ISSN 1997-938X

SOCIAL CHANGE

A Journal for Social Development

Editor-in-Chief Md. Arifur Rahman

Volume 6, No 1 & 2, 2016



SOCIAL CHANGE

A Journal for Social Development

Volume 6, No. 1 & 2, 2016

(Climate Change and Environmental Management Issue)

Editor-in-Chief Md. Arifur Rahman



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A Journal for Social Development

Vol. 6, No. 1 & 2, 2016

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Social Change is a journal for social development published two times a year- January to June and July to December. The Journal welcomes original contributions from all viewpoints on various aspects of social development. It is designed to promote understanding of the society at its depth touching upon both theoretical and empirical dimensions of research. This journal is a major forum for those wishing to deal directly with the methodology and practice of social and environmental perspectives and future. Social Change is a podium for the exchange of ideas among scholars, policy makers and development practitioners, their intellectual and constructive ideas would smooth the way to social transformation in a desired manner. Appreciating their consecrated commitment to people and society we earnestly believe that they will make vital contribution through projection of ideas and views embellished with their sagacious policy recommendations. Readability and good writing style are important criteria for publication.

Social Change is a peer reviewed Journal devoted to the advancement of the research and social studies. The Journal entertains articles from the grassroots activists and researchers and appreciates learning from the field situation. The content and quality of papers should be in accordance with scope and nature of the Journal. All research articles are to reviewed by at least one expert. Also they are subject to an in-house examination in editorial / Advisory board. This is in the pursuit of excellence and strict adherence to professional standards. We look forward to getting feedback from our valued readers and contributors on how this publication can be further improved and expanded to better serve the cause of social reform in the country. Given the importance of the journal, we would also like to invite analysis/study on further add to the dimension of the journal and this will be possible only with the thoughtful support of our valuable readers and contributors.

ISSN 1997-938X

ARTICLES CONTENT

Volume 6, No 1 & 2, 2016

1.	al Warming and Climate Change Phobia: Increasing Worries of the Most	
	Vulnerable Countries (MVCs)	01-09
	- Md. Shairul Mashreque, Siraj Ud Doullah and Nasir Uddin	
2.	Global Warming and Climate Change Negotiation	10-21
	- Siraj Ud Doullah	
3.	Green Climate Fund in Aid of Climate Displaced Persons	22-26
	-Md. Arifur Rahman, Md. Shairul Mashreque ,	
	M.Abul Kashem Mozumder and Md. Shakhawat Ullah Choudhury	
4.	Impacts of Climate Change on Coastal Communities of Bangladesh:	
	A Case Study of Kutubdia Para, Cox's Bazar	27-38
	-Md. Iqbal Sarwar, Md. Assaduzzaman Sarker and Md. Abu Bakar Shamim	
5.	Climate Displacement in Bangladesh: Legal and Policy Responses	
	for Rights-Based Solution	39-54
	-Prabal Barua, Mohammad Shahjahan and Ezekiel Simperingham	
6.	Addressing Disability Inclusive Climate Change and Disaster Manageme	ent
	in Bangladesh: A Review of Existing Laws, Policies and Strategies	55-68
	- Mohammad Shahjahan, Vashkar Bhattachearjee, Prabal Barua	
	and Morshed Hossan Molla	
7.	Water Crisis, Adaptation Practices and Management Strategies in	
	Chittagong Hill Tracts (CHT) Area: A Case Study on Naniarchar Upazila	69-90
	- Md. Monir Hossen, Md. Muhibbullah, Mohammad Abul Hasnat	
	and Md. Habibur Rahman	
8.	Improvement of Supply Water Scenario in Chittagong Metropolitan City,	
	Bangladesh	91-100
	-Morshed Hossan Molla	
9.	Effectiveness of Green Climate Fund in Channeling Fund to Developing	
	Countries Based on the Proposals for Structure and Administration	101-109
	-Mohammad Zulfikar Ali	
10.	Flood Coping Strategies of Haor People: A Case Study on Hakaluki Haor,	
	Bangladesh	110-126
	-Nusrat Jahan Koley and Bebek Kanti Das	
11.	Environmental Analysis and Household Health Risk in Existing Solid Waste	
	Management Practices on Different Residential Areas of Chittagong City	127-138
	-Md. Abdus Sabur and Morshed Hossan Molla	

12.	Urban Impact on Environment : A Focus on Dhaka and Chittagong	139-143
	-Md. Shairul Mashreque, Abul Kashem Mozumder and	
	Md. Arifur Rahman	
13.	Climate Change Adaptation in Relation with Human-Environment Interactions	
	for Cope with Climate Variability: A Risk Management Approach of Bangladesh	n 144-163
	-Prabal Barua and Syed Hafizur Rahman	
14.	Environmental Pollution of Hakaluki Haor and Its Impact on Agro-fisheries	5
	Sectors	164-176
	-Bebek Kanti Das and Nusrat Jahan Koley	
15.	Challenges and further Improvement of Emergency Response System in	l
	Bangladesh: A Case Study on Ramu, Cox's Bazar Flood in 2015	177-190
	-G.M. Saiful Islam and Md. Abdus Sabur	
16.	Advocacy for Green Banking	191-195
	-Md. Arifur Rahman, Md. Shairul Mashreque and	
	Md. Shakhawat Ullah Chowdhury	
17.	আশাবাদের প্যারিস চুক্তি এবং আমাদের করণীয়	১৯৬-২২৩
	- মিজানুর রহমান বিজয়	
18.	Weberian Bureaucracy as a Classical Management Model	224-241
	-Md. Mahbubur Rahman, M. Abul Kashem Mozumder	
	and Md. Shairul Mashreque	
19.	Social Violence in Bangladesh: The State of Gap in Governance	242-252
	-Md. Shairul Mashreque	
20.	Sex Workers in Chittagong City: Their Predicament	253-258
	-Ms. Shamsun Nahar Chowdhury	
21.	Access to Justice through Village Courts: A Case Study in Khazra Union	ı
	Parishad, Ashashuni Upazilla, Satkhira	259-269
	-Ashiquddin Mohammad Maruf, Md.Saddam Hossen,	
	Md. Wahid Ferdous, Md. Mizanur Rahman and Tariq Mohammad Ali	
22.	Victimization of Vulnerable Children in Bangladesh: An Explorative Study	270-288
	- Md. Shakhawat Hossain, Mohammad Ashraful Alam	
	and Md. Arifur Rahman	
23.	AIDS as Epidemic in the World	289-295
~ .	- Ms. Shamsun Nahar Chowdhury	
24.	Small Hands but Big Work: Girl Domestic Servants and their Predicaments	296-299
	-Ma. Aritur Kanman, Ma. Snairui Mashreque and Md. Shakhawat Illah Chaudhury	
25	Drawbacks in Dalivaring Lagal Aid in Dangladash: An Intrograction	200 211
<i>2</i> 3.	-Ashiquddin Mohammad Maruf, Md. Saddam Hossen and	500-511
	Md. Sofiqul Islam	

Global Warming and Climate Change Phobia: Increasing Worries of the Most Vulnerable Countries (MVCs)

Md. Shairul Mashreque*, Siraj Ud Doullah ** and Nasir Uddin ***

Abstract

The most vulnerable countries are most likely to be adversely affected by anthropogenic climate change being a veritable outcome of global warming. The findings of the International Panel on Climate Change indicates that the most vulnerable countries are expected to suffer from the most negative impacts of climate change. The study focusing on climate change increases the great thinking for most vulnerable countries like Bangladesh which is creating negative economic growth and barriers for achieving Sustainable Development Goal. So far as Bangladesh is concerned, as an environment scientist forecast, 'with one meter sea-level change, area of high salinity intrusion will increase from existing area of 13 per cent of Bangladesh land area to 31 per cent. The entire south and southwestern part of the Ganges-Padma-Lower and Meghna river system will be affected by high salinity penetration. This will reduce the crop-yield substantially in the affected areas. In a recent published research work of a scientist it was revealed that the temperature rise will spell 'bad news for the ocean and under the worst scenario; warmer seas and a slowdown of ocean circulation would lower marine oxygen levels, creating dead zones that could not support fish, shellfish and other higher forms of marine life.' Of course slowly it will happen by the end of this century. According to the research work 'deep cuts in the world's carbon emissions are needed to break a trend capable of wrecking the marine ecosystem and depriving future generations of the harvest of the seas'.

Introduction

Global warming emanates from the accumulation of green house gases.

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The emission of greenhouse gases is caused by industrial activities and other combustion of fossil fuels (Althoff and Chandler 1999 cited in Miah 2001). By now the people all over the world have been conscious of global warning at least about 'some common consequences of global warning, the first and foremost being melting of glacier and sea level rise as its result' "Mountains occupy 24% of the global surface area and are home to 12% of the world's population (ICIMOD, 2008).

Mountain regions of this planet are not only vulnerable to climate change but also areas to visualize the impact of climate change since measuring the melting snow caps helps us understand the glacial retreat rate linked with climate change. The superb example of this is the Hindu Kush-Himalayan (HKH) region. HKH range spans over 4.3 million km² and the region includes areas of eight countries: Afghanistan, Pakistan, Nepal, Bhutan, China, India, Bangladesh and Myanmar. Few places on Earth can match the breathtaking splendor of the Himalayas. It contains varied geographical terrains and many unparalleled characteristics. Its towering peaks and secluded valleys have inspired naturalists, adventure seekers and spiritualists for centuries. Its diverse landscapes harbor rare creatures like red pandas, snow leopards and one-horned rhinos. This region has been romanticized as 'a mythical paradise'. But it is vulnerable now facing lots of challenges.

The process of warming is melting its mountain glaciers. "It is often referred to as the third Pole and the water tower of Asia, as it stores a large volume of water in the form of ice and snow, and regulates the flow of the 10 major river systems in the region. But this storehouse is in danger now (Mashreque, 2009). From our perusal Of wealth of literature on global warming (Lohmann, & Feichter 2005, Twomey. 1977 Albrecht 1989, Ramanathan, V., *et.al*, 2008. Hansen, 2002. Scafetta, 2007 Randel, 2009. Stocker, 2001 Lockwood and Froehlich 2007 Torn Rahman 2009 Soden and Held. 2005 Westbrook *et.al*, 2009 and Marsh *et.al*, 2009).

The Most Vulnerable Countries (MVCs)

"Recent estimates indicate a relatively small combined effect of natural forcing on the global mean temperature evolution of the second half of the 20th century, with a small net cooling from the combined effects of solar and volcanic forgings" (Hegerl *et.al*, 2007). Science Daily, 2009, projected changes in frequency and magnitude of climate extremes. An international research team found that the occurrence and magnitude of what are currently

the 30-year maximum values for wet, dry and hot extremes are projected to substantially increase for much of the world (Science Daily, 2009). The frequent occurrence of extreme weather events tends to impair development process in MVCs. In general warming would increase both the summer as well winter mean temperatures (Shahreen *et.al*, 2014).

The most vulnerable countries are most likely to be adversely affected by anthropogenic climate change being a veritable outcome of global warming. The findings of the International Panel on Climate Change (IPCC, 2001) indicates that the most vulnerable countries are expected to suffer from the most negative impacts of climate change.

It does seem that global warming has turned out to be an important policy issue in response to increasing 'greenhouse gas accumulation. According to a recent report 'the sea level rise may be about 20cm by 2030 and this could be as much as one meter by the end of the next century. The possible physical effects from global warming and climate change may pose threats to many a developing country like 'damages to coastal infrastructure, increased incidence of diseases, increased flooding, degradation of eco-systems, changes in water supply in urban areas and changes in cropping patterns and other agricultural activities.' It may lead to 'rise in water levels in various rivers and streams (Mashreque, 2010).

There has been a grave concern abut the deluge of global warning in coastal areas. According to the recent reports 'about half of the world population lives in coastal areas'. Of course there is a large variation among countries. Changes in climate will affect coastal systems through sea level rise and increase in storm-surge hazards and possible changes in the frequency of extreme antecedents. The people in developing countries are four times more likely to die in natural disasters than people in developed countries. An increase in the global temperature is likely to potentially result in a sea level rise as much as one meter that may cause inundation of costal areas and high frequency of submersion of vast area under water. The consequences are being faced by the people in different parts of the world regarding health hazards, natural calamities, draught, acid rain, desertification, sea level rise and so many greenhouse effects.(Mashreque, 2009). There has been a high frequency of 'natural and man-induced disasters' in recent years. In fact over population in Asian and African countries has caused environmental degradation. The natural resources are under tremendous pressure subject to wanton exploitation.

