Human Security and Climate Change Induced Disaster: Bangladesh Perspective

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Abstract: *The present world is vulnerable to many types of disaster. Climate change induced disaster is the main of the types. On the other hand, 'human security', a new buzz-word, is being heard increasingly these days. It is generally focused on people and not on states. The growing frequency of natural disaster is a big concern for human security worldwide. As disaster prone country, Bangladesh has its concern in human security. The geophysical location along with high density of population and other factors make the country climate induced disaster. The central aim of this study to explore human security situation in climate induced disaster in Bangladesh. This study also tries to unveil scientific explanation of global climate change. Security dimension of disaster, issues of human security and disaster management and challenges of climate change induced disaster are discussed in this study.*

Introduction

Human security can no longer be understood in purely military terms. Rather, it must encompass economic development, social justice, environmental protection, democratization, disarmament, and respect for human rights and the rule of law.

Kofi Annan (2001)

Background

'Human Security' is a fundamentally important concept, which looks at the root causes of the vulnerability of individuals and the connections with other social issues. Climate change, natural hazards and extreme weather events are not some distant future human security threat. The threat is very much existed at present, it is real and there is no debate with this at global political level and among the scientists. In the recent past, climate change has impacted negatively on the livelihoods of people particularly the rural dwellers in many countries (Ahmad, 2010). Indeed, in present days, more people are threatened by natural hazards and extreme weather than at any time in history. Last year, 134 million people suffered from natural disaster that cost thousands of lives, as well as $ 35 billion in damage. It is a fact that the number of people affected has roughly doubled every ten years.

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Disasters are not new in human civilization. They have adversely affected humans since the dawn of human existence. Disaster brings multiple stresses with serious social, political and security implications. A disaster can be recognized as a major human security issue that poses serious threats to the people, which also intensifies the challenges and could have a 'chain reaction' with unpredictable consequences. In response, individuals and societies have made many attempts to decrease their exposure to the consequences of these disasters, developing measures to address initial impact, as well as post-disaster response and recovery. Regardless of the approach adopted, all of these efforts have the same goal, i.e. Disaster Management.

Human security is to protect the vital core of all human lives in ways that enhance human freedom and human fulfillment. This means protecting fundamental freedoms that are the essence of life. It means protecting people from critical (severe) and pervasive (widespread) threats and situations. It means using processes that build on peoples' strengths and aspirations. It means creating political, social, environmental, economic, military and cultural systems that together give people the building blocks of survival, livelihood and dignity. Human security is associated with broad three types of human vulnerabilities, like, chronic vulnerabilities arising from basic needs including food, shelter and health; contextual vulnerabilities arising from the socio-economic and political process; and context of human life and vulnerabilities arising from extreme events, such as natural and human made hazards.
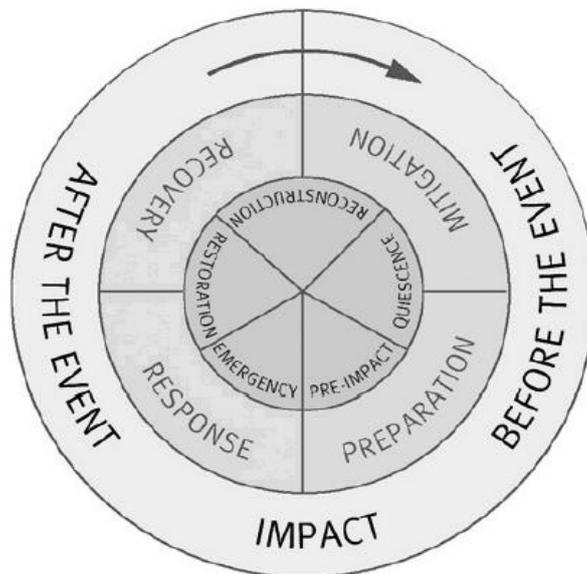
Source: Alexander, 2002

