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Environmental Degradation and Patterns of Human Migration Evidence from South Asia and South-East Asia

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Abstract

This paper is about how and by what ways climate change affects human migration. The world at large is expected to face crises of dual nature. In the first place, excessive fossil fuel consumption would result in environmental degradation. Among others, people would be faced with serious food crises as well as reduced income. In the wake of environmental change, people will migrate in search of better income prospects and food security. There is no doubt that there a strong but direct relationship between climate change and human displacement. This displacement may either be long distance or a short distance in other cases. If it is a short distance, there is a possibility that it will be temporary, and as soon as the climate change event is over, people may return back to their habitats. It may be a long-distance if climate change-related event takes place on regular intervals over a long period of time. Data is collected through secondary sources.

Key Words: Climate Change, Environmental Degradation, Migration, Asia, Floods

Introduction

'You think migration is a challenge to Europe today because of extremism, wait until you see what happens when there's an absence of water, an absence of food, or one tribe fighting against another for mere survival' (Secretary of State John Kerry, August 31, 2015).

There has been and will continue to be a strong and powerful relationship between environmental change and human migration both within and between states (Geddes, Adger, Arnell, Black, & Thomas, 2012). The reason, perhaps in most instances, to migrate in response to climate change is to reduce dependence on natural resources and diversify means of income (Tacoli, 2011). Though environmental change may force millions to leave their homes, people primarily resort to migration as an adaptive measure to better cope with climate variations. However, as the world is considered to be ill-equipped to deal with and address the potential large-scale displacement of people, climate-induced migration has emerged as one of the serious challenges for policymakers in the 21st century.

Though the direct and indirect relationship between climate changes and migration of affected population has won much media attention, unfortunately, fewer academic efforts in terms of research work have been devoted to digging out as to how this causal-effect mechanism unfolds on the ground. This research work primarily analyses and tries to explore this relationship between these two phenomena from different angles and perspectives. To begin with, this research paper argues that environmental change results in food scarcity and decrease in income because of the poor productivity from sectors which are more dependent on favorable climate patterns for better productivity. Moreover, resource erosion and

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demographic transformations due to climate change may also result in violent conflicts among different communities. Resultantly, environmental degradation leads to migration of affected people from one place to another over the course of time. However, the patterns of migration such as temporary or permanent, short distance or long distance and national or international would depend heavily on the nature and intensity of climate change events and processes along with other interlinked factors such as social networks and availability of financial resources to decide whether to migrate or not.

While making my argument, this paper will take Asia as a case study with a greater focus on South and East Asia to analyze the causal-effect relationship between climate change and migration. The reason to choose Asia as a case study is that, given its crisis-ridden economic systems and limited institutional capacity to respond effectively to natural and human-induced disasters, it is perhaps the most vulnerable region in terms of geographical location and demographic exposure to confront the negative consequences of climate change. For example, six of the ten megacities in Asia including Mumbai, Jakarta, Manila, Bangkok, Tokyo and Shanghai are situated in low-lying areas of their respective countries, thus making them extremely vulnerable to the negative consequences of natural disasters, resulting from environmental degradation. Moreover, there is every possibility that large parts of coastal areas of Indonesia, Malaysia and Thailand will be washed away by floods caused by rising sea level forever (Dupont & Pearman, 2006). The picture is even bleaker for China in East Asia where it has 40 percent of its total population, 60 percent of its known wealth and 70 percent of its major cities concentrated in coastal areas. In short, the crux of the matter is that if environmental degradation continues and if timely remedial measures are not introduced, the stability and security of Asian nations can be at serious risk.

The first part of this study defines basic terms to draw the scope of the essay. The second part will analyse the effects of climate change and subsequent migration, while the last part will shed light on migration patterns in the wake of environmental change.

'Environmental change is a long-term shift in the patterns of the climate' (NOAA, 2007). This is primarily due to human activities, mainly because of the burning of fossil fuel that has resulted in the concentration of greenhouse gases in the atmosphere. As a result, the world is warming and will continue to warm in the centuries ahead with significant impacts on sea-level rise and changes in weather patterns with consequences for human health, ecosystems, and the economy (PEW center on Global Climate change, 2009). As there are predictions that climate change will badly upset the normal functioning of the ecosystem, there will be more floods and droughts, heatwaves, powerful storms and other extreme climate events that will have long term multi-dimensional effects on human societies.