So far as Bangladesh is concerned, as an environment scientist forecast, 'with one meter sea-level change, area of high salinity intrusion will increase from existing area of 13 per cent of Bangladesh land area to 31 per cent. The entire south and southwestern part of the Ganges-Padma-Lower and Meghna river system will be affected by high salinity penetration. This will reduce the crop-yield substantially in the affected areas' (Mashreque, 2009). In a recent published research work of a scientist it was revealed that the temperature rise will spell 'bad news for the ocean and under the worst scenario; warmer seas and a slowdown of ocean circulation would lower marine oxygen levels, creating dead zones that could not support fish, shellfish and other higher forms of marine life.' Of course slowly it will happen by the end of this century. According to the research work 'deep cuts in the world's carbon emissions are needed to break a trend capable of wrecking the marine ecosystem and depriving future generations of the harvest of the seas' (Mashreque, 2010).

The Case of Mountain Region

"Nepalese ministers equipped with oxygen tanks battled freezing temperatures to meet in the shadow of Mount Everest to highlight the impact of climate change on the Himalayas. Prime Minister Madhav Kumar Nepal and 22 other ministers travelled by helicopter to the Kalapattar plateau, where they held a cabinet meeting 5,262 metres (17,192 feet) up in the world's highest mountain range. Under clear blue skies, they took part in a traditional Sherpa prayer ceremony before approving a declaration to be delivered by the prime minister at a key international climate meeting in Copenhagen, state television showed. Speaking to reporters after what the government is called the world's highest cabinet meeting, the Nepalese called leader spoke of the "huge challenge" climate change posed for the desperately poor country. "We are experiencing erratic rain and snowfall. The earth is our common home and we need this planet for future generations," the prime minister told the waiting crowds after descending from the helicopter. "I call upon the world to minimize the negative impact of climate change on Mount Everest and other Himalayan ranges."



Source: Rahman, 2009

Rahman, 2009 epitomizes the mountain scenario in the following way:

"Now all conscious people know at least some common consequences of global warming, the first and foremost being melting of glacier and sea level rise as its result. Mountains occupy 24% of the global surface area and are home to 12% of the world's population (ICIMOD, 2008). Mountain regions of this planet are not only vulnerable to climate change but also areas to visualize the impact of climate change since measuring the melting snow caps helps us understand the glacial retreat rate linked with climate change. The superb example of this is the Hindu Kush-Himalayan (HKH) region. HKH range spans over 4.3 million km2 and the region includes areas of eight countries: Afghanistan, Pakistan, Nepal, Bhutan, China, India, Bangladesh and Myanmar. Few places on Earth can match the breathtaking splendor of the Himalayas. It contains varied geographical terrains and many unparalleled characteristics. Its towering peaks and secluded valleys have inspired naturalists, adventure seekers and spiritualists for centuries. Its diverse landscapes harbor rare creatures like red pandas, snow leopards and one-horned rhinos. Although this region has been romanticized as a mythical paradise, it is fragile now facing many challenges. Climate change is melting its mountain glaciers. It is often referred to as the 'Third Pole' and the 'Water Tower of Asia,' as it stores a large volume of water in the form of ice and snow, and regulates the flow of the 10 major river systems in the region. But this storehouse is in danger now.HKH region is considered to be

the mountainous area of Asia expanding from south to the central Asia but extended HKH incorporates the adjacent river basins also. Both direct instrumental records and environmental proxy records indicate that historical and recent changes in climate in many mountain regions of the world are often greater than those observed in the adjacent lowlands.

An inventory compiled by the International Centre for Integrated Mountain Development (ICIMOD) identified 8790 glacial lakes within selected parts of the HKH. Some 204 of the glacial lakes were considered to be potentially dangerous, that is liable to burst out leading to a glacial lake outburst flood (GLOF). There have been at least 35 GLOF events in Bhutan, China and Nepal during the 20th century (ICIMOD cited in Rahman 2009).

It has been a lingering suspicion that the number and intensity of glacial lake outburst flood will increase because of melting of Himalayan ice. "The HKH is one of the most complex, dynamic, and intensive risk hotspots with earthquakes, floods, flash floods, landslides, droughts, and wild fires affecting it off and on. This is due to the physical and socio-economic characteristics of the region combined with the changing risk factors such as climate change, population growth, and economic demand. Floods and droughts are likely to increase as a result of a number of factors," (ibid, 2009).

Climate change has adverse impact on ecosystem services affecting 'forest type and area, its primary productivity, species populations and migration, occurrence of pests and diseases, and its regeneration.' Increasing greenhouse gases turn out to affect 'species composition and changing the ecosystem structure, which in turn affects ecosystem function.'

"The interaction between elevated CO_2 and climate plays an important role in the overall response of net primary productivity. Climate change will have a profound effect on the future distribution, productivity, and ecological health of forests. There could be a significant reduction in cryospheric ecosystems and their services. A major expansion of the tropical zones would cover most of the middle mountains and inner valleys, whereby the quality and quantity of ecosystem services are likely to change dramatically for the worse,"(ibid, 2009).

Hindu Kush-Himalaya region is highly vulnerable to the consequential global warming consequent upon climate change. "The mountain is melting

Social Change (ISSN: 1997-938X)

in the monsoon at a higher rate and giving rise of numerous adverse effect like glacial lake outburst floods, impacting on water availability, disrupting ecosystem services, increasing the intensity of floods and drought and after all hampering the livelihood of over 1.3 billion people. Whatever we do to mitigate the climate change, global warming will be advancing in the coming years. It will take about 100-200 years to eliminate the effect of already emitted anthropogenic green house gas if whole mankind stops emitting GHGs. So, measures must be taken now to adapt to the changed climatic condition. ICIMOD can play a vital role in the way of adaptation by research and disseminating the findings to the governments in the HKH region."

As a matter of fact, global warming phobia continues to haunt the vulnerable countries. It has caused trepidation of the think tanks in vulnerable countries. There are unhealthy probabilities like inundation, draught, desertification and acid rain. They advocated sequestering of carbon or carbon trading through green beckoning to capture carbon and scorching heat of sun.

Such phobia breeds climate change skeptics. Per country greenhouse gas emissions in 2000, including land-use change. Increased publicity of the scientific findings surrounding global warming has resulted in political and economic debate. Poor regions, particularly Africa, appear at greatest risk from the projected effects of global warming, while their emissions have been small compared to the developed world The exemption of developing countries from Kyoto Protocol restrictions has been used to justify nonratification by the U.S. and a previous Australian Government. (Australia has ratified the Kyoto protocol. Another point of contention is the degree to which emerging economies such as India and China should be expected to constrain their emission. The U.S. contends that if it must bear the cost of reducing emissions, then China should do

since China's gross national CO_2 emissions now exceed those of the U.S. China has contended that it is less obligated to reduce emissions since its per capita responsibility and are less that of the U.S. India, also exempt, has made similar contentions in 2007-2008 the Gallup 127 countries. Over a third of the world's population was unaware of global warming, developing countries less aware than developed and Africa the least aware. Awareness does not equate to belief that global warming is a result of human activities. Of those aware, Latin America leads in belief that temperature changes are a result of human activities while Africa, parts of Asia and the Middle East, and a few countries from the Former Soviet Union lead in the opposite. In the western world, the concept and the appropriate responses are contested.

Nick Pidgeon of Cardiff University finds that "results show the different stages of engagement about global warming on each side of the Atlantic" where Europe debates the appropriate responses while the United States debates whether climate change is happening.

There is no gainsaying of the fact that developing countries are most vulnerable to climate change. Bangladesh is in the reckoning of vulnerable countries. The geographical locations and geomorphological conditions of Bangladesh make it vulnerable to climate change(Haque and Barua, 2014) Super cyclone, Tsunami, tidal surges, flood have tormented the lives of the people in developing countries. Already Cyclone likes like Bijli, Sdre, Aila and Mahasen wrecked havoc in Bangladesh with tremendous loss of lives and assests.

Couclusion

Environmental organizations and public figures have emphasized changes in the current climate and the risks they entail, while promoting adaptation to changes in infrastructural needs and emissions reductions. Some fossil fuel companies have scaled back their efforts in recent years, or called for policies to reduce global warming. Some global warming skeptics in the science or political community dispute all or some of the global warming scientific consensus, questioning whether global warming is actually occurring, whether human activity has contributed significantly to the warming, and on the magnitude of the threat posed by global warming. Some prominent global skeptics have largely contributed to the gravity of the situation thus created from high rising temperature and sea level raising.

References

Albrecht, B 1989, 'Aerosols, cloud microphysics, and fractional cloudiness'. *Science*, Vol. 245, No. 4923, pp. 1227-1239.

Hansen, J 2002, 'Climate', Journal of Geophysical Research, Vol.107, p. 4347.

Hansen, J 2005, 'Efficacy of climate forcings', *Journal of Geophysical Research*, Vol.110, p.108-114.

IPCC 2001, Climate Change 2001, Cambgidge University Press, UK

Lockwood, M, Claus, F 2007, 'Recent oppositely directed trends in

solar climate forcings and the global mean surface air temperature'. *Proceedings of the Royal Society*, pp. 463: 2447.

Miah, MD 2001, 'Global warming and carbon trading Bangladesh perspective', *Journal of Forestry and Environment*, Vol. 1, No.1, pp 35-40

Pierce, JR and Adams, PJ 2009, 'Can cosmic rays affect cloud condensation nuclei by altering new particle formation rates?'. *Geophysical Research Letters*, Vol. 36, No.5, pp 30-35.

Lohmann, U and Feichter, J 2005, 'Global indirect aerosol effects: a revie', *Atmos. Chem. Phys*, Vol.5, pp. 715-737.

Rahman, M 2009, *Climate change impact on extended Hindu Kush-Himalayan region*, The Daily Star, November 7, 2009.

Marsh, N and Henrik, S 2000, 'Cosmic Rays, Clouds, and Climate'. *Space Science Reviews*, Vol. 94, No.1-2, pp. 215-230.

Mashreque, MS 2009, *Global Warming, Climate Change and Rising Apprehension*, The New Nation, 30 October 2009.

Mashreque, MS 2009, *Rising Sea Rising Tension*, The Bangladesh Observer, 11 November 14, 2009.

National Research Council 1994, *Solar Influences on Global Change*, National Academy Press, Washington, D.C.

Ramanathan, V 2008, Part III: Global and Future Implications Atmospheric Brown Clouds: Regional Assessment Report with Focus on Asia. United Nations Environment Programme (UNEP)

Ramanathan, V, Chung, C, Kim, D, Bettge, T, Buja, L, Kiehl, JT, Washington, WM, Fu, Q 2005, Atmospheric brown clouds: Impacts on South Asian climate and hydrological cycle, *Proceeding of Natural Academic Science*, pp. 102-103.

Randel, WJ 2009, An update of observed stratospheric temperature trends, *Journal of Geophysical Research*, Vol. 114, No 2, pp. 125-127

Scafetta, N 2007, Phenomenological reconstructions of the solar signature in the Northern Hemisphere surface temperature records since 1600, *Journal of Geophysical Research*, Vol. 112, No 5, pp. 103-110

Soden, BJ amd Held, IM 2005, An Assessment of Climate Feedbacks in Coupled Ocean-Atmosphere Models, *Journal of Climate*, Vol. 19, n No 14, pp. 3354-3360

Global Warming and Climate Change Negotiation

Siraj Ud Doullah*

Abstract

The global environment is changing due largely to 'the rapid sea-level rise occurring in all climate models whether they depict low, medium or high rates of greenhouse-gas emissions. In a medium greenhouse-gas emission scenario, the coastal areas would see an additional rise of about 8.3 inches above the mean sea level rise that is expected around the globe because of human-induced climate change. The article focuses on international negotiation issues by the world for reducing climate change vulnerabilities. 'It is no less worrying that the developing countries will account for more than half of global emissions by the year 2020. China turned out to be the world's largest CO₂ emitter in 2006 surpassing the United States. The United States and other developed countries should take the lead and bring the key emerging economies -- China, India, Brazil and Mexico -- under their wings'. It would not be rather difficult for the developing countries to reduce emission as 'their economic development depends on it' The developed countries have to share the burden of 'historical guilt for the majority of the current stock of anthropogenic greenhouse gases in the atmosphere that have caused global warming. Some fair mechanisms for climate mitigation and adaptation have to be urgently invented to give us a better and safer planet to live in.'