Climate change posses one of the greatest challenges for human security in the 21st century, yet there is a major disconnect between our actions to deal with it and the gravity of the threat it implies. Many countries even could not make standing operating procedure (SOP) so far to handle such issues. According to Worldwatch (2007), due to sea level rise (SLR) for climate change, total 21 countries of the world including Bangladesh are under serious risks. In Bangladesh, severe human sufferings and insecurity incidences are taking place due to frequent natural disasters like floods, cyclones, draught, tidal surges, tornadoes, river erosion, fire, infrastructure collapse, water logging, high arsenic contents of ground water, water and soil salinity and earthquakes. Climate change adds new dimension to human security, risk and vulnerability. Unless, concerted efforts are taken to reduce this human security vulnerability, the impacts from natural disasters will not improve and safeguard of the human lives and properties will not be ensured.

Statement of the Problem

Climate change induced disasters and human security is no or more less a problem over world. Continuous changes in the climate variability due carbon emission and other human activities on entire environment make this problem more multifarious day by day. The emission of carbon by the richer or developed world, their over consumption of resources and other economic activities push the developing and underdeveloped countries to the risk of climate change induced disasters. The developing and underdeveloped world (e. g., Bangladesh, India, Myanmar, Nepal etc.) always face various climate induced disasters, especially, Bangladesh face these disasters (floods, tropical cyclones, drought, salinity, arsenic contamination, chemical pollution, water-logging, river and coastal erosion, hailstorms, tornadoes, tidal surge, earthquake, landslides, fire, roadside accidents etc.) in an average every year. However, disaster and emergency can strike anyone, at anytime and in anywhere (Hall, 2008). Bangladesh is well known as a disaster prone as well as disaster resilience country globally. Various indicators such as geographic location, geologic formation, demographic structure, GDP rate, education, social and cultural constraint makes the country disaster prone. On the other hand, previous disaster experiences and indigenous knowledge and nature build the nation resilient to disaster. While disaster is closely associated with hazard, it indicates "a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources" (Alam, 2006:5). Now human exposure of risk, (i.e. probability of event and its loss) for weather related hazards are much more frequent in Bangladesh than any other natural hazard prone region in the world (Table 1).

Table 1: Risk Profile on Bangladesh: Human Exposure

Hazard Type	Population Exposed	Country Ranking
Cyclone	4, 641,060	6th out of 89
Drought	642,277	63rd out of 184
Flood	19, 279,960	1st out of 162
Earthquake	1, 330,958	17th out of 153

Source: UNISDR, 2009.

According to IPCC, Bangladesh is slated to lose the largest amount of land globally due to sea level rise (SLR). A 1m SLR would inundate 20 percent of the country's landmass. Unless urgent actions are taken now to counter the climate change threats to food security, natural resources, human capacity and overall national development, present gains will be lost and future wellbeing of people will be severely compromised (Chowdhury, 2009). As a result, the risk associated with climate change induced disasters lie in the interaction of several systems with many variables that must be considered collectively. As such, in the global warming scenario the issues of human security should get most priority. Thereby, a holistic approach and knowledge on these issues will ensure the effective solution.

Rationale of the Study

As a disaster prone country, Bangladesh has the risk of massive threats to its human security. The security refers social security, economic security, food security, drinking water and sanitation security, health security, livelihoods security, nutrition security, residence security etc. Heavy rainfall or drought situation damages many crops as result of climate change induced disasters. This situation makes an insecurity of food for both the human population and cattle population as well. Salinity intrusion due to sea level rise (impact of climate change) makes food grain scarcity, health problem, climate refugee, human trafficking, migration and livelihood problem for the people of coastal region of Bangladesh. Despite having many challenges, e.g. poverty, illiteracy, corruption, over population, climate change effect, disaster risk etc; the state of human security of Bangladesh largely depends on how well the country assesses its strengths and weaknesses and strategizes to address these challenges. Bangladesh has already adopted different framework for action (Hyogo Framework for Action 2005-2015 and SAARC Framework for Action to address these problems. It has also adopted the latest Sendai Framework of Disaster Risk Reduction (2016-2030), 7th Five Year Plan and Sustainable Development Goals (SDGs). However, to enhance the human security, a multi-stake holder strategy and policies for risk reduction should be adopted. These policies and practices are not necessarily

expensive and they are also cost effective - not only do they save lives; they also save livelihoods and assets. So, it is important identify human insecurity due to climate change and address them well to build more disaster resilient country.