While defining those displaced by climate change, this essay will use the term 'environmental migrants' instead of 'environmental refugees' because those fleeing environmental stresses can't be categorized as 'refugees' under the provisions of United Nations' 1951 Convention and 1967 Protocol that concern the status of refugees under international law. These two legal documents recognize a person to be a refugee only if he tries to escape persecution for reasons of race, religion or nationality and seeks refuge in a country other than that of his nationality (Brown, 2008). What may be argued here is that 'climate-induced refugees' are not defined as 'legal refugees' under the norms of international law. However, along with legal obstacles, there have been political reasons too for not including those displaced by climate change in the category of refugees.

In this respect, the strongest resistance comes from developed countries who are reluctant to expand any further the definition of the word 'refugee' to include those who are forced to migrate because of changes in climate. The reason being that these countries fear that accepting the legality of the term 'climate refugee' will force them to offer them the same rights and privileges as political refugees; a kind of precedent that no state is ready to establish. In other words, developed countries are not willing to share any more burden of new refugees. Moreover, the principal international institutions/organizations responsible for the provision of basic services to refugees such as UNHCR are also reluctant to accept any further expansion in the pool of their mandate (Brown, 2008). These organizations fear that given the significant burden of a

large number of existing refugees, they believe that they are already overstretched and so can't afford any further addition to the existing stock of refugees because that will bring their institutional capacity and limited financial resources under immense pressure.

As climate migrants lack any clear definition under the prevailing international law, such refugees have been invisible in the existing international system. In other words, they have fallen through the cracks in the existing refugee law (Brown, 2008). However, it doesn't mean that these people can't be defined or categorized. The International Organization for Migration (IOM), the principal organization whose primary concern is to take care of migrants, defines environmental migrants as 'people who have been forced to leave their habitat of origin, temporarily or permanently, because of environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life' (Renaud, Bogardi, Dun, & Warner, 2008, p. 01). This definition addresses the problem of 'forced migration' in the wake of environmental degradation primarily. The reason being that hardly anyone may be willing to leave his habitat of origin voluntarily; rather, people are forced to migrate in the wake of environmental decline after they exhaust all available coping strategies.

Although, migration in the wake of environmental degradation is mostly forced, at times it can be voluntary too. In certain situations, voluntary migration is more advisable in response to adverse climate changes because there are minimum chances of exposure to the negative effects of climate hazards, the risk of displacement is reduced (Wilkinson, Kirbyshire, Mayhew, Batra, & Milan, 2016). Moreover, as such migration is planned, it can result in certain positive and healthy outcomes for migrants such as better job opportunities and provision of basic social services at the destination. However, it must be borne in mind that voluntary migration is most expected to happen in response to slow-onset climate change processes.

Climate Change and Migration, a Complex Relationship

Scientific research maintains that the nexus between environmental degradation and subsequent migration is self-evident (Singelmann, Slack, & Myers, 2008). Shamsuddoha & Chowdhury (2009) maintains that migration is affected by climate change in three distinct ways. In the first place, the drying and warming of the earth will significantly disturb the ecosystem services along with effecting the fertility of cultivable land, thus resulting in reduced productivity from the agriculture sector. Secondly, the increase in the frequency of extreme weather events such as heavy precipitation, leading to flash or river floods in certain tropical regions of the world. Lastly, a rise in sea level is certain to destroy the highly productive low-level coastal regions that are home to hundreds of thousands of people who will be forced to move into safer places permanently in search of better lifestyle (Shamsuddoha & Chowdhury, 2009, p. 03). All these three inter-related situations directly result in the displacement of large chunks of the population, forcing them to migrate to the nearby localities in order to deal with the unfavorable consequences of environmental degradation.