Introduction

Contemporary global warning stemming from global warming and rising seas is a veritable reflection of experts' concerns calling attention of the policy level political and official high-ups. Fast changing rainfall pattern showing decreasing trend in monsoon and increasing trend during post monsoon period is a danger sign. Unexpected heavy rainfall as a mark of capricious play of nature threatens to lead to increasing runoffs causing devastation of flood.

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A host of global warming skeptics in the political community debated 'all or some of the global warming scientific consensus, questioning whether global warming is actually occurring, whether human activity has contributed significantly to the warming, and on the magnitude of the threat posed by global warming.

The global environment is changing due largely to 'the rapid sea-level rise occurring in all climate models whether they depict low, medium or high rates of greenhouse-gas emissions. In a medium greenhouse-gas emission scenario, the coastal areas would see an additional rise of about 8.3 inches above the mean sea level rise that is expected around the globe because of human-induced climate change'. Thermal expansion and the melting of land ice, such as the Greenland ice sheet, are expected to cause the global sea-level rise. The scientists projected the global sea-level rise of 10.2 inches based on thermal expansion alone'

The people in developing countries are four times more likely to die in natural disasters than people in developed countries. An increase in the global temperature is likely to potentially result in a sea level rise as much as one meter that may cause inundation of costal areas and high frequency of submersion of vast area under water. The consequences are being faced by the people in different parts of the world regarding health hazards, natural calamities, draught, acid rain, desertification, sea level rise and so many greenhouse effects.

The UN Global Warming Report

'The latest report from the Intergovernmental Panel on Climate Change delivered a huge blow to global warming skeptics. Leading climate scientists are now 90 percent sure that human activity is heating up the planet. They present various scenarios that show where global warming could take us by the end of the century. The choice is ours' (www.wikipedia.org)

Global and Continental Temperature Change

Global temperature changes during the 20th century. The blue line depictures only changes due to natural forcings triggered by solar activity and volcanoes. The red lines are made up of changes induced by natural and anthropogenic sources. "First, the facts as outlined by the report. Global warming is a reality and "very likely" human-induced. Although the term "very likely" may seem vague, it is as close as 700 scientists, 2,500 reviewers and countless government officials can get to consensus about if humanity is to blame. Scientists have refined their simulations and now have a fairly good idea of

the effects of carbon dioxide emissions. A doubling of



Figure 1: Future Global Temperature Change, From-2090-2099

carbon dioxide levels in the atmosphere, relates to a surface warming of some 3 degrees Celsius plus-minus one degree. Even if we manage to reduce carbon emissions to year 2000 levels such a doubling of carbon dioxide is unpreventable. Warming, the report reads, will not be equally distributed. Effects will be more pronounced in the northern latitudes."(IPCC, 2001).

"Findings also show that the atmosphere now holds more water vapor, one of the driving forces of tropical storms and floods. Since the 1960, Westerly winds have gained in strength all over the planet. The Atlantic was particularly effected by more frequent and severe tropical cyclones, a phenomenon in line with rising surface water temperatures. The report says that there is a chance of six out of ten that recent severe storms were boosted by global warming. Arctic temperatures have increased twice as fast as global average temperatures. Summer ice in the Arctic Ocean is decreasing by 7.4 percent per decade. By the end of the century, the Arctic might well be ice-free in summer. Meanwhile permafrost is on the retreat. Since 1900, the seasonally frozen ground in the Northern Hemisphere has shrunken by some 7 percent. This has freed large amounts of methane, another potent greenhouse gas. To which extent such side-effects amplify ongoing global warming is not yet properly understood. The IPCC's scenarios, therefore, do not account for eventual runaway effects that would speed up global warming. Precipitation patterns, too, changed over the last century. There is significantly more rain in the eastern parts of North and South America, northern Europe and northern and central Asia. On the other hand, dry spells are more frequent in the Sahel, the Mediterranean, southern Africa and parts of southern Asia."(IPCC cited in wikipedia). Based on data thus compiled the world's leading scientists have devised thefollowing climate scenarios

12

for the 21st century.

Level 2000: If we manage to stabilize our greenhouse gas emissions to the levels attained in the year 2000, we will still feel the heat, but the increase will be less than a degree over the next hundred years. Unfortunately, this option is not even considered a real scenario but rather a benchmark to compare with more realistic models.

Global Service Economy: Scenario B1 presents the most optimistic outlook: by mid-century, global population will hit a peak and decline thereafter. Rapid economic changes will bring about a service and information economy based on clean and efficient technologies. The international community will unite around policy solutions - such as the Kyoto Protocol - for the reduction of greenhouse gases. While all this sounds promising, global warming will still occur, albeit not beyond a range of 1.1 to 2.9 degrees Celsius. Sea level rise between 18 and 38 centimeters until the end of the century.

Population Growth: Scenario B2 is less rosy: global population will constantly grow while climate change mitigation efforts have a regional focus. This translates into a temperature rise of some 1.4 to 3.8 degree Celsius. Sea levels increase some 20 to 40 centimeters by 2100.

Rapid Economic Growth: The A1 scenario has been split up in three sub-divisions. Each of them is based on rapidly growing economies and a growing number of people, albeit populations will decline towards the second half of the century.

A1FI represents "business-as-usual" - a world that still runs on coal and gas. It is here that predictions are most shocking: temperature gains of some 2.4 to 6.4 degrees are within reach. The sea would rise some 26 to 50 centimeters until the end of the century flooding large coastal cities and numerous islands. A1B, the most probable scenario given current trends, is also alarming. While fossil fuels are still widely used, they are part of a more balanced energy mix. Still, by the end of the century, temperatures will have risen some 1.7 to 4.4 degrees Celsius, with the oceans gaining some 21 to 48 centimeters. Rainfall is likely to decrease by some 20 percent in the subtropics, while more rain will fall in the northern and southern latitudes. The Gulf Stream will not stop, but it will lose about a quarter of its force.

Finally, A1T is a world that has lived through a third industrial revolution - a widespread conversion to "green" energy sources. It is similar to B1 in the

sense that temperatures and oceans will rise, but to an extent that experts such as Hans Joachim Schellnhuber call "manageable". There has been increasing debate over global warming. Poor regions, particularly Asia and Africa, are vulnerable to 'the projected effects of global warming despite the fact that their emissions have been small compared to the developed world. The exemption of developing countries from Kyoto Protocol restrictions has been used to justify non-ratification by the U.S. and a previous Australian Government. Australia has ratified the Kyoto protocol. Another point of contention is the degree to which emerging countries such as India and China should be expected to constrain their emission.' According to recent 2007-2008 the Gallup Polls survey 'over a third of the world's population was unaware of global warming, developing countries less aware than developed and Africa the least aware. Awareness does not equate to belief that global warming is a result of human activities.' Organized environmental group and policy communities stressed the need for changes in the current climate and with calculated risks. At times they advocated 'promoting adaptation to changes in infrastructural needs and emissions reductions.' Some fossil fuel companies have scaled back their efforts in recent years, or called for policies to reduce global warming (Research Council 2004. Stocker, et.al, 2001, Westbrook et.al, 2009, Simó, 2002 Denman, et.al, 2007, Stocker 2001, Harte 2006 and Scheffer 2006). Moiniruzzaman, 2009 present the following facts about climate change negotiations thinking

A successful international climate agreement cannot be achieved at Copenhagen without the wider participation of the developing countries. It is no less worrying that the developing countries will account for more than half of global emissions by the year 2020. China turned out to be the world's largest CO2 emitter in 2006 surpassing the United States. The United States and other developed countries should take the lead and bring the key emerging economies -- China, India, Brazil and Mexico -- under their wings. However, it will not be easy to make the developing countries cut their emissions as their economic development and growth depend on it. With the developed countries' burden of sharing historical guilt for the majority of the current stock of anthropogenic greenhouse gases in the atmosphere that have caused global warming, some fair mechanisms for climate mitigation and adaptation have to be urgently invented to give us a better and safer planet to live in. Some formulaic approaches to the UNFCCC principle of "common but differentiated responsibilities and respective capabilities" need to be devised to strike the balance between the developing countries' right to economic development and their obligation for mitigation of climate change.

Whatever mechanisms are devised in the proposed international climate agreement have to be based on the principles of fairness and justice; otherwise, the success of a global deal in Copenhagen will be a far way off. Both the developed and developing countries must act in good faith towards the common goal. There are reasons why developing countries have already lost their faith in the developed countries' campaign for the former to cut their emissions. First, the developing countries feel that carbon emissions offered the developed countries the ladder to economic prosperity, and now when it comes to the developing countries, they tend to kick it away from them. Second, the developed countries have been more vocal and keen on climate mitigation than on adaptation, which might imply their huge financial and other practical commitments towards the developing countries. Such mistrust between the developed and the developing countries can be dispelled with the engaging leadership of the former. However, it is not only US leadership that is required; China should also lead the developing world as a whole for its own interest.



In Copenhagen climate meet one burning issue was the 'developed countries' commitment of financial and technological assistance to the developing countries for climate change mitigation and adaptation.' Financing mitigation projects in both the developed developing and countries warranted some prescriptions like cap and- trade, clean development mechanism, and harmonized domestic carbon

Figure 2: Carbon Emissioms from Industry

taxes. 'To these, one more could be added, which is taxing the fossil-fuel supplying countries. A proportion of the proceeds from their fossil fuel trade should be used to pay for the damage caused by global warming. Carbon emissions generated by fossil fuels contribute to 76 per cent of global warming. Such a tax would be an incentive for the suppliers to invest more and be more innovative in clean energy. The Opec could play a significant role in this context. (Moiniruzzaman, 2009)

A question that arose was"If the "polluter-pay" principle can be well recognized now, why cannot "emitter-pay" be pushed ahead in an appropriate fashion, based on the source factor?" It was deemed worthwhile to 'provide the necessary additional funds for climate mitigation and adaptation projects in the developing world. Both the supplier of the emission sources and the emitter should bear the burden of the social cost they are causing to the world. Mind you, the heroin supplier and the heroin-addict are equally responsible -- both morally and legally -- for the social ills they cause.' (Moiniruzzaman, 2009)

In fact the developed countries expect the developing countries to 'cut their emissions. It was incumbent upon them to do so as exemplars. 'The developed countries' financial and practical assistance for climate change should come with their right, in return, to monitor the developing countries' graduated progress under various schemes depending on the levels of their development towards the reduction of their emissions and adaptation to climate change' (Moiniruzzaman, 2009)

It was hardly amazing if the 'Copenhagen meeting is not fully successful this time round, despite the hopes many may have cherished because of the great urgency of the matter. There are various complex issues as well as conflict of interests among the nations which might take a while to resolve. The least that the meeting could do is to agree on a broad legal framework involving both developed and developing countries and leave the details for future refinement. In this way, the success of the meeting could be seen as a significant building block towards the ultimate goal.'(Moiniruzzaman,2009)

It is high time to rethink global strategy based on expected Copenhagen consensus investing much time on research funded by carbon pricing. The research will look at 'how much we could help the planet by setting different levels of carbon taxes , planting more trees, reducing emissions, adapting to global warming or focusing on a technological solution to climate change.'

Negotiation Move

We are hopeful about result oriented Copenhagen accord. But the big question is whether the world leaders 'will be able to do something great if they do not have the right political will. They must have it here and now. The world cannot wait any more.' The success of Copenhagen conference hinges much on 'wider participation of developing countries.' 'It is no less worrying that the developing countries will account for more than half of global emissions by the year 2020. China turned out to be the world's largest CO2 emitter in 2006 surpassing the United States. The United States and other developed countries should take the lead and bring the key emerging economies -- China, India, Brazil and Mexico -- under their wings'. It would not be rather difficult for the developing countries to reduce emission as 'their economic development depends on it' The developed countries have to share the burden of 'historical guilt for the majority of the current stock of anthropogenic greenhouse gases in the atmosphere that have caused global warming. Some fair mechanisms for climate mitigation and adaptation have to be urgently invented to give us a better and safer planet to live in.'