Operational Definitions

Human security is "…*the liberation of human beings from those intense, extensive, prolonged, and comprehensive threats to which their lives and freedom are vulnerable*" (AHDR, 2009). The idea of human security reflects human development However, Human security is not a "competitor" to human development, but it is a sub category of human development. It is similar to human development in relation to rich and poor nations and persons (Sen, 2003).

IPCC (2007) indicated that a warming planet will cause intense and widespread devastation and disruption.

"Continued Greenhouse Gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during 21st century that would very likely be larger than those observed during the 20th century."

ISDR (2009) suggested that a disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

Limited Literature Review

There is a long tradition of concern over the relationship among humans, the environment, and the potential for conflict. Over two hundred years ago, Thomas Malthus (1798) wrote *An Essay on the Principle of Population,* in which he argued ''that the power of population is indefinitely greater than the power of the earth to produce subsistence for man.'' The imbalance between human needs and food availability, Malthus predicted, would lead to famine, disease, and war. Writing 150 years later, Fairfield Osborn (1948, 200–201) reiterated this concern: ''When will it be openly recognized that one of the principal causes of the aggressive attitudes of individual nations and of much of the present discord among groups of nations is traceable to diminishing productive lands and to increasing population pressures?'' As the scale of global change has increased since Malthus's time, the link between climate change and conflict has gained more attention. Since the late 1960s, the idea that climate change is a cause of violent conflict has become increasingly popular in academic and policy circles. However, the relationship between climate change and conflict has been a major theme of security studies only since 1989 when at least ten articles on the subject were published. The year 1989 was significant in both international security and global environmental politics. It was the year the Berlin Wall fell, creating "vertigo" in international security studies and policy in which conventional understandings of security were no longer so obviously politically relevant (O´

Tuathail, 1996). It was also two years after the publication of the influential World Commission on Environment and Development's report Our Common Future, when planning for the landmark 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro was well under way. This led to a flood of information about climate change, biodiversity loss, deforestation, and land degradation, with much of it channeled into preparatory studies and reports. These initiatives resulted in considerable political and societal attention to issues of environmental change in the early 1990s.

In 2010, Caney's article Climate change, human rights and moral thresholds. In: *Human Rights and Climate Change* focuses on human rights to life, health, shelter, and food are fundamentally breached by the impacts of climate change. Climate change puts both human security and human rights at risk. An article of Ford, Pearce, Duerden, Furgal and Smit (2010) entitled 'Climate change policy responses for Canada's Inuit population: the importance of and opportunities for adaptation in *Global Environmental Change* studies examine the interactions between environmental changes and social outcomes. Few explicitly address climate change and human security links, but provide evidence of climate change impacts on human security. A book named *"Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability"* edited by Scheffran, Brzoska, Brauch, Link and Schilling (2012) discussed about the complex links between climate change and human security, uncertainties in the research on the biophysical dimensions of climate change, and the nature of the social science, highly confident statements about the influence of climate change on human security are not possible.

Very recently many panels, organizations emphasizes on climate change, human security and human rights actually. Such as *"Climate Change 2013: The Physical Science Basis, Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change by IPCC* Working Group I to the IPCC's Fifth Assessment Report (2013) observed changes in the climate system-including changes in the atmosphere, ocean, cryosphere, and land surface-and discusses both natural and anthropogenic drivers of climate change. It also explains projections of future global and regional climate change, using an aggregation of different climate models. These projections cover predicted change in temperature, water cycle, air quality, ocean, cryosphere, sea level, biogeochemical cycles, and climate stabilization. In 2014, this panel also published their report entitled "Climate Change 2014: Mitigation of Climate Change, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change" which discussed about "issues of equity, justice, and fairness arise with respect to mitigation and adaptation" and that "climate policy intersects with other societal goals creating the possibility of co-benefits or adverse side effects. These intersections, if well-managed, can strengthen the basis for undertaking climate action." Furthermore, for each

category of mitigation (energy systems, transport, buildings, industry, agriculture and forestry, and human settlements and infrastructure, the report details potential social barriers and opportunities, as well as potential impacts of mitigation on human society and functioning.