On many occasions, it has been observed that floods, droughts, storms and many other climate-related factors have resulted in significant internal and international human migration flows. For instance, in 2010-11, more than 42 million people were displaced by sudden-onset environmental-related changes (Asian Development Bank, 2012). It is predicted that things may worsen if the world didn't act proactively to deal with climate change processes. Studies indicate that the number of 'environmental migrants can reach 200 million by 2050 if existing policies are not changed to effectively deal with environmental degradation (Brown, 2008).

Data suggests that an increase of 1 to 2 degrees in temperature will cause the physical displacement of some 35 million people in Bangladesh only. It may put at risk the survival of many people, especially those living near low-lying coastal areas and low-lying islands. For example, it is predicted that about 85 per cent of the Maldives' main island, including Male, may experience increased floods due to rising sea level, thus forcing 300,000 to migrate either to Sri Lanka or India. Vietnam is expected to lose 500,000 hectares

and 2 million hectares of land in the Red River Delta and Mekong Delta, respectively, dislocating about 10 million in total (Shamsuddoha & Chowdhury, 2009).

What may be deduced from the above figures is that the more vulnerable an individual to the ill-effects of climate change-related disasters, the more he is expected to migrate to a safer location. However, it is worth mentioning here that at the beginning of a disaster, not all people in the locality are equally vulnerable to the negative effects of climate change. People with better and more survival strategies resist migration for longer times than those with fewer survival strategies (Drabo & Mbaye, 2011). However, as the duration of a disaster prolongs, a time comes when the coping strategies are equally reduced for all members of society. At such a point, all families are affected in the same manner by the disaster, and so, they are left with no other option, but to move to safer places.

There is no denying the fact that climate change affects migration, but the mechanism through which the former impacts the latter is not yet fully explored and understood. For those involved in the policymaking process, it is important to ascertain what motivates or prevents people from migration once a disaster takes place (Pitch, 2017). However, what may be argued here is that the relationship between climate change and migration is fairly complex. In some situations, environmental degradation and disasters may result in direct migration of the people while on other occasions, climate change events are part of the complex paradigm, which interact with the socio-economic dynamics of a given locality to increase the likelihood of migration.

Developing countries are most vulnerable to climate-induced displacement. Data suggests that between 2008 and 2014, 95 per cent of those displaced by various climate-related disasters were from developing countries (Pitch, 2017). These figures may be reflective of the fact that most developing countries, faced with financial constraints and limited institutional capacity, find it hard to deal with pre- and post-disaster situations in order to mitigate its ill-effects (Waldinger, 2015). Moreover, what is ironical is that most of the policies to cope with disasters are reactive, instead of proactive in nature, especially in developing countries. The result of all this is greater exposure to the vulnerabilities of worse climatic shocks in the long as well short run.

On many occasions, climate change can be a powerful driver for migration. But there can be situations when deteriorating environmental conditions may impede the movement of the affected population (Wilkinson, Kirbyshire, Mayhew, Batra, & Milan, 2016). Climate change works as a barrier to migration when the environmental degradation gradually undermines the fiscal capacity of the affected population, who, in return, find it difficult to move, even if they are at risk. For instance, changes in climate have significantly reduced the financial capacity of farmers in rural areas in Malawi, especially the capital, which is needed for migration. The decision to move is further complicated by the lack of social networks at locations where affected people are more expected to move. In such a situation, the decision to migrate may become too hard, and people think it to be more convenient to stay at a place where they belong.

Climate Change Effects on Agriculture Productivity and Migration

'Climate change can act as a hunger risk multiplier' (Krishnamurthy, Lewis, Kent, & Aggarwal, 2014). As agriculture systems are most sensitive to the effects of climate change, for it relies heavily on favorable weather conditions for increased productivity. The stability and availability of food can be affected directly by changes in rainfall and temperature patterns. Moreover, the loss of fertile land to rising sea level, the destruction of standing crops by floods, storms and the decreased productivity because of rising earth temperature can all result in reduced yields from the agriculture sector. Recent studies testified this relationship between climate change and reduced productivity.