In the Copenhagen climate meet agreement should be based on' the principles of fairness and justice for the success of the global deal. Of course it calls for a broadway participation putting the vulnerable countries first. I think the politicians of the powerful countries in both developed and developing countries ought to minimize polarization for the sake global co-operation. Only 'lofty rhetoric and big promise will not do. They need to shun blame game. The UN Secretary General commented: 'it may be difficult for President Obama to come with strong authority to reach agreement in Copenhagen. Many blame USA as it 'will not have cap-and trade legislation in place before Copenhagen.' 'Others blame developing countries like Brazil, China and India for their reluctance to sign up to binding carbon cuts.'

According to the findings of 'a poll of 15 nations, most of them in the developing world including Bangladesh "majorities of the people want their governments to take steps to fight climate change, even if that entails costs. The poll was carried out by the World Bank. It questioned 13,518 respondents in 15 nations- Bangladesh, China, Egypt, France, India, Indonesia, Iran, Japan, Kenya, Mexico, Russia, Senegal, Turkey, the United States, and Vietnam". "The poll's findings shed light on global attitudes at a particularly important moment: the run-up to the conference on climate change to be held December 7-18 in Copenhagen.". There happens to be public concern about climate all over the world. The concern is stated to be higher in developing countries. The poll also advocated for helping poor countries to enable them to "adapt to the effects of climate change." Most poor countries feel that they should "contribute to international efforts to help poor countries deal with these climate-induced changes." The developing countries like Vietnam, Indonesia, Kenya, and Senegal committed "more than 90% support for acting in solidarity with other

countries facing problems like their own."

Of recent the International Monetary Fund (IMF) has stated that "negotiations toward a successor to the Kyoto Protocol are intensifying, and domestic climate policies being formed, ahead of a critical United Nations conference on climate change." The policymakers are very much in favour of sustainable growth to "recover from the deepest economic crisis for decades and, in many cases, also the means to cope with severe fiscal pressures exacerbated by the crisis. The crisis has had major effects on the global economy, but these detract little from the urgent need to combat global warming.

The concerns of the Bangladesh Prime Minister seem conspicuous. Her experience in high office combined with her strong commitment to world peace and willingness to work with world leaders enabled her to rise to the occasion. We are not surprised to see that the Copenhagen meet attended by SK. Hasina was not fully successful this time round, despite the hopes many might have cherished because of the great urgency of the matter and more because of resolution of the conflict of views through Obama's statesmanship as world leader. But there were 'various complex issues as well as conflict of interests among the nations which might take a while to resolve. The least that the meeting could do is to agree on a broad legal framework involving both developed and developing countries and leave the details for future refinement. In this way, the success of the meeting could be seen as a significant building block towards the ultimate goal.'

The representatives of the developed and powerful developing countries were at a tug of war rendering it difficult for Obama to finish negotiation with a flying colour. 'The developed countries expected the developing countries to cut their emissions. They themselves did not turn out to be as exemplars. The emerging economies like China and India showed much reluctance to sign any legally binding agreement for carbon emission. The developed countries' financial and practical assistance for climate change should come with their right, in return, to monitor the developing countries' graduated progress under various schemes depending on the levels of their development towards the reduction of their emissions and adaptation to climate change'. So nothing magical was expected to be on the card even with Obama's presence at the concluding stage of the conference. 'The initiative and discussions that have taken place within the United Nations General Assembly (with Bangladesh being an active participant under the leadership of Sheikh Hasina) have made it clear that the theoretical framework for a compromise is broadly in place. This format expects the developed world to accept its responsibility for old pollution and make amends by subsidizing low-carbon energy in the developing world. In exchange for transfer of green technology from rich to poor, the developing world will also consider implementing significant emissions targets' The Prime Minister of Bangladesh has commented that 'regional and international co-operation is imperative to cope with the climate change issues.

With a good deal of articulation Hasina's diplomatic aids consisting of international relations experts and scientists pointed to a grave concern about the deluge of global warning in coastal areas. The world leaders attending Cancun summit could well realize that 'about half of the world population lives in coastal areas'. Of course there is a large variation among countries. Changes in climate will affect coastal systems through sea level rise and increase in storm-surge hazards and possible changes in the frequency of extreme antecedents. The people in developing countries are four times more likely to die in natural disasters than people in developed countries. An increase in the global temperature is likely to potentially result in a sea level rise as much as one meter that may cause inundation of costal areas and high frequency of submersion of vast area under water. The consequences are being faced by the people in different parts of the world regarding health hazards, natural calamities, draught, acid rain, desertification, sea level rise and so many greenhouse effects. There has been a high frequency of 'natural and man-induced disasters' in recent years. In fact over population in Asian and African countries has caused environmental degradation. The natural resources are under tremendous pressure subject to wanton exploitation.

Conclusion

The compromise formula to give a fresh lifeline to Kyoto Protocol that ends next year suggested that the countries which had signed the legal binding on emission should continue their commitment for a second phase. In return, the USA which did not sign the protocol should commit to cut carbon emission earlier than 2020. However, politics has once again complicated the new formula as the US is firm on its stance that it would not talk anything about emission cut before 2020. And India, the fourth biggest carbon emitter, has outright rejected any commitment. But a silver line appeared with China saying it is ready to cap its emission. Chinese press has also slated Canada's decision to leave the protocol. With such undercurrents flowing high, the climate conference at Durban looks set to pick up more heat in the coming days. The worrying prospect is that if countries fail to commit to the second phase of the Kyoto Protocol, the funding to the poor and developing countries through the Clean Development Mechanism (CDM) would be dead as well.

Despite its negligible contribution to green house gas emission Bangladesh cannot afford to remain complacent. The policy communities should avoid stoic indifference to the damages already taking place Unplanned urbanization with growing urban jungles and industries is polluting and suffocating air. The deluge of urbanization is beginning to adversely affect the countryside. Development under rural modernization experiment has by now shown many a contraindication. There has been wanton destruction of forest trees in costal belts that serve to absorb carbon and the scorching heat of sun. So think of green beckoning to prevent global warming. Environment economists advocate 'carbon-neutral economic production system'

References

National Research Council 2004, Understanding Climate Change Feedbacks Panel on Climate Change, *Climate Research Committee*, National Academies Press, Washington, USA.

Westbrook, GK, Thatcher, KE, Rohling, EJ, Piotrowski, AM, Pälike, HO, Osborne, AH, Nisbet, EG, Minshull, TA 2009, Climate change. Permafrost and the Global Carbon Budget, *Science*, Vol. 312, No 235, pp. 1612-1615.

Buesseler, KO 2007, Revisiting Carbon Flux Through the Ocean's Twilight Zone, *Science*, Vol. 316, No 232, pp. 567-570.

Simó, R, Dachs, J 2002, Global ocean emission of dimethylsulfide predicted from Biogeophysical data". *Global Biogeochemical Cycles*, Vol. 16, No 5, pp 56-60.

Denman, KL 2007, Chapter 7: Couplings Between Changes in the Climate System and Biogeochemistry . Fourth Assessment Report of the Intergovernmental Panel on Climate Change. *Intergovernmental Panel of Climate Change (IPCC)*, p 654

Hansen, J 2000, Climatic Change: Understanding Global Warming". One World: The Health & Survival of the Human Species in the 21st century. *Health Press*, p 234.

Stocker, TF 2001, Cloud Processes and Feedbacks". Climate Change 2001: The Scientific Basis. Contribution of Working Group I, *Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*, pp 150.

Torn, M, Harte, J 2006, Missing feedbacks, asymmetric uncertainties, and the underestimation of future warming, *Geophysical Research Letters*, Vol. 33, No 10, pp. 45-50.

Harte, J 2006, Shifts in plant dominance control carbon-cycle responses to experimental warming and widespread drought, *Environmental Research Letters*, Vol.1, No 1, pp. 345-355.

Green Climate Fund in Aid of Climate Displaced Persons

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Abstract

The situation in Bangladesh reveals that the problem of climate displacement is a present one signaling future uncertainties. The government of Bangladesh and that of other poor countries have been urged upon to take heed of the climate displacement nightmare unfolding to add to humanitarian crisis. All national governments have been directed to make best use of the funds that may be placed at their disposals. Local bureaucracies as implementing agencies must be sensitized to make best use of the fund keeping an arm's length from fuzzy governance. The study highlighted that developing countires now more aware on donation of funding for resolved the climate displacement all over the world. According to the findings of 'a poll of 15 nations, most of them in the developing world including Bangladesh "majorities of the people want their governments to take steps to fight climate change, even if that entails costs. The poll was carried out by the World Bank. International Monetary Fund (IMF) has stated that "negotiations toward a successor to the Kyoto Protocol are intensifying, and domestic climate policies being formed, ahead of a critical United Nations conference on climate change." The policymakers are very much in favour of sustainable growth to "recover from the deepest economic crisis for decades and, in many cases, also the means to cope with severe fiscal pressures exacerbated by the crisis.

Background

The United Nations Climate Change Conference (COP-17), Durban 2011, has brought together representatives of the world's governments, international organizations and civil society. The conference seeks to advance, in a balanced fashion, the implementation of the Convention and the

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Kyoto Protocol, as well as the Bali Action Plan agreed at COP 13 in 2007, and the reached at COP 16. There is some sensational news about climate change agreement arousing mass expectations. The Australian climate change minisister Combet called the conference a 'historic step forward'

The Chief US negotiator Todd Stern said: 'Obviously the package is not going to solve climate hange by itself, but I think it is a big step forward.' 'In a key area, the agreement set up a 'Green Climate Fund' to administer assistance to poor nations, which many experts say are already suffering more floods and drought as temperatures steadily mount'. 'The green climate fund is intended to raise and disburse dollar 100 a year by 2020 to protect poor nations against climate impacts and assist them with low carbon development.'

The Durban Conference Comprises

- The 17th Conference of the Parties (COP),
- The 7th Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol(CMP),
- The 35th session of the Subsidiary Body for Implementation (SBI),
- The 35th session of the Subsidiary Body for Scientific and Technological Advice(SBSTA),
- The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP)
- The Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA)

The Conference is being hosted by the Government of South Africa and is taking place at the International Convention Centre(ICC) & Durban Exhibition Centre (DEC).

United Nations Framework Convention on Climate Change (UNFCCC) widely known as COP-17 started in Durban "with a high expectation of signing a fruitful deal by the high emitters to bring down carbon emission to a level to keep the planet livable."

The compromise formula to give a fresh lifeline to Kyoto Protocol that ends next year suggested that the countries which had signed the legal binding on emission should continue their commitment for a second phase. In return, the USA which did not sign the protocol should commit to cut carbon emission earlier than 2020. However, politics has once again complicated the new formula as the US is firm on its stance that it would not talk anything about emission cut before 2020. And India, the fourth biggest carbon emitter, has outright rejected any commitment. But a silver line appeared with China saying it is ready to cap its emission. Chinese press has also slated Canada's decision to leave the protocol.

With such undercurrents flowing high, the climate conference at Durban looks set to pick up more heat in the coming days. The worrying prospect is that if countries fail to commit to the second phase of the Kyoto Protocol, the funding to the poor and developing countries through the Clean Development Mechanism (CDM) would be dead as well. One of the contentious issues in Copenhagen will be the commitment of developed countries of 'financial and technological assistance to the developing countries for climate change mitigation and adaptation.' The thing to be done on urgent basis is financing 'mitigation projects in both the developed and developing countries.' Besides there will be a volley of prescriptive measures such as' cap and- trade, clean development mechanism, and harmonized domestic carbon taxes'. 'A proportion of the proceeds from their fossil fuel trade should be used to pay for the damage caused by global warming. Carbon emissions generated by fossil fuels contribute to 76 per cent of global warming. Such a tax would be an incentive for the suppliers to invest more and be more innovative in clean energy.'

According to the findings of 'a poll of 15 nations, most of them in the developing world including Bangladesh "majorities of the people want their governments to take steps to fight climate change, even if that entails costs. The poll was carried out by the World Bank. It questioned 13,518 respondents in 15 nations- Bangladesh, China, Egypt, France, India, Indonesia, Iran, Japan, Kenya, Mexico, Russia, Senegal, Turkey, the United States, and Vietnam". "The poll's findings shed light on global attitudes at a particularly important moment: the run-up to the conference on climate change to be held December 7-18 in Copenhagen.". There happens to be public concern about climate all over the world. The concern is stated to be higher in developing countries. The poll also advocated for helping poor countries to enable them to "adapt to the effects of climate change." Most poor countries feel that they should "contribute to international efforts to help poor countries deal with these climate-induced changes." The developing countries like Vietnam, Indonesia, Kenya, and Senegal committed "more than 90% support for acting in solidarity with other countries facing problems like their own."

The report has said since 1950 extreme weather conditions are witnessed and heavy rainfall will increase in the 21st century. Frequency of warm and cold spells will also increase and it is likely that the average maximum wind speed of tropical cyclones like typhoons and hurricanes will increase throughout the coming century. Droughts will intensify over the coming century in southern Europe and the Mediterranean region, central Europe, central North America, Central America and Mexico, northeast Brazil, and southern Africa. At the same time it is very likely that average sea level rise will contribute to upward trends in extreme sea levels in extreme coastal high water levels. So when such signs and warnings are visible, Pachauri said time is ticking to fight such a grim future.

Needless to mention 2011 is the tenth warmest year rich developing countries like China and India stood as a stumbling block to the implementation of 'Kyoto protocol'. We are worried about the success of the conference. The split among the developing nations over carbon cut is disappointing. On the other hand the promise of the European community for extending monetary help to the MVCs to combat climate change is really heartening.

Worst victims in Bangladesh are expected to get formal support from major players in the climate negotiations Bangladesh, which tops a Global Climate Risk Index published during the Copenhagen talks, strongly backs an extension of the Kyoto Protocol, as the only existing binding instrument on emission cuts, rather than creation of an entirely new climate deal. Bangladesh is also urging rich nations to contribute at least US\$100 billion for a global fund to help poor nations adapt to climate change. Britain, meanwhile, is the first country to contribute 75 million pounds for creation of Bangladesh's own multi-donor trust fund for climate change adaptation.

The small island states have threatened to boycott the conference. These states including African union have been organized into three alliances each expressing common views about limiting temperature to not more than one degree Celsius. They demanded compensation package for the victims. Human rights activists in various countries demanded climate justice and fair deal, heavy compensation package even immigration of the climate refugees.

The green climate fund is intended to help climate vulnerable countries to fight out global warming. Launched at a UN climate conference at Durban,

in December 2011 the green fund is to 'channel up Dollar 100 billion a year by 2020 in aid of poor, vulnerable countries to adapt to climate change and cut emissions. Earmarking funds from the recently agreed green climate fund(GCF) of the Durban climate meet (2011) has happened to be 'one concrete means by which the international community could ensure that the displaced people in Bangladesh receives their fair share of the funds required to deal with the consequence of climate change'

The United Nations Climate Change Conference (COP-17), Durban 2011, has brought together representatives of the world's governments, international organizations and civil society. The conference seeks to advance, in a balanced fashion, the implementation of the Convention and the Kyoto Protocol, as well as the Bali Action Plan agreed at COP 13 in 2007, and the reached at COP 16.

Conclusion

There is some sensational news about climate change agreement arousing mass expectations. The Australian climate change minisister Combet called the conference a 'historic step forward'. The Chief US negotiator Todd Stern said: 'Obviously the package is not going to solve climate change by itself, but I think it is a big step forward.' 'In a key area, the agreement set up a 'Green Climate Fund' to administer assistance to poor nations, which many experts say are already suffering more floods and drought as temperatures steadily mount'. 'The green climate fund is intended to raise and disburse dollar 100 a year by 2020 to protect poor nations against climate impacts and assist them with low carbon development.'

The situation in Bangladesh reveals that the problem of climate displacement is a present. one signaling future uncertainties. The government of Bangladesh and that of other poor countries have been urged upon to take heed of the climate displacement nightmare unfolding to add to humanitarian crisis. All national governments have been directed to make best use of the funds that may be placed at their disposals. Local bureaucracies as implementing agencies must be sensitized to make best use of the fund keeping an arm's length from fuzzy governance.

References

Jabbar, MA 2015, *Green Banking for sustainable development*, The Daily Sun, Available at http://www.daily sun.com/printversion/details/88897/ Green-Banking-for-sustainable-development (Accessed on 5th June, 2016)

Impacts of Climate Change on Coastal Communities of Bangladesh: A Case Study of Kutubdia Para, Cox's Bazar

Md. Iqbal Sarwar*, Md. Assaduzzaman Sarker** and Md. Abu Bakar Shamim**

Abstract

The present study intends to identify the impact of climate change on coastal community in Kutubdiapara, Cox's Bazar. Bangladesh is frequently cited as one of the most vulnerable countries to climate change because of its disadvantageous geographic location; flat and low-lying topography; high population density; high levels of poverty; reliance of many livelihoods on climate sensitive sectors, particularly agriculture and fisheries; and inefficient institutional aspects. Climate induced changes such as extreme cyclone, devastating tidal surge, severe floods, treacherous river erosion, excessive rainfall, thunderstorm and over whelming salinity intrusions occurring more frequently and unpredictable about in the coastal region of Bangladesh. These impacts could be extremely detrimental to the economy, the environment, national development, and the people of Bangladesh. For the present study, Kutubdia para (coastal community), Cox's Bazar is taken as the study area. To consummate the objectives, both qualitative and quantitative data have been collected through cross sectional questionnaire survey, photography and observation methods and then those data have enmeshed with secondary data collected from disparate Government and Non-Government institutions and research cells. The total sample size was 200 and simple random sampling was accomplished to conduct the survey. The study reveals that among natural disasters like cyclone, storm surge etc. affects severely the livelihood pattern of the study area. People of the affected area experienced that disproportionate rate of salinity intrusion into the land mass increased less fertility that causes failure of crop production. As a consequence, most of the low-income families are facing food insecurity, health, damage infrastructures and water crisis that make the people more vulnerable.

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Introduction

Bangladesh is frequently cited as one of the most vulnerable countries to climate change (Huq, 2001) because of its disadvantageous geographic location; flat and low-lying topography; high population density; high levels of poverty; reliance of many livelihoods on climate sensitive sectors, particularly agriculture and fisheries; and inefficient institutional aspects. Climate induced changes such as extreme cyclone, devastating tidal surge, severe floods, treacherous river erosion, excessive rainfall, thunderstorm and over whelming salinity intrusions occurring more frequently and unpredictable in the coastal region of Bangladesh (Salequzzaman, et.al, 2009). These impacts could be extremely detrimental to the economy, the environment, national development, and the people of Bangladesh. Climate change induce threats were more noteworthy and their magnitude is higher than non-climatic change disasters. As a result, people are changing their agricultural practices, infrastructural pattern and facing different health risks specially, disaster borne diseases particularly diarrhea and fever (Ali, et.al, 2015).

Bangladesh is an "impact hot spot" with respect to sea-level rise, states World Bank's 2013 report. The Intergovernmental Panel on Climate Change (IPCC) has asserted that continued sea-surface warming will lead to tropical cyclones that are more intense, with higher wind speeds, and heavier and more sustained rainfall. According to 2010 World Bank estimates, a 27 cm sea-level rise and a 10 % intensification of wind speed is likely to be caused by climate change. The destruction can be somewhat gauged when compared to cyclone Sidr of 2007. Sidr, with an average wind speed of 223 km per hour, affected 26 % of the coastal area. According to World Bank estimates, a similar category cyclone will become more intense with global warming and will cover 43 per cent of the vulnerable zone by 2050.

Climate change is predicted to increase in temperature and rainfall, sea-levelrise and create uncertain impacts on cyclones in Bangladesh which may result in higher storm surges. About 25 million more people could be flooded around the Indian Ocean as a result of 0.5m sea-level-rise. Dasgupta et al. suggests that a 10% intensification of the storm surge combined with a 1m sea-level-rise could affect 23% of Bangladesh's total coastal land area. Land erosion is also likely to increase with sea-level-rise and increased flooding. These impacts of climate change have the potential to displace more people from coastal areas of Bangladesh. A quarter of the population lives in the coastal areas, with the majority of the population reliant on or affected by coastal activities. If sea levels rise up to one meter this century, Bangladesh could lose up to 15% of its landmass and up to 30 million Bangladeshis could become climate refugees (Harasawa, 2006). In these areas, agriculture, industry, infrastructure, livelihoods, marine resources, forestry and biodiversity, human health, and utility services will all suffer. Such a scenario could lead to a decline in GDP of between 27 and 57 % (Agrawala, 2003). Climatic stresses and shocks such as sea-level-rise, flooding and land erosion displace millions of people globally (IPCC, 2007) and their number is predicted to increase due to climate change.

A number of studies have established the consequences of climatic effect on Bangladesh and assessed adaptation practices, options, constraints and capacities (Adger, et.al, 2007, Ahmed and Schaerer, 2004; DoE, 2007 and Mullick and Alam, 2009). Some of them are specifically concerned to the coastal areas of the country as they face the immediate vulnerability to these threats with loss of rich bio-diversity (Agrawala, 2003) while some others are concerned about the impact of climate change variables on different economic sectors or resource base (Ahmed, 2006; Basak, et.al, 2009 and Choudhury, et.al, 1997). Though climate change consequences cannot be predicted with complete certainty but efforts are also dedicated to proper risk assessment (intensity and magnitude of natural hazards/disasters) using multiple sophisticated tools/models for more logical understanding of the impact of climate change variables (Faisal, et.al, 1999). This paper highlights the climate change impacts on coastal communities in Kutubdia Para at the Cox's Bazar district, Bangladesh. The specific objectives of the study is to identify the impact of climate change on coastal communitiesin Kutubdia Para. Cox's Bazar.

Selection of the Study Area

Kutobdiapara is a coastal village of cox's Bazar district selected as study area. Its Geographical location is 21°27'45.75" N and 91°57'13.14"E. The study area is located at the Cox's Bazar district of the southern coastal part of Bangladesh (Map-1) and it was selected on the basis of the subsequent criteria such as severity and magnitude of climate induced vulnerability, economic importance, coastal area and potentialities for tourism industry, shrimp and crab culture and dry fish industry. The study was conducted over the inhabitants of this village, who were climate refugee. They were pushed to migrate in the study area from Kutubdia Island.



Map-1: Relative location of the Study Area (Kutubdia Para)

Materials and Methods

The present study was done mainly based on primary data collection, includes pilot survey, close observation and quantitative data collection. Primary data were collected following data collection tools i.e. questionnaire survey (sample size 200) of the head of the household level. A pilot survey was conducted before finalizing the questionnaire. The household head has been taken as respondent. In some cases, the household head was not available during the survey. At that time the home maker of that family was taken as respondent. Direct observation was used to visual realization of the severity and magnitude of vulnerabilities and coping mechanism of local people to reduce risk. Secondary data have been gathered from different organization. On the other hand, secondary data such as internet, magazine, books, journals, newspapers and unpublished and published reports were also used. Data were analyzed by Statistical Package for the Social Sciences (SPSS, version-18), and Microsoft Excel.

Result and Discussion

Socio-Economic Condition of the Respondents

Socio-economic information represents the real picture of any society, group or a community. It contains social & economic condition of any area.
To take any development program for any area, it is very much needed to collect information about the socio-economic condition of the locality. Otherwise; the doings or initiatives or programs will not be fulfilled.

Parameters	Percentage (%)	
Age Structure	21-30=37%, 31-40=27%, 41-50=14%, 51-60=12%, and	
-	60+=10%	
Gender Composition	Male=70% and Female=30%	
Education	Illiterate=10%, Literate=90% (Primary=40%,	
Qualification	Secondary=35%, HSC=10%, Graduate=5%)	
Occupation	Fisherman=75%, Housewife= 9%, Day labor=11% and	
	Others=5%	
Monthly Income	5000-10000=60%, 10001 - 15000=25%, 15001 - 20000=10%	
-	and 20000+=5%	
Family Size	2-4=64%, 5-6=21% and 7+ = 15%	

 Table 01 : Socio-economic condition of the respondents

Source: Field Survey, 2015

Age of the respondents is a very important factor for any socio-economic study. As the respondents of this research were various age group, adult people aged 21-40 were most common there since they had both economic and physical ability. This age group constituted 74% of the respondents. The second most common age group was 41-50 in which most of them were old adult. However, aged people above 60 were the least(10%) common age group of this research. In the present study, more than two third respondents (70%) were male and only 30% were female. Generally women are conservative here whereas the men are interested in participating in the interview. By analyzing the educational qualification of the respondents, it was found that 90% of the respondents were literate while only 10% were illiterate. Occupation is an important part for the survival of any person in any area. Among the respondents, the percentage of fishermen is higher (75%) than the others(House wife, Day labor and others etc.). In this study, important occupational group is fisherman. These respondents have given valuable information about climate change and its various impacts on study area. Besides, there were some respondents who are house wife and also give essential information from their own experience. Monthly income is another important factor for measuring the socio-economic condition of any area. Income level of an area depends on economic activities. The salary range of most of the respondents is between 5000 and 20000 whereas most of the respondents' (60%) monthly income is ranging from 5000-10000. only 5%

respondents have monthly income of more than 20000. Around 64% of the respondents of this study were from small size family consisting of 2-4 family members. On the other hand, only 7% respondents had more than 7 members in their family.

Impact of Climate Change

Bangladesh is already vulnerable to many gradual change phenomena of climate change as well as climate change related extreme events. It is expected that climate change will bring changes in characteristics of gradual change phenomenon and natural hazards which will result changes in physical, social and production system. Bangladesh is already evidencing the adverse impacts of global warming and climate change. The following impacts have been observed in the study area.

Increased Natural Disasters

The impacts of global warming and climate change are worldwide. For Bangladesh they are most critical as large part of the population is chronically exposed and vulnerable to a range of natural disasters. Already, the human suffering and cost to development is massive to this country and its people who are victims of human induced global warming. 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. There is a close relationship between natural disaster and climate change. It is predicted that climate change has a wide range of severe outcome of action. Some of them are consisted of long term impacts (Flood, Excessive Rainfall etc.) and others have instant impacts (Cyclone, Storm Surge, Tornado etc.).



Fig 01: Natural disasters due to the climatic change Source: Field Survey, 2015

In the study area is exposed to various natural disasters, such as storm surge, flood, tornado, cyclone, tidal flood, excessive rainfall etc. (Fig- 1). Storm surge (35.14%) is the most common natural disaster experienced in the community whereas the least (2%) common disastersare others (tornado, land slide etc.). The second most experienced disaster is tidal flood that is 24.29%. However, the experiences of cyclone and rainfall are almost same by the respondents which are 19.12% and 18.09% respectively.

Sea Level Rise

The level of the surface of the sea with respect to the land, taken to be the mean level betweenhigh and low tide, and used as a standard base for measuring heights and depths. Bangladesh has been ranked as the 3rd most vulnerable country in the world to sea level rise in terms of the number of people and in top in the terms of percentage of population living in the low elevation coastal zone. Therefore the threat of the communities being forced away due to the effects of climate change is one of the severe on earth (McGranahanet al, 2006).



Fig 02:Sea Level Rise

Source: Field Survey, 2015

The above figure (Fig-02) shows the sea level rise in the study area due to the climate change. About 65% of the respondents reported that the sea level has risen highly in the last 20 years. Nearly 31% respondent mentioned that there are moderate changes in the sea level. That means sea level is rising, which may increase the risk of health hazards, like diarrhea, cholera etc. Other 4% respondents mentioned about the little changes of the Sea level in the study area.

Salinity Intrusion

Salinity intrusion in Bangladesh coast is very seasonal. In the rainy season

(June-October) intrusion of saline water is minimum due to extreme flow of fresh water, but in the dry season, especially in winter, saline water goes upward gradually. In the rainy season where saline water ingress to 10 percent of country's area, in the dry season saline water reaches to country's 40percent area even. Due to changing climate the ingression of salinity might be increased through: Increased sea level, decreasing trend of fresh water flow from the upstream, frequency and intensity of tidal surges etc. Most of the respondents (75%) reported that there is no change in salinity of the study area but 42% respondents mentioned that salinity has increased keeping pace with time. Only 1% mentioned that salinity is decreased (Fig-03).



Fig 03: Salinity Intrusion

Source: Field Survey, 2015

Impact on Crop Production

Agriculture is the most vulnerable sector as its productivity totally depends on climatic factors like temperature, rainfall, light intensity, radiation and sunshine duration, which are predicted to be erratic. Every crop has a temperature range for their vegetative and reproductive growth. When temperature falls below the range or exceeded the upper limit then crop production faces constraints.Crop production is also adversely influenced by erratic rainfall, increased salinity, floods, river erosion, and tropical storms. All of which are likely to increase as a result of climate change. Climate change affects crop production in three ways, i.e., by flooding, by increasing cyclone frequency and by salinity intrusion. Combined effects of these factors decrease crop production in the coastal zone at a large extent. Salinity intrusion caused by sea level rise will reduce agricultural production by soil degradation and unavailability of fresh water. Salinity also reduces the germination rate and terminative energy of some plants.



Fig 04: Impact of climate change on Production of crops Source: Field Survey, 2015

According to respondents of the study area, who were involved in cultivation, among them 90.20% mentioned that the production of crops had lessen from the past and only 2.61% told inversely that the crops production had increased comparing to the past. On the other hand, about 7.19% respondents said that the productions of crops were constant, so it indicated that production of crops (paddy, vegetables etc.) had decreased than the past due to climate change (Fig-04).

4.2.5. Impact on Infrastructures

Infrastructures in coastal area are highly vulnerable to extreme natural disasters especially to floods, cyclone, storm surge and tornados. Among the disasters, floods and cyclone are the most destructive to infrastructures. Infrastructural damage constitutes about 40% of the total damage that occurs during extreme flood and cyclone (Mirzaet al., 2001). Types of infrastructure that are typically damaged include: settlement, roads, bridges, culverts, drainage structure, shops, market place, education, hospital, electric supply system, energy infrastructures, water supply and sanitation infrastructures. Following table (Table-2) has shown the impact on infrastructure due climate change in the study area.

Infrastructures	Percentage (%)
Settlement	45
Roads	21
Bridges and culverts	14
Electric system	12
Water supply system	08

 Table 2: Impact of Climatic Change on the Infrastructures

Source: Field Survey, 2015

According to field survey, 45 % respondents mentioned that settlement infrastructures losses were caused by climate change. On the other hand, about 21% respondents said that road and 14% respondents said that bridges and culverts infrastructure were damages. Only 08% of the respondents losses water supply system in the study area due to climate change impact.

Impact on Health

Climate change affects health directly and indirectly. The most direct impacts of climate change on human health occur through extreme events, for example the floods in Bangladesh in 2004 caused 800 deaths, while the recent cyclone affected more than 8.5 million people, causing more than 3,500 deaths.Climate change may increase the risk of some infectious diseases, particularly those diseases that appear in warm areas and are spread by mosquitoes and other insects. Climate change will also impact the distribution of climate sensitive diseases. Malaria is a frequently cited example, because its prevalence increases in line with the warmer, wetter that are anticipated with climate change. Incidences of malaria have increased dramatically in Bangladesh over the last 30 years, and it is now a major public health problem, with 16 million people in Bangladesh classified as high risk for catching the disease. Following table (Table-3) has shown the impact on health due climate change in the study area.

Impacts	Percentage (%)
Dysentery	38
Diarrhea	35
Dengue	18
Hypertension	05
Asthma and Skin diseases	04

 Table 3: Impact of Climatic Change on Health

Source: Field Survey, 2015

According to respondents, the various impacts on health such as dysentery(38%), diarrhea(35%), dengue(18%), hypertension (05%) associated with heat stress, asthma and skin diseases(04%) are also increasing in study area, particularly during the summer months. While a causative connection between climate change and these diseases is of course difficult to verify, the conditions associated with climate change (in terms of temperature, rainfall, and salinity) and the impacts on water supply, sanitation and food production, generate favourable environments for the

incidence and spread of such diseases.

Conclusion

Based on the analysis and discussion, it publicize that, the people of the study area are mostly affected by the climate change. Different disasters like, cyclone, storm surge, flood, excessive rainfall and so on has an adverse effects to the infrastructure, settlement and crop production. The impacts of climate change prevail in the respondent's job and family. As the part of adaptation preparedness to address the climate change threat, they have no such tremendous initiatives. During the disaster they take shelter in different cyclone shelter and in other safe places. There is not seen any steps to develop the infrastructure facilities, such as building, the embankment, increase the number of cyclone center, health care center or to aware the inhabitants about the effect of climate change and importance of adaptation preparedness.

Comprehensive and coordinated study on the real time impacts of climate change on crop production and assessment of the needs to avert the crisis must be carried out for making correct policy decision. NGOs in particular with their community linkages should seek to do climate change vulnerability assessments and action plans for their respective working areas.

Referencs

Adger, WN, Agrawala, SM, Conde, C, O'Brien, K, Pulhin, J, Pulwarty, R, Smit, B, and Takahashi, K 2007, *Assessment of adaptation practices, options, constraints and capacity*, Cambridge University Press, Cambridge, UK:

Agrawala, S 2003, Development and Climate Change in Bangladesh: Focus on Coastal Flooding and the Sundarbans, *Organization for Economic Co*operation and Development (OECD), p50.

Ahmed, AU and Jabbar, MA 1999, Development of Climate Change Scenarios with General Circulation Models, In Vulnerability and Adaptation to Climate Change for Bangladesh, *S. Huq, Z. Karim, M. Asaduzzaman and F. Mahtab (Eds.)*,: pp 13-20.

Ahmed, AU 2006, *Bangladesh: Climate Change Impacts and Vulnerability: A Synthesis*" Climate Change Cell, Department of Environment, Comprehensive Disaster Management Programme, Bangladesh. Ali, KMB, Molla, MH, Hossain, N, Hoshen, A, Rahman, M. and Billah, MM 2015, Climate change induced disaster in the southeastern coastal belt of Bangladesh, *Asian Journal of Water Environment*, Vol. 2, No.1, pp. 1-15

Basak, JK, Rahman, MM, Das, R, Rahman, T and Ali, MA 2009, Assessment of the effect of climate change on Boro rice production in Bangladesh using Ceres-Rice model, *Climate Change Impacts and Adaptation Strategies for Bangladesh*. Dhaka, Bangladesh: International Training Network (ITN) Centre, BUET

Cannon, T 2002, *Gender and climate hazards in Bangladesh* in R. Masika (ed.), Gender, Development and Climate Change, Oxfam publication, Oxfam GB, Oxford.

Choudhury, AM, Haque, MA, and Quadir, DA 1997, Consequences of Global Warming and Sea Level Rise in Bangladesh, *Marine Geodesy*, Vol. 20, No 1, p 13-31.

DoE 2007, *Climate Change and Bangladesh*, Climate Change Cell, Department of Environment, Government of the People Republic of Bangladesh.

Harasawa, H 2006, Key vulnerabilities and critical levels of impacts on east and southeast Asia, in avoiding Dangerous Climate Change, Cambridge University Press: Cambridge

Huq, S 2001, Climate Change and Bangladesh, Science, Vol. 294, pp 1617.

IPCC 2007, Summary for Policymakers. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, United Kingdom and New York, USA

Mullick, MRA and Alam, MJ 2009, Impact of climate induced disasters and adaptation strategies: A gender perspective. In Rahman, MH, Badruzzaman, ABM, Alam, MJB and Wadud, Z (Eds.), *Climate Change Impacts and Adaptation Strategies for Bangladesh. Dhaka*, Bangladesh

RVCC 2003, Report of a Community Level Vulnerability Assessment of Southwest Bangladesh. *CARE Bangladesh*, Dhaka, p 23.

Salequzzaman, M, Rahman, M, Moniruzzaman, MM, Kashem, MA, Salam, MA., Jahan, S, Islam, MT and Rokunzzaman, M 2009, Climate Change Induced Vulnerabilities and People's Precipitation in the Southwestern Region of Coastal Bangladesh, : *Proceeding of the special Conference on Climate Change and Bangladesh Development Strategy*, 2009

Climate Displacement in Bangladesh: Legal and Policy Responses for Rights-Based Solution

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Abstract

Bangladesh is one of the countries most vulnerable to the impacts of climate change and is set to ecome even more as a result of quick climate change. Climate change can affect people displacement in Bangladesh by both sudden environmental events and gradual environment change. The causes and consequences of climate displacement involve complex and multidimensional aspects; firstly, climate change induced disasters and their long-term residual impacts act both as visible and invisible drivers of displacement, secondly, variation in climatic factors has a direct influence on conflicts that again force people to flee away from the conflict-prone areas, thirdly, climate-induced displaced person essentially face violation, denial and abuse of human rights during their mobility within national jurisdictionand while crossing international boundary. This study sets out to examine the legal and policy aspects of climate change related displacement in Bangadesh. We review the different national strategies, laws and policies related on environment. disaster management, housing and climate change adaptation issues that related to rehabilitation and protection of climate displaced people of Bangladesh. This policy paper establishes a strong rationale on the previous arguments with a thorough analysis on cause effect relationship, existing policy spaces and policy gaps. The suggested elements to the Protocol may open space for further discussion in developing a rightsbased Protocol for addressing climate induced displacement.

Background

According to the IPCC fifth assessment report (WGI), climate change is now

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indisputable, and since the 1950s, many of the observed changes are unprecedented over decades to millennia and entire globe is facing this as one of the main challenges. Assessing the Costs of Climate Change and Adaptation in South Asia report commissioned by ADB revealed that average temperature of earth may increase up to 20C by 2050, which can cause of economic loss of annual GDP of Bangladesh equivalent to 2% by 2050 and 9.4% by 2100 (Barua and Shahjahan, 2013).

Bangladesh is one of the countries most vulnerable to the impacts of climate change and is set to become even more as a result of quick climate change. Bangladesh has ranked fifth among 10 countries most vulnerable to climate change-induced natural disasters in the last two decades from 1993 to 2012, according to a new report. During the period, Bangladesh suffered damages worth US\$1,832.70 million, wrought by 242 types of natural catastrophes, states the Climate Risk Index (CRI) 2014. Bangladesh suffers from regular natural hazards, including floods, tropical cyclones, storm surges and droughts. These hazards are already leading to the loss and destruction of housing, land and property, the loss of livelihoods and widespread displacement across the country (Germanwatch, 2016 and Shahjahan, 2015)

The Government of Bangladesh is well aware of this looming crisis, claiming that 20 million people could be displaced in Bangladesh by sea level rise alone over the next 40 years. A range of alternative predictions estimate that Bangladesh would lose 15 percent of its landmass and displace over 35 million people from 19 districts in the event of a one meter sea level rise in this century; that more than 200 million people may be displaced permanently from their traditional habitats due to cyclone, tidal surge and river bank erosion combined with high saline water intrusion; or that approximately 63 million and 78 million people might be displaced in 2015 and 2020 respectively (YPSA and DS, 2014)

Among the 64 districts of Bangladesh, 26 coastal and mainland districts are already producing climate displaced people. The districts have record of displacement in Bangladesh are : 1. Satkhira, 2. Khulna, 3. Bagerhat, 4. Pirojpur, 5. Barguna, 6. Patuakhali, 7. Bhola, 8. Feni, 9. Laxmipur, 10. Noakhali, 11. Rangpur, 12. Gaibandha, 13. Jamalpur, 14. Nilphamari, 15. Kurigram, 16. Bogra, 17. Sirajganj, 18. Rajshahi, 19. Munshiganj, 20. Manikganj, 21. Chittagong, 22. Cox's Bazar, 23. Chandpur, 24. Rajbari, 25. Faridpur and 26. Shariatpur (YPSA and DS, 2012)

In Bangladesh, generally persons displaced in rural areas initially try to relocate within their village environment, then to neighboring villages or to nearby embankments or char land and move to urban areas when no other livelihood options are available in their known rural surroundings. Ruralurban migration has accounted for rapid urbanization in Bangladesh, with urban slums becoming increasingly populated by impoverished rural-urban migrants (Ishtiaq and Mahmud, 2011). Most of the IDPs in Bangladesh are in fact climate IDPs. The pattern of rural-urban migration in Bangladesh is also characterized by these climate IDPs (Rahman, 2012). Hutton and Haque (2004) found out that more than 40 percent of their study respondents had left their homes at least three to four times, 36 percent moved between 5 to 10 times, and 14 percent displaced at least 10 times. Only a few reported displacement once or twice (5 percent and 8 percent). The Bangladesh Climate Change Strategy and Action Plan BCCSAP, 2009 estimates displaced people may exceed 20 million by 2050 while recent studies show that the number is likely to be more than 35 million. In fact, more than one million people have already lost their homes and 70 percent of them became displaced persons by only river erosion (MoEF, 2009). At least 123,000 people had to migrate temporarily while 15,600 migrated permanently after cyclone Aila (Mehedi et.al, 2009).

Starting from the 1970s the Government of Bangladesh implemented several programs to deliver housing for poor households, mainly through resettlement schemes, and also promoting people's return to rural areas. Social housing projects in urban and rural areas in Bangladesh have targeted the various vulnerable and disadvantaged groups, namely landless and homeless poor households, (widowed/ divorced) women headed households, single destitute. Many of the governmental housing projects tried to ease the pressure on urban areas by relocating or promoting the return to rural areas. These programs include The Ghore Phera Program, The Ashrayan Project, The Adarsha Gram Prokolpo (Ideal Village Project) and The Ashrayan-2 Project (SSHI, 2013).

The rehabilitation of displaced persons by government and non-government sectors are, to date, insignificant in terms of the total number of displaced persons. Importantly, livelihood problems remain after the rehabilitation of displaced persons. There should be a rights-based solution to this problem. There should be initiatives to generate sustainable employment opportunity for the rehabilitation of climate displaced persons. Therefore, there is a need to review the relevant policies and institutional frameworks identifying the

protection gaps and adopting new policies to protect the environmental migrants (YPSA and DS, 2015). To face the challenge of mass displacement (both internal and external) as a result of climate Change, Young Power in Social Action (YPSA), a social development organisation, has been implementing Bangladesh Housing, Land and Property (HLP) rights initiative with the support of Displacement Solutions (DS) for better settlement of climate displaced Peoples since 2012. The main objective of this project is to identify rights-based solutions and actions that could be undertaken to resolve the displacement of these climate-affected communities as well as to ensure and safeguard their housing, land and property rights. YPSA has conducted three studies that examined in detail the true picture of land availability in Bangladesh for climate displaced persons as well as the potential durability of future resettlement.

The objective of the study is to identify the existing laws, strategy and policies relevant for better solution for solving climate displacement in Bangladesh and guidance the sustainability for situation improvement.

Existing Laws, Strategy and Policies of Bangladesh

Considering climate-induced displacement and migration as a pressing global issue, this policy paper analyses the causes and consequences of forced displacement and migration, analyses existing protection mechanisms in national level and argues for a new Legal Protocol under the UNFCCC for a long-term rights-based solution of the crisis.

The National Adaptation Programme of Action (2005)

Bangladesh National Adaptation Programme of Action (NAPA, 2005) identifies 15 priority activities, including general awareness raising, capacity building, and project implementation in vulnerable regions, with a special focus on agriculture and water resources. The first priority project of the National Adaptation Programme of Action (NAPA) has received financial support from the Least Developed Countries Fund and is being implemented by the Ministry of Environment and Forest. The NAPA, produced in partnership with other stakeholders, highlights the main adverse effects of climate change and identifies adaptation needs. The general objectives of the NAPA are: i) To make information about climate change impacts and adaptation available to decision makers; ii) To incorporate potential adaptation measures into overall development planning process; iii) To make development resilient to climate change; and iv) To promote the sustainable development of Bangladesh.

The National Adaptation Programme of Action (NAPA) treats migration as an undesirable outcome of climate change. NAPA Priority Project No. 11 "Promoting Adaptation to Coastal Crop Agriculture to Combat Salinization", mentions long term outcomes including community adaptation to flood, tidal surge and sea level rise. However, one of the stated goals of Project No. 11 is that "affected communities would not migrate to cities for job and livelihood" and the "social consequences of mass scale migration to cities would to some extent be halted". In NAPA Project No. 12 "Adaptation to Agriculture Systems in Areas Prone to Enhanced Flash Flooding- North East and Central Region", the desired long-term outcomes include "people might get a means to continue with farming, instead of migrating to cities after the flood. This would to some extent reduce social problems of migration of the distressed community to cities". Migration can be a legitimate adaptation response to climate change and it is important that this negative portrayal of migration is updated and removed from these policy documents.

The Bangladesh Climate Change Strategy and Action Plan (2009) The main climate change strategic framework is the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), published in 2008 and updated in 2009. The BCCSAP is a 10-year programme (2009-2018) designed to build the capacity and resilience of the country to meet the challenge of climate change. The BCCSAP is designed as a 'living document' to continue to implement the nation's climate change adaptation and mitigation programmes, as well as to deepen understanding of the phenomenon. It lists 44 different programmes and 145 actions for implementation. In the first five year period (2009-13), the programme was designed to comprise six pillars: i) Food security, social protection and health; ii) Comprehensive disaster management; v) Mitigation and low carbon development; and v) Capacity building and institutional strengthening.

The Bangladesh Climate Change Strategy Action Plan (BCCSAP) makes clear reference to adaptation, mitigation, research and development, capacity building, institutional development,

mainstreaming, disaster management and knowledge management. However, there is no mechanism for ensuring the implementation of the activities as there is no implementation strategy. In terms of addressing climate change migration and displacement, the BCCSAP states that "Migration must be considered as a valid option of the country. Preparations in the meantime will be made to convert this population into trained and useful citizens for any country", suggesting the aspiration that such displaced people become 'useful citizens' by moving abroad. Whilst it is initially positive that migration is viewed as an effective and positive response to the effects of climate change, this broadly reflects the narrow policy of Bangladesh in that people displaced by climate change should migrate internationally, rather than within Bangladesh.

1 The National Plan for Disaster Management

Bangladesh has a number of institutional structures to achieve technical monitoring, capacity building, preparedness and response. The National Plan for Disaster Management (NPDM) 2010-2015 is an outcome of the national and international commitments of the Government of Bangladesh. The priority areas of focusing for the National Plan for Disaster Management (NPDM) are: i) Articulate the long-term strategic focus of disaster management in Bangladesh; ii) Demonstrate a commitment to addressing key issues, including: risk reduction, capacity' iii) Building, information management, climate change adaptation, livelihood security, iv) issues of gender and the socially disadvantaged; v) Show the relationship between the Government vision, key result areas, goals and strategies, and to align priorities and strategies with international and national drivers for change; vi) Guide the disaster management and risk reduction In the development and delivery of guidelines and programmes; vii) Illustrate to other Ministries, NGOs, civil society and the private sector how their work can contribute to the achievements of the strategic goals and government vision on disaster management.

+ The Disaster Management Act (2012)

The Disaster Management Act (2012) has created mandatory obligations and responsibilities for Ministries, committees and appointments to ensure transparency in the overall disaster management system. The objectives of the Disaster Management Act (2012) are: i) Substantial reduction of the overall risks of disasters to an acceptable level with appropriate risk reduction interventions; ii) Effective implementation of post disaster rehabilitation and recovery measures; iii) Emergency humanitarian assistance to the most vulnerable communities; iv) Strengthening institutional capacity for effective coordination of disaster management involving Government and NGOs; and v) Establishing a disaster management system capable of dealing with all existing hazards.

The Standing Orders on Disaster (2010)

The Ministry of Disaster Management and Relief (MoDMR) launched an extensive consultation in order to finalize the updated version of the Standing Orders on Disaster (SOD). The SOD describes the roles and responsibilities of citizens, public representatives, NGOs, Ministries and other organizations in disaster risk reduction and emergency management. The SOD also established the necessary actions required to implement Bangladesh's disaster management model.

The Standing Orders on Disaster (SOD) are intended to clarify the duties and responsibilities of all concerned people related to disaster management. All Ministries, Divisions, Departments and Agencies prepare their own Action Plans in respect of their responsibilities under the Standing Orders. The National Disaster Management Committee and Inter-Ministerial Disaster Management Coordination Committee ensure the coordination of disaster related activities at the National level. Coordination at District, Upazila and Union levels is ensured by respective District Disaster Management Committee (DDMC), Upazila Disaster Management Committee (UZDMC) and Union Disaster Management Committee (UDMC). The Department of Disaster Management facilitates this process and renders necessary assistance.

The National Strategy for Accelerated Poverty Reduction (2005)

The National Strategy for Accelerated Poverty Reduction: "Unlocking the Potential" was launched in October 2005. The Strategy lists eight specific avenues to achieve accelerated poverty reduction: i) Supportive macro-economics; ii) Choice of critical sectors to maximise pro-poor benefits with special emphasis on rural, agricultural, informal and Small and Medium Enterprise (SME) sectors; iii) Safety net measures to protect the poor; iv) Human development through education; v) Health and sanitation; vii) Participation and empowerment; viii) Promotion of good governance; ix) Improved service delivery and finally; x) Caring for environment. The Poverty Reduction Strategy Paper II (2009-10) puts emphasis on agricultural development considering the impacts of climate change induced natural disasters risk.

The Coastal Zone Policy (2005)

The Coastal Zone Policy (CZP)recognizes the importance of ecosystem and biodiversity conservation. The Policy states that the coastal development process aims to meet, on an overall basis, the national Goal for economic growth, poverty reduction and social development. The Policy also aims to abide by the Code of Conduct for responsible fisheries, the Code of Conduct for responsible mangrove management and other international conventions and treaties including the targets of the Millennium Development Goals.

The stated goal of the Policy for the Integrated Coastal Zone Management (ICZM) is "to create conditions, in which the reduction of poverty, development of sustainable livelihoods and the integration of the coastal zone into national processes can take place". Section 4.2 of the Policy focuses on basic needs and opportunities for livelihoods. In this section it is mentioned that to meet basic needs of the coastal people and enhance livelihood opportunities, the Government policy should be as follows: i) Alleviation of poverty through creation of job opportunities and finding options for diversified livelihoods would be the major principles of all economic activities. Economic opportunities based on local resources will be explored to enhance income of the people; ii) Private sector and the NGOs will be encouraged to implement activities for the poor people; iii) Special measures will be taken during the period of disaster; iv) Khasland will be distributed among the landless and a more transparent process of land settlement will be ensured; and v) An effective program for land reclamation will be developed.

The Coastal Development Strategy (2006)

The Coastal Development Strategy (2006) links the Coastal Zone Policy (CZP) with development programs and interventions. The objectives of the Strategy are: "to select strategic priorities and actions in implementation of the CZP with emphasis on the creation of the institutional environment that will enable the Government of Bangladesh to embark on a continuous and structured process of

prioritization, development and implementation of concerted interventions for the development of the coastal zone". The Coastal Development Strategy (2006) describes the priorities and targets based on the Coastal Zone Policy (CZP) objectives, the problems and issues in the coastal zone and the available resources. The Strategy represents a departure from 'business as usual' in the management of the coastal zone towards utilizing its potential. It describes 'governance' of the coastal zone. The Strategy takes into account emerging trends, including increasing urbanization, changing patterns of land use, declining land and water resources, unemployment and visible climate change impacts. However, there is no effective land distribution strategy for those whose land is lost due to erosion.

The Environment Policy (1992)

The Environmental Policy built upon the 1992 United Nations Conference on Environment and Development (The Rio Conference) and acknowledged that sustained development of the country was based on the well-being of the environment and ecosystems as they provide the services necessary for ensuring progress. The objectives of the Environment Policy were: i) Maintain ecological balance and overall development through protection and improvement of the environment; ii) Protect the country against natural disasters; iii) Identify and regulate activities which pollute and degrade the environment; iv) Ensure environmentally sound development in all sectors; and v) Ensure sustainable, long term and environmentally sound use of all national resources. The Environment Policy recognized the need for a better and more comprehensive approach to address climate change and environment issues.

The National Housing Policy (2008)

The objectives of the National Housing Policy are to "Make housing accessible to all strata of society.... the high priority target groups will be the disadvantaged, the destitute and the shelter-less poor; and to develop effective strategies for reducing the need to seek shelter through formation of slums.... to relocate them in suitable places". The Policy states that the Government recognizes the difficult situation in which the poor live in slums and squatter settlements. The strategy of the Government for implementing the National Housing Policy is to act as a promoter and facilitator and, to a limited extent, as a provider. The salient features of the housing strategy envisaged in the National Housing Policy are: i) Housing will be given due priority in national development plans; ii) The role of the Government in housing will be to supply serviced land at reasonable prices and to help create and promote housing financing institutions; iii) Efforts will be made to increase affordability for the disadvantaged and the low income groups through providing credit for income generation; iv) Improvement and rehabilitation of the existing housing stock will be given priority by the Government alongside new housing; and v) Ensuring the conservation of the natural environment and preservation of cultural heritage in new housing projects.

The Policy specifically provides in paragraph 5.8.9 that "rehabilitation for river erosion and other natural disaster affected communities should be ensured in the village land bank". Housing reconstruction and rehabilitation in disaster prone areas is one of the major components of the National Housing Policy. Paragraph 5.10.2 states "necessary action should be taken urgently for reconstruction and re-building of damaged houses by cyclones, floods and other natural disasters. Special rehabilitation programmes including easy terms of housing loan should be ensured for communities in disaster prone areas".

The National Land Use Policy (2001)

The National Land Use Policy (2001) highlights the need, the importance and the modalities of land zoning for integrated planning and management of land resources of the country. The Policy emphasizes the distribution of Khas lands among landless people in Bangladesh. Khas land is Government owned land and applies to agricultural land, non-agricultural land and water bodies. However, these programmes have met with mixed success due to vested interests illegally occupying Khas land, a lack of political will, the inefficiencies in the way local and national administration is organized and the absence of an updated, systematic and universally accepted source of information on land resource availability and land rights. The Policy also mentions the need to formulate a Zoning Law and Village Improvement Act for materializing the identified land zoning area. The Policy highlights the need for land zoning for the coastal area of Bangladesh. It also describes the need for definite guidelines and raises the possibility of undertaking coastal land zoning through an inter-ministerial task force.

National Rural Development Policy (2001)

The National Rural Development Policy consists of 30 programmes under seven sections, including: i) Poverty Alleviation; ii) Agro-based Rural Economy; iii) Education for Rural Areas; iv) Rural Health Services and Nutrition Development; v) Rural Population Control; vi) Rural Industries Development; vii) Empowerment of Rural Women; viii) Cooperatives for Rural Development; ix) Rural Environment Promotion; and x) Power and Fuel Energy. The Policy emphasizes the Integration of all activities in rural development with a view to alleviating poverty; improving the quality of life of women and the poor and the economic development of landless and marginal farmers. Paragraph 5.8 of the Act relates to the "Development of Rural Housing" and Article 6 states: "Families, who become landless, displaced, shelter less due to river erosion, will be provided with shelter within a short time on priority basis and will be rehabilitated in the nearest government Ashrayan/ Adarsha Gram project areas". Paragraph 5.9 relates to Land Use and Development and Article 4 states "Giving priority to the use of land for rural poverty alleviation will be continued and ensured in the allocation, distribution and leasing out of Khas land and government water body". But there are no clear indications how population displacement problems will be addressed in these policies, law, strategies, act and programmes. In addition, there are no detailed action plans with a timeframe to tackle this problem.

Agriculture Khas Land Distribution Policy

While there are numerous challenges for all governments in addressing the problem of climate change displacement, identifying, acquiring and eventually allocating land to communities forced to flee their homes and lands will eventually become the most considerable and complex challenge that governments face. Unlike many countries that face the new challenges posed by climate displacement and which lack laws and policies to cope with the provision of new lands to those who have been displaced, Bangladesh already has a system in place to distribute stateowned land - known as "Khas" land - to landless people across the country. While the implementation of these laws and policies is far from perfect, with a number of key improvements, the distribution of stateowned or Khas land could form an important cornerstone of land-based solutions to climate displacement in Bangladesh. The distribution of state-owned land - known as Khas land - to the landless poor has been a flagship of land reform in Bangladesh since independence. Indeed in one of the most densely populated countries in the world, where 160

million people are forced to live within 15 million hectares and where more than 40 million people are structurally landless, the more equal distribution of land and guarantees of fair HLP rights are essential steps towards the economic development of Bangladesh and the protection of human rights for all of its citizens.

The laws and policies for Khas land distribution have resulted in an estimated 142,073 families being allocated Khas land from 2009 to 2013. Regrettably, however, the history of Khas land distribution has been marred by corruption, mismanagement, overly complicated bureaucracy and a lack of political will to ensure that the landless poor who are in genuine need are the recipients of state-owned land. Despite these considerable problems, this Note seeks to show that with significant improvement, the Khas land distribution processes could provide important land-based solutions to climate displacement in Bangladesh. The framework of the system is sound and established. It is mostly in the implementation of the distribution process where corruption and vested interests arise and the system becomes prone to misuse and abuse. The 1984 Land Reform Ordinance, the 1990 Land Management Manual and the 1997 Agricultural Khas Land Management and Settlement Policy (including 1998 Amendment) provide the basis for current law and policy relating to the distribution of agricultural Khas land to landless persons in Bangladesh. In practice an application for *Khas* land takes a long period of time to be finalized. On average it is reported that an application can take 6-8 month to process. This delay, especially for those families who are landless and living in a vulnerable situation, can simply be too long. This has led to a number of families taking the decision to move to the urban slums of Dhaka and Chittagong, rather than wait for an application of *Khas* land - especially as the process is so well known to be rife with corruption and abuse. In addition, the Khas land that is made available for distribution is often isolated and of low agricultural value. Another concern relates to the lack of formal support provided to families once they settle on new Khas land in order to render their settlement sustainable. Due to the isolated location and poor agricultural value of much Khas land, there is limited access to essential services such as healthcare and education, as well as limited opportunities to earn a living. In practice this means that a number of beneficiaries of Khas land leave the land to which they have been allocated and either return to their previous vulnerable position, or move to the urban slums of Bangladesh. There is an urgent need for social support such as access to

education and healthcare, as well as training in new livelihoods, for families who have received *Khas* land.

Char Development and Settlement Program (CDSP)

One part of the Khas land distribution system is implemented more effectively than the rest of the system, and provides some important lessons for how the broader system might be improved. This part is known as the "Char Development and Settlement Project" (CDSP). The CDSP deals with state-owned land known as "Char" land, which falls into the broader category of Khas land, in South Eastern Bangladesh. The aim of the Project is to improve the security of tenure of landless people who are informally occupying *Char* land by providing them with legal title over the land, as well as to improve the quality of their lives on Char land by developing infrastructure and providing essential services such as healthcare, education and livelihood training. As with the broader Khas distribution system, there are some areas of the CDSP that require improvement which are identified in this Note and for which recommendations are made. Nonetheless, what the CDSP does show is that it is entirely possible to implement improvements to the broader Khas land distribution system so that it benefits those in most genuine need and so that settlement on Khas land is sustainable.

The Char Development and Settlement Project (CDSP) was designed to improve the lives of persons living on Char lands. This includes providing legal title over the Char lands to families who have previously been living on the Char land on an informal or illegal or temporary basis. The Project also seeks to improve the living conditions of Char dwellers, including through reducing vulnerability to natural hazards - including water resource management, protection against tidal and storm surges and improving drainage capacity. The Project also builds infrastructure on the Chars, including cyclone shelters, roads, bridges and drinking water pumps. The aim of the current phase of the CDSP (2011-2017) is to ensure 30,000 hectares of land to 28,000 households. There are currently 3 steps that must be completed in order for an applicant to successfully receive Char land under the CDSP: 1. Production of a settlement map; 2. Issuance of the Official Land Title; and 3. Consolidation of the map and information on landless households.

While the CDSP may not provide a nationwide solution, the system still shows that security of tenure can be provided for landless and climate displaced persons in Bangladesh, and that support can be provided to persons living in vulnerable and isolated situations, including transport and communication infrastructure, healthcare and education. The approach adopted under the CDSP should similarly be applied to the 3.3 million acres of Khas land formally available to the Government on the mainland of Bangladesh.

Conclusions

Bangladesh is one of the most climate vulnerable countries on earth and is set to become even more so as a result of climate change. One of the most catastrophic effects of climate change is climate displacement - the displacement of persons from their homes and lands as a result of the effects of climate change. Although it is difficult to agree on the precise numbers of persons who will be affected by climate displacement in Bangladesh, it is clear that Bangladesh must put in place a comprehensive institutional framework in order to meet this challenge and to ensure that the rights of all climate displaced persons are protected. It is equally essential that different stakeholders in Bangladesh and in the regional and international communities contribute to ensure the implementation of a truly effective institutional framework - through financial and technical cooperation, as well as ongoing monitoring and evaluation of the legal and policy responses to climate displacement. At present, despite the proliferation of stakeholders working directly or indirectly on climate displacement in Bangladesh, it is clear that there is not yet a truly coordinated and effective institutional framework in place to respond to and plan for the challenge of climate displacement.

The challenge of climate displacement is escalating in Bangladesh and elsewhere around the world. Land lies at the core of any approach to resolving climate displacement - and the need to ensure land for the current and future millions of climate displaced persons needs to be acted on now. Governments everywhere need to urgently start planning to ensure that they will be able to provide the right institutions, policies, laws and level of resources to address the housing and land dimensions of climate displacement. Unlike many countries facing climate displacement, Bangladