be taken to address the issues and challenges of climate change is to improve the infrastructure of the country. Government shall promote and focus more on apartment system rather than villas and separate cottages. The major drawback of cottages is that it acquires more space and provide residence to a very few number whereas on the other hand apartments acquire a very small area of land and provide residence to a lot of people. Governments shall also try to promote structures like sky cities and Burj Khalifa (Dubai).

WHAT CAN BE DONE GLOBALLY

Need for a convention and signing of treaty: Countries should sign treaties in which the developed countries should take an undertaking to control the green House Gases emissions as they are more industrialized than those of the developing nations thus pose a greater threat to the environment. Authors are not of the view that developing countries should not take any kind of undertaking but what the authors are trying to convey is that the magnitude of responsibility should be greater on part of the developed nations as compared to that of the developing countries.

Broaden the scope of refugees and migrants in already existing conventions: What else needs to be done is that since UNHCR and IOM does not legally defines climate migrants and do not deals with the situations arising out of climate change and thereby

⁹⁰ Supra note 84.

leading to climate refugees. Certain provisions shall be made in the already existing conventions for the climate migrants.

Need for separate convention for climate migrants: If there is a separate convention for the climate refugees or climate migrants then it will be a lot easier to tackle the situations and challenges faced by them. This centralized agency should act binding on all the nations signatories to the convention. Moreover, the regulation for the same shall be made focusing and keeping in mind the areas or the countries which will be get affected most by such a climate hit.

Settlement across the globe: Climate migrants and environmental refugees shall be allowed to settle across the globe. Proper investigation shall be conducted before allowing the migrant to settle in the respective country but there shall be such provision in order to decrease the quantum of damages suffered as a result of climate migration. If such a provision is made, then the countries which are affected because of the climate change disasters will be less burdened to relocate their citizens.

Financial Assistance: Countries can provide financial assistance to the countries which gets affected by the climate change. Developed countries or the countries which did not get affected by the climate change calamity. Such an extension of helping hand will prove to be of great help to the ones got affected by the climate change debacle.

PART V: CONCLUSION

Climate change is one of the most serious concerns that the world is facing currently. The threat to global security has been increasing considerably with the drastic changes in the climatic conditions across the globe. Migration is one amongst those threats which seems to be quite inevitable in the present circumstances caused because of the climate change. Studies shows that South Asia will be the centre of getting affected by the changing climatic conditions. On a very close observance, we will find that South Asia specifically, India has fallen a prey to the disturbance and chaos caused because of climate change in past as well. This majorly includes the riots and tensions vaporized because of the migration of a huge population from Bangladesh to India.

This paper discusses about greenhouse emissions as one of the major reasons for global warming which ultimately results in climate change. Though, the percentage contribution of greenhouse emissions by India is very nominal but there is a need to stop even this nominal emission and focus on remedies to the problems as India is on the verge of getting

devastated due to the above mentioned reason by the end of the century. If this emission not stopped it will not only lead to impoverishment but also to loss of life as well. What needs to be done is the planning and implementation of such governmental policies that can be executed during the time of migration. Moreover, governments can also enter into international agreements and conventions in order to execute the same at the time of migration of millions. Planned migration will reduce the risk of threat to security to a great extent.

Therefore, it is the need of the hour to take qualitative and quantitative moves to avoid social instability and increasing tensions because of such migration due to climate change which the world will face as millions will turn homeless.