Although production gains are projected in some regions of Asia, it is predicted that the net effect of changes in climate patterns will result in reduced productivity from agriculture over a longer period of time. The region's food security has already been subject to increased pressure from a rapid rise in population; the situation will further exacerbate with climate degradation in the years to come. Historical data on climate

change and crops yield reveals that for every degree Celsius increase in temperature, there is an expected 4 to 5 million tons of decrease in wheat productivity in South Asia. Furthermore, it is ironical to note that 60 percent of agriculture in Asia is rain-fed (Krishnamurthy, Lewis, Kent, & Aggarwal, 2014). What may be deduced here from these figures is that food security has been under significant threat in the wake of changes in climate patterns in Asia, thus putting the survival of many millions at stake.

Predictions and calculations differ about reduced productivity from agriculture sector due to climate change. According to Consultative Group on International Agricultural Research, food productivity in Asia is predicted to decrease by as much as 20 percent because of climate change (Dupont & Pearman, 2006); while some estimates suggest that climate shifts will cause 40 percent reduction in agriculture production by the end of the century. Similarly, it is predicted that the intrusion of saltwater into the low-lying agriculture plans due to rising sea level will cause 40 percent reduction in food products, thus forcing a large number of people to move to urban slum areas in Bangladesh (Cited in Shamsuddoha & Chowdhury, 2009). Recent events and evidence confirm these predictions. For example, in the year 2002, dry season caused India a loss of 15 percent in rice production in one single year (Krishnamurthy, Lewis, Kent, & Aggarwal, 2014). What can be argued here is that the decline in agricultural productivity leads to reduced food security, thus prompting people to migrate to more prosperous nearby regions.

Pakistan's Tharparkar region experienced the same situation in 2014, where years of prolonged droughts have seriously damaged the productivity of rain-fed agriculture, leading to migration of 450 families to the nearby bordering districts (Baloch, 2014). What may be asserted here is that the local population, especially in developing countries, continues to remain socio-economically dependent on agriculture. However, the lack of alternative livelihoods in such countries in the wake of climatic variations risks may eventually lead to large-scale population displacement across the region. The level of threat, maybe, even more, alarming in the future. In South Asia, the ADB reports, it is feared that the rise in sea level along with an increase in inland floods due to melting of Himalayan glaciers may cause the displacement of some 20 million in India and 26 million in Bangladesh, primarily those dependent on agriculture for livelihood, by the year 2050 (Asian Development Bank, 2009).

A great majority of those who migrate in response to reduced productivity from agriculture are poor farmers with a smallholding. This is due to the reason that the relationship between farmers and agriculture is of exclusive dependence. Given their conservative approach towards worldly matters and lack of proper opportunities, these people have not been able to diversify their means of income to reduce their increased dependence on agriculture. Any change in the pattern of climate can be detrimental to crop yield, thus putting farmers at risk of starvation. Moreover, farmers, especially those who don't own any land but apply physical labour on other's land to sustain their life, are perhaps one of the poorest sections of society. For that reason, they don't have many coping strategies. They can't resist migration for long if they experience food scarcity or poor productivity continuously for two to three years due to climate change events or processes.

Importantly, in the face of catastrophic food crises, people may resort to migration as a survival strategy because any further stay will mean an invitation to certain death. However, the patterns of migration are determined by the severity of the crisis, effectiveness of relief operations and access to transportation by those in distress (Maharatna, 2016). In the first instance, food scarcity and associated problems force people to migrate to locations with better food availability and productivity. However, when food shortage becomes more acute, resulting in starvation or famine-like situation, 'migration takes the form of sheer wondering—instinctive, desperate, and indecisive movements/roaming in search of food' (Maharatna, 2016). For people facing a food crisis, migration may be the only way to stay alive.

Climate Change's Effects on Income and Migration

Environmental change has the potential to negatively affect the income level of people in multiple ways (Waldinger, The effects of climate change on internal and international migration: implications for developing

countries, 2015). The worst-hit maybe those who are attached to agriculture for their livelihood. The negative changes in climate patterns will certainly result in decreased net income returns because of reduced productivity. For instance, it has been noticed that a few additional hot days with an unexpected rise in temperature can negatively affect the crop growth, resulting in the likelihood of harvest failure (Waldinger & Fankhauser, 2015). In India, one standard deviation increases in high-temperature days in a year results in decreased agricultural productivity and real wages by 12.6 % and 9.8 %, respectively (Burgess, Deschenes, Donaldson, & Greenstone, 2014). What this essay argues is that income is affected directly or indirectly through reduced productivity.

The strong effects of climate change on income level, especially from the agriculture sector in developing countries is one of the drivers to migrate (Waldinger, 2015). However, this essay argues that to cope with such a situation, people may migrate to commercial centres either by completely changing their profession and join other sectors of the economy for livelihood or may opt for income diversification by adhering to agriculture as their chief profession but may migrate to urban areas during off-seasons to supplement their decreasing income from agriculture. Studies show that in India, where the agriculture workforce reduced by 30.7 million between 2004 to 2012 due to climate change as they found it difficult to make both ends meet because of the repeated floods and storms. The net effect was that a vast majority of this workforce migrated to urban areas to join other sectors for consistent, predictable income returns (Burgess, Deschenes, Donaldson, & Greenstone, 2014). Migration in situations of income diversification and maximization reduces family risks and ensures greater availability of capital to better cope with environmental degradation at home.

Though climate change does affect income from non-agricultural activities (Waldinger & Fankhauser, 2015), this relationship is highly complicated. The reason being that temperature is not a recognized input factor in non-agricultural processes (Waldinger, 2015). Though the theoretical links for this narrative are not clear because of the scarcity of empirical data, it is well established that increased temperature can result in thermal stress which results in lower labor productivity. For example, there are indicators from rural Pakistan where extreme temperature reduced non-agriculture income by 16 percent (Mueller, Gray, & Kosec, 2014). The reason is that extreme heatwaves hit the working schedules negatively, often resulting in unemployment or under unemployment of the working class both in rural and urban centres.

As neo-classical economists consider a migrant to be a rational being, movement, in such situations, is for income diversification or income maximization in the face of adverse climate change effects. Perhaps, it is the consideration of income differentials or maximum net returns for one's physical labour and investment that has been the major reason for migration. Consistent with this approach is the fact that migration reduces family income risks as well as overcome capital constraints. This essay argues that, in situations where people expect that environmental change will affect their present or future level of income adversely, they consider migration as inevitable.

Climate migrants move to decrease the exclusive dependence on agriculture to be the sole mean of livelihood and use migration as a risk management strategy. Migration for income diversification results in varied migration patterns. Most of the time, a family doesn't migrate in entirety. Rather, a young male, most probably an educated member is expected to migrate who may be in a better position to find a job (Abebe, 2014). What can be deduced is that such patterns of migration are strategic to supplement the decreasing household income.

The Nexus Between Climate Change and Remittances

Migration, best defined as an adaptive strategy to better deal with socio-economic, political and environmental transformations by diversifying sources of income and reduce the exclusive dependence of agriculture (Tacoli, 2011), in the wake of natural disasters and shocks may have a healthy effect on remittances transferred by emigrants to the left-behind family members. It has been observed in the case of the Philippines that during times of natural disasters, remittances sent back by Filipino diasporas to their

country of origin have increased. With the receipts of such remittances, the Filipino households with migrants abroad have been better able to manage the income losses they suffer because of increased rainfall (Pitch, 2017).

Importantly, remittances help increase the resilience of households to mitigate the worst effects of climatic variations. Reports indicate that remittances sent by out-migrants had been a significant factor in maintaining the social resilience for those living in the coastal regions in Vietnam for years (Adger et al. (2002)). However, it is worth mentioning here that out-migration for income diversification to reduce risks from natural disasters is mostly split. Split migration may be regarded as an insurance strategy whereby the head of household diversifies risk by allocating human assets to various locations (Tse, 2012). Out-migration to diversify means of income through remittances has the additional advantage that these migrants bring with them new skills and capital once they return to the place of their origin that further help them to better cope with unfavourable circumstances.

Empirical evidence suggests that in split migration, a younger, technically more skilled and educated male member of the family is forced to migrate. Ironically, this brain-drain of technically skilled individuals from developing to developed countries is further accelerated by climate change events and shocks. This loss of human capital in the shape of brain-drain can potentially undermine the development potential of developing countries. Moreover, these developing countries lose their skilled labor at a time when they need their services the most to deal with the negative effects of climate change-induced disasters.

Patterns of Migration

Climate disasters push people to migrate from one place another (Myers, 2007). However, this essay argues that affected people resort to migration as a coping mechanism or adaptation strategy to better deal with climate change effects. Research indicates that the timing, scale and choice of destination are strictly driven by two inter-linked climate change phenomena; 'climate processes' such sea-level rise and water scarcity and 'climate events' such as flooding and storms (Brown, 2008). This essay argues that climate events are sudden and rapid in comparison to climate processes, which may be termed a crisis in the making over a longer period of time. Resultantly, the two lead to varied migration patterns, directions and durations.

Sudden Versus slow onsets and Migration Patterns

As climate events such as floods, storms and heatwaves come about rapidly, they force people to migrate immediately, often temporarily to the nearby regions (Perch-Nielsen, Bättig, & Imboden, 2008). This essay argues that sudden onsets result in the displacement of people who migrate to the geographically closer neighbouring areas and return back once normalcy returns to the affected locality. Moreover, as migration in the wake of rapid onsets is mostly unplanned, people, in the first instance, try to shift to the immediate nearby safe places in distress to secure shelter and food. However, as they lack the luxuries of the good life in the newly designated place, they prefer to return to their habitat of origin once normalcy returns.

According to Kartiki (2011), the majority of migrants settled just outside the flood zones in the wake of Ghaghara floodplain in India and returned to their place of origin as soon as the crisis were over. Similarly, in the case of Bangladesh, after Aila cyclone in 2009, people migrated from the affected villages to the geographically closer villages in the neighbourhood (Kartiki, 2011). However, it is important to note that migration in response to sudden events is forced, resulting in the displacement of large chunks of the population at once from affected areas, who are relocated to refugee camps where they live under extreme inhuman conditions. Perhaps, a life without basic facilities can be one other important reason for migrants to return as soon as the crisis is over.

This essay argues that, as migration is a costly and physically exhaustive adaptation strategy, people in the first instance see these sudden disasters as transitory in nature and so, decide to stay and try to cope with them (Perch-Nielsen, Bättig, & Imboden, 2008). Moreover, social bonds and emotional attachment

with the current location of residence can also offset the potential decision not to migrate. But once these disasters become a matter of routine or become dangerous and life-threatening, people resort to migration as something inevitable.

In comparison to sudden climate events, slow onsets such as pro-longed draughts and a rise in sea level may lead to different migration patterns. The continuous decline in ecosystem services, including progressive soil degradation, or durable draughts may give rise to long-distance, long term migration (Pitch, 2017). As slow-onset climate changes lead to long term permanent negative consequences as seen in the case of sea-level rise in Bangladesh, that leads to permanent loss of land (Black, et al., 2011), people think it more convenient to shift their work and residence to safer places in entirety. Importantly, slow-onset eats up means of livelihood gradually, and this migration is more of voluntary in nature because 'effects from environmental changes are more difficult to detect and disentangle from other drivers' (Geddes, Adger, Arnell, Black, & Thomas, 2012).

Empirical evidence from Bangladesh shows that prolonged droughts in Monga prone districts in the northwest during the winter, and the north-eastern Haor-affected areas, which face water logging during monsoon have resulted in more permanent and long-distance migration of the affected families (Marshall & Rahman, 2013). The decision to move permanently increases the likelihood of migration to places that are different from their places of origin (Foresight, 2011). The reason is that they expect and hope for better environmental conditions and economic opportunities at a new location and so often undertake long-distance migration within the same country.

Climate-induced migration can either be national or international (Pitch, 2017). The decision of destination depends on the family and social networks, availability of employment opportunities and migration policies of the destination countries if people decide to migrate to another country. However, it has been observed in many cases in both developed and developing countries that people remain within their borders and close to places where they belong. Considering the internal migration of some 7000 households over a period of 15 years in Indonesia, the study revealed that people mostly migrated from one province to the next bordering province in the case of floods and earthquakes (Pitch, 2017). Similarly, studies on Tsunami in 2004 in Indonesia and Sri Lanka indicate that people migrated from the affected areas to the neighbouring urban areas (Naik, Stigter, & Laczko, 2004).

The reason for internal migration is that long-distance movement may involve migration to a place with a difference in language, customs and entitlement to compensation packages. All these factors may put the migrants in challenging surroundings that he certainly doesn't want to come across. Moreover, the prohibitive cost of international migration can also add up to one's decision to migrate internally within the country.

McLeman and Hunter (2010) maintain that movement across international borders in response to climate change is expected to be high too. However, this essay argues that compared to the number of people migrating internally, the number of international migrants is too small, especially in developing countries (Waldinger, The effects of climate change on internal and international migration: implications for developing countries, 2015). The reason is that international migration involves more legal and financial intricacies, including strict borders management, visa regulations and increased cost of border crossings. In Asia, this issue has the additional dimension of tense political relations between many neighbouring countries, resulting from maintaining tight border control with zero tolerance for immigrants. For example, to inhibit the large influx of climate migrants from Bangladesh, India has started to fence its border along its border with some parts of Bangladesh (Newland, 2011). Moreover, the more competitive international labour market and the perceived difficulties to adjust to the completely unfamiliar environment in a foreign country are factors that discourage international migration.

As climate change can trigger international migration (Newland, 2011), this essay maintains that climate change influences international migration in more indirect than direct manner. In many cases, climate change has resulted in migration from rural to urban areas, together with from agriculture to a non-agriculture

sector (Marchiori , Maystadt, & Schumacher, 2011). Only in India, 30.57 million agriculture labor force left rural areas and migrated to urban sectors in search of better job opportunities between 2004-12 (KPMG, 2015). As this internal migration results in the availability of more workers in the urban areas, there is downward pressure on wages in urban centres, thus motivating workers to migrate across international borders. For example, there are increasing evidence of migration of rural agricultural workers to urban industrial centres in Bangladesh, leading to the subsequent migration of skilled workers to India in the hope for better net income (Kartiki, 2011). As these workers are more skilled and sounder technically, they are more eager to seek employment in a more competitive market.

South Asia is home to millions of illegal undocumented migrants (Anderson, Shamsuddoha, & Dixit, 2016). Given their weak economic infrastructure and tense bilateral relations, these countries have plugged legal channels to prohibit the inflows of all kinds of migrants, including those displaced by climatic variations, from neighboring states. These restrictive measures are often counter-productive, leading to entry through illegal channels like smuggling and human trafficking. According to Katha (2011), in the case of post-Aila migration, all migrants were found to be irregular and undocumented from Bangladesh to India. Majority of these migrants managed to cross the border with the help of human smugglers by making handsome payments (Kartiki, 2011). This essay argues that despite the erection of many physical and administrative barriers, climate migrants find their way to cross borders in large numbers.

What this essay further argues is that as poor and unprivileged segment from rural areas is more exposed to unpleasant effects from climate change, they are more vulnerable to migrate in comparison to wealthy and resourceful people. Moreover, the majority of these people are solely dependent on agriculture for their income and livelihood, climate shocks like flood, storm and draughts interrupt their means of income seriously and force them to migrate. However, this essay maintains that the decision to migrate either internally or across international borders and either short or long distance depends heavily on the availability of resources. It is not necessary that those more vulnerable will move from affected sites. In other words, it is not essential that migration should be an automatic response to climate change events. Instead, those with information and financial resources are more expected to migrate in the wake of climate change events and processes.

Conclusion

Environmental change is one of the drivers of migration. On many occasions, it leads directly to displacement and migration while in some situations, the interplay between climate change events and socio-economic factors of a locality force people to migrate. Climate change will be a source of food insecurity, decreased productivity that will hit people's income negatively, especially those who are more dependent on agriculture for livelihood as well as a source of conflicts between local people and migrants. However, climate-induced migration can best be termed as an adaptation strategy and coping mechanism to escape the worst effects of environmental degradation. This is the reason that people resort to different migration patterns in the wake of climate-induced disasters.

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