Human security is about more than freedom from violence or the threat of violence. It refers to, among other things, peoples' health, economic opportunities, political rights, community identity, and resilience to shocks such as natural hazards. Human security, in fact, is not a standalone issue; rather it encompasses the whole ranges of disaster management cycle. Due to the presence of vulnerability factors such as poverty, coping capacity, health management capacity, shelter management capacity, social insecurity (dignity, livelihoods, wants), absence of insurance, presence of microcredit, stress; there is a direct relationship of human insecurity for natural disaster. Security arrangements are vital during emergencies to ensure safety of citizens and protection of public as well as private properties, for restricting entry into affected areas by unauthorized persons and for controlling traffic during such emergencies. So, the relationship between environment and human security is reciprocal and there is a linkage between security and vulnerability. Any risk related to disaster is basically anticipated drawing on experiences of human systems in dealing with current climate variability and extremes to provide guidance in designing adaptation strategies.

Objective of The Study

The broad objective of this study is to find the human security in climate induced disaster in Bangladesh. However, the specific objectives are as follows:

- to know the science of global climate change and its effects;
- to explore the security dimension of disaster;
- to know the human security issues and disaster management of Bangladesh
- to find out the human security challenges of climate change induced disaster
- to formulate some recommendation

Research Questions

This work is based on some research questions that make it more significant. The research questions are:

- What is global climate change?
- What kinds of security dimensions are in climate change induced disaster?
- What types of human security issues are in disaster management of Bangladesh
- What are the human challenges of climate induced disaster?

Conceptual Framework of This Study

Human Security

In the middle 1970s, in International Relations, the home of security studies, the multinational World Order Models Project (WOMP) launched an ambitious effort to envision and construct a more stable and just world order, and as a part of this endeavor drew attention to the problem of individual well-being and safety (Mendowitz, 1975 and Kothari, 1974).

The extent to which system-wide impacts transpire will be determine in part by the degree to which any given national economy is dependent on climate sensitive natural resources, and the robustness and resilience of social institutions to manage change. In both these less direct ways, but also through direct processes such as territorial losses through rising sea levels, climate change may be national security issue (Barnett, 2003). The risk to national security may be both a cause and a consequence of human insecurity.

So, human security is a function of multiple processes operating across space, over time, and at multiple scales (Barnett and Adger 2007). This makes researching the ways in which climate change may affect human security a daunting task, which is not helped by the difficulty of ascertaining whether there are indeed any existing environmental changes that can be attributed to climate change (Allen and Lord, 2004). Nevertheless, there have been some investigations of the relationship between climate change and human security. These have focused on the local dynamics that limit individuals' and group's access to environmental, financial, and social resources necessary to respond to climate variability and change (e.g., Adger, 1999; Bohle, Dowing and Watts, 1994; Liechenko and O'Brien, 2002). As well as these climate specific applications, a similar social vulnerability approach has been applied in anthropology (e.g., Minnegal and Dwyer, 2000), development (e.g., Chambers, 1989) and disasters research (e.g., Blaikie, Cannon, Davies and Wisner, 1994). In the field of environmental security many case studies, for example from Northern Pakistan (Matthew, 2001), South Asia (Najam, 2003), the Niger Delta (Mochizuki, 2004), the Pacific Islands (Cocklin and Keen, 2000) and Ethiopia (Haile, 2004) show that environmental change can be a significant factor that undermines human security. This research demonstrates that marginalized people are vulnerable to environmental change, and it all helps substantiate the argument that climate change poses significant risks to human security in many parts of the world (Barnett, 2007). What is less clear; however, are the ways in which human insecurity lead to violent conflict. This is important to consider since violent conflict is itself a powerful cause of human insecurity and vulnerability to climate change (Barnett, 2006).

There are two approaches in human security, are: neo-realist approach and critical or post modernist approach. The first approach neo-realist approach to human

security has been advocated by 'structural' or neo-realists such as Barry Buzan in his seminal work *People, States and Fear* (Booth, 1994). Buzan argued that the 'straitjacket' militaristic approach to security that dominated the discourse during the Cold War was 'simpleminded' and led to the underdevelopment of the concept (Buzan, 1991). He subsequently broadened it to include political, economic, social and environmental threats, in addition to those that are militaristic. Although Buzan examines security from the three perspectives of the international system, the state, and the individual, he concludes that the most important and effective provider of security should remain the sovereign state. His analysis provides the most extensive contemporary examination available of human security from a state combined perspective. The 'critical' or postmodernist approach to human security, reflected in the work of Ken Booth, also advocates a broadened conceptualization of security that goes beyond a military determination of threats. But advocates of the postmodernist approach stress quite explicitly that the state must be dislodged as the primary referent of (human) security, and encompass instead a wide range of non-state actors, such as individuals, ethnic and cultural groups, regional economic blocs, multinational corporations (MNCs) and nongovernmental organizations (NGOs), and just about all humankind. In expanding the concept of security horizontally and vertically, Booth argues that human security is ultimately more important than state security. Put differently, the postmodernist conceptualization of security does not equate state security with human security. In Booth's view, states and implicitly governments must no longer be the primary referents of security because governments which are supposed to be 'the guardians of "their peoples' security"', have instead become the primary source of insecurity for the many people who live under their sovereignty, rather than the armed forces of a neighboring country' (UNESCO, 2001). This approach challenges the idea of a state as an effective and adequate provider of security to its people.

Relationship between Climate Change and Human Security

Factors affecting	Processes which climate change could affect/exacerbate
Vulnerable livelihoods	Climate change is likely to cause widespread impacts on water availability, coastal regions, agriculture, extreme events and diseases. The impacts on livelihoods will be more significant in sectors of the population with high resource-dependency, and in more environmentally and socially marginalized areas. Some of these climate driven outcomes are long term and chronic (such as declining productivity of agricultural land), while others are episodic (such as floods). These impacts on livelihoods will be widespread both in developing and developed countries.
Poverty (relative/ chronic/ transitory)	Poverty (and particularly relative deprivation) is affected by the spatial differentiation of climate impacts and the sensitivity of

Factors affecting	Processes which climate change could affect/exacerbate
	places to them. Climate change may directly increase absolute, relative, and transient poverty by undermining access to natural capital. It may indirectly increase poverty through its effects on resource sectors and the ability of governments to provide social safety nets. Stresses from climate change will differentially affect those made vulnerable by political-economic processes such as liberalization of markets for agricultural commodities.
Weak states	The impacts of climate change are likely to increase the costs of providing public infrastructure such as water resources, and services such as education, and may decrease government revenues. So climate change may decrease the ability of states to create opportunities and provide important freedoms for citizens as well as decrease the capacity of government agencies to adapt and respond to climate change itself.
Migration	Migration may be one response of people whose livelihoods are undermined by climate change. However, climate is unlikely to be the sole, or even the most important 'push' factor in migration decisions. Yet large-scale movements of people may increase the risk of conflict in host communities.

Source: Compiled from Barnett, 2007

Climate Induced Disasters

The term "disaster" is multifaceted, and many divergent definitions of the term appear in hazards literature (Mesjasz, 2011; Thywissen, 2006). There is extensive debate on the definition of disaster. At least two edited volumes are dedicated solely to this task (Quarantelli, 1998; Perry and Quarantelli, 2006). Fundamentally, disasters are actual threats to humans and their welfare. Disasters are generally conceived as adverse events, the negative impacts of which cannot be overcome without outside assistance, or support from many outside sources, including state and national governments, and even governments from other countries (Paul, 2011). Climatic events, those originating from extreme and/or common physical processes, are referred to as climate induced disasters. Floods, hurricanes, tsunamis, blizzards, and tornadoes that originate in the lithosphere, hydrosphere, or atmosphere are some examples of natural hazards. Climate induced disasters can be further categorized into hydro-meteorological or atmospheric disasters (typically weather-related) such as floods, droughts, forest fires, and tornadoes, and geophysical or geologic disasters such as earthquakes, tsunamis, and volcanic eruptions.

Methodology

This paper is a descriptive study in nature based on secondary data and information. The secondary data and information have been collected from scholars' and researchers' published books, articles, periodicals and web sites. The data and information on climate induces disasters and human security different websites, annual reports, periodicals etc. The data and information have been analyzed critically in order to make the study more informative, useful and acceptable to the readers. The whole process of this present study based on qualitative methods of researcher methodology.

Result and Discussion

The Science of Global Climate Change and Its Effects

Al Gore's *"An Inconvenient Truth"* is a rallying cry that the Earth is on the brink of a major catastrophe. The documentary depicts to fight to environmental crisis interwoven with the science of global warming. The term 'environment' encompasses all living and non-living things occurring naturally on Earth. Our environment is our surrounding. This includes living and non-living things around us. The non-living components of environment are land, water and air. The living components are germs, plants, animals and people. There are two types of environment, i.e. green (natural environment related) and brown (pollution related). Green refers to the ecologically sustainable, whereas brown refers to environmental health that is not eco-friendly. Environmental pollution is caused due to over-use of natural resources, presence of a large number of people and livestock in congested areas, use of agrochemicals, setting up of factories, running of automobiles, burning of fuel, etc. A change in the environment due to pollution also affects the ecological balance. Any operation generates direct impact on the environment-through the operation of activities and daily work habits, which are commonly referred as to 'footprint'. The aim should be to minimize the negative and maximize the positive impacts by our activities.

The climate change discourse has shifted character in a qualitative sense in the last few years, underscored by an increasing sense of urgency. Humans can affect the climate by changing the gases in the atmosphere (greenhouse effect). A disaster can best be described as a possible outcome of a hazard striking a vulnerable community element. It is a serious disruption in the functioning of the community or a society causing widespread material, economic, social or environmental losses which exceed the ability of the affected society to cope using its own resources. Climate change increase disaster. It changes in the magnitude, coverage and frequency of climatic extremes affects average climatic conditions and climate variability, affecting underlying risk factors; and generates new threats.

Climate change induced disaster affects the poor and the vulnerable in two main ways. Firstly, agriculture productivity is very sensitive to changes in rainfall and the length of seasons, and poor people are heavily dependent on agriculture as a source of income and sustenance. Secondly, many poor people also live in areas that are acutely vulnerable to severe weather, and greater extremes will continue to make their lives more fragile. This change affects livelihood, which has natural as well as global process, but it has devastating local impacts on the food security, water, ecosystems and human health, livelihood, poverty, MDGs and development, infrastructure and communication, disaster preparedness; and human settlement, i.e. displacement, migration and social conflict.

Many elements of both human society and the environment are sensitive to climate variability and change. Bangladesh is experiencing frequent severe weather patterns, in the form of floods, cyclones, heavy rains, droughts, river erosion and salinity intrusion due to climate change. For this, the weather in Bangladesh has changed, water levels have fallen, temperatures have risen, and the incidence of floods, dry spells and cyclones have all increased, affecting both people's lifestyle and the crops. At least 30 rivers, including the Padma, the Gomti and the Teesta, have dried up. And most of the other rivers in Bangladesh are being lost because they are being filled with soil. Parts of northern Bangladesh are becoming desert.

Concept of 'Security'

The concept of 'security' can be interpreted in different ways. In classical terms, security means the territorial integrity organized sovereign nation states within the system of international law. Morgenthau (1960) sees national security as integrity of the national territory and its institutions. Thus framed, security is the preservation of nation state integrity in the face of external threats in an anarchic world of states; the task of guaranteeing security is seen as being ultimately a military one. In this context, a more comprehensive definition of security was proposed by Arnold Wolfers (1962): "security, in an objective sense, measures the absence of threats to acquired values, in a subjective sense, the absence of fear that such values will be attacked.".With the end of the Cold War, it came to be universally recognized that insecurity, instability and violence are brought about not by military aggression alone, but may have complex political, economic, socio-cultural and ecological origins. This led to calls for a re-assessment of security and corresponding policy adjustments. This has clearly been reflected in the Human Development Report of 1993 which stated that the concept of security must change from an exclusive stress on national security to a much greater stress on people's security, from security through armaments to security through human development, from territorial security to food, employment and environmental security.

The Security Dimensions of Disaster

The security dimensions of disaster include 'loss of agricultural productivity' or 'threat to food security', 'shortage of safe drinking water', 'risk to income security', 'increasing poverty', 'risk to human health', 'risk to human health', 'threat to development', 'increasing natural disasters', 'migration' etc. The climate-induced migration has the potentiality to trigger different kinds of conflict at various levels, mainly three types namely state versus state conflict, state versus group conflict, and group versus group conflict. Climate change induced disaster also affects the situation of human rights adversely. Food security and access to drinking water could be challenged by the impacts of climate change induced disaster in affected countries and regions, destruction caused by SLR and extreme weather conditions could put people's livelihoods at risk, and all this could trigger strong environmentally induced migration. Unabated climate change could threaten natural life support systems, erode human security and thus contribute to the violation of human rights.

Disaster Management and Human Security Issues: Bangladesh Case

Bangladesh is frequently cited as one of the most vulnerable countries to climate change because of its disadvantageous geographic location and UNDP has identified Bangladesh as the most vulnerable country in the world to tropical cyclones and the sixth most vulnerable country to floods. An increase in disaster will aggravate the existing stresses that already impede development in Bangladesh, particularly by reducing water and food security and damaging essential infrastructure. These impacts could be extremely detrimental to the economy, the environment, national development, and the people of Bangladesh. The human suffering and cost to development is massive to this country and its people. Between 1991 and 2000, 93 major disasters were recorded in Bangladesh, resulting in nearly 200,000 deaths and causing US$ 5.9 billion in damages with high losses in agriculture and infrastructure.

Bangladesh experiences frequent natural disasters, which cause loss of life, damage to property (infrastructures, structures) and economic assets, injuries to health and adversely impacts on lives and livelihoods, especially of poor people. Among the various forms of natural disasters, flood is the most frequent one. Indeed, most part of the country lies in the delta of three of the largest rivers in the world − the Brahmaputra, the Ganges and the Meghna. The topography of the country is mostly low and plain. Two-thirds of the country is less than 5 meters above sea level and is susceptible to river and rainwater flooding and, in lower lying coastal areas, to tidal flooding during storms. In an average year, approximately one quarter of the country is inundated. However, once in every four to five years, there is a severe flood that may cover over 60 per cent of the country and cause loss of life and substantial damage to infrastructure, housing, agriculture and production. In addition to flood tropical cyclone is also very

common to the people of the country. On an average, in every three years, a severe tropical cyclone hits Bangladesh. These storms generally form in the months just before and after the monsoon and intensify as they move north over the warm water of the Bay of Bengal. They are accompanied by high winds of over 150 km/hour and can result in storm surges up to seven meters high, resulting in extensive damage to houses and high loss of life to humans and livestock in coastal communities. Another form of disaster which adversely affects the livelihood pattern of some parts of the country is drought. Droughts in Bangladesh are seasonal and can devastate crops, causing hardship to poor agricultural laborers and others who cannot find work. In these areas, *monga* (unemployment leading to seasonal hunger) is often a problem, especially in the months leading up to the November-December rice harvest. If the crop totally fails because of draught, the situation for poor people can become critical. Drought most commonly affects the north-western region, which generally has lower rainfall than the rest of the country. Indeed, the impacts of disaster have added significant stress to our physical and environmental resources, our human ability, and economic activities which ultimately threaten the condition of human security.

In order to ensure the human security issue arising due to climate change, it is important to understand the disaster management, especially its political economy. Political economy analysis is a tool to understand what drives political behavior, how this shapes policies and programs, who benefits and loses, and the implications for development. The political economy of climate change induced disaster management explores the relationships between the impact of climate change induced disaster and the environmental governance of a country. The governance of adaptation programs and strategies, the trends of aid interventions, aid effectiveness, and the power relations of donors and recipients of adaptation funds in climate change regime are analyzed through political economy perspectives. This also assesses the roles of institutions, structures and different actors of climate change governance. This suggests that a new institutional setting at the national level, representing the special eco-regions, and at the local level, promoting the indigenous knowledge and value systems, is required for facilitating sustainable responses to the environmental challenges of Bangladesh.

Climate Change Induced Disaster as a Human Security Challenge

Mitigation of climate change induced dangerous events through effective global treaties to which all countries adhere has proven very difficult. There is strong disagreement in the scientific literature on whether and by how much future costs and benefits of climate change and its mitigation should be discounted when deciding today how much to invest in solving the problem. Yet another issue that has attracted considerable attention in social sciences research is the question of

fair burden sharing in mitigation and adaptation. Since past and current emissions have a greenhouse effect over many years to come and predictions of future emissions vary greatly, researchers have used complex models to calculate how much particular countries and regions contribute to global warming. Finally, another line of research assumes that climate-related damage is unavoidable even with the most ambitious mitigation efforts. Accordingly, it asks who should pay for adaptation measures. Preliminary evidence on climate pressures points to local-level conflicts which have the potential to be politicized and nationalized under certain circumstances. For climate change induced disaster 35 million people are likely to be dislocated due to SLR, which will cause massive rural to urban migration and urban poverty will increase. This will also put pressure on urban infrastructure, housing especially slums and utility services.

Recommendations

Way Forward

Environmental crisis has a more pervasive and more political character than any other crisis. For this reason, environmental induced disaster challenges should be placed at the core of human security considerations in a rapidly changing world. Followings are the recommendations:

- At national level, government needs to increase more budgetary allocation for disaster preparedness and rehabilitation activities;

- Appropriate institutional and legal measures need to be pursued;

- Flood shelter, information and assistance centre required to be constructed to cope with enhanced recurrent floods in major floodplains;

- Consultative approach to the development of national policy on disaster management and security to be taken;

- Local institutions/local government needs to be involved in imparting training on disaster preparedness;

- A mass awareness program to sensitize the public about the impacts of environmental degradation needs to be initiated;

- Resilience of urban infrastructure and industries to impacts of disaster needs to be enhanced;

- Focus should be given on the human security based disaster management; and

- Reduction of natural disaster through coastal afforestation with community participation.

Conclusion

Need for a Balancing Strategy

Disaster management is a problem that can only be adequately addressed if appropriate action is taken at all levels. This is not only an environmental concern, but also a development concern of Bangladesh. Disaster management policies must incorporate programs to protect the most vulnerable segments of society— the poor, marginalized, women, children, disabled, and elderly. The problem is further accentuated by a lack of understanding of the elements of human insecurity that are manifest in Bangladesh. Though the integration of human security with disaster management is a must, but effective interaction among these two elements is yet to be made and no integrated approach between human security and disaster management initiative is observed so far.

Human security can only be achieved through challenging the structure and processes, both natural and social that contributes to insecurities, vulnerabilities and risk. Efforts will also be taken to use local knowledge in this practice to bridge cultural gaps by making local opinions and behaviors understandable to a global public. It will help to understand the differences, and more importantly the similarities, between local and global, in order to crucial intercultural understanding in the disaster management issue. Human security needs to be rethought in a holistic way, and not split into different dimensions that could be treated separately. It could serve as a conceptual tool to transform the world and bring in-depth solutions, inventing a security with a human face.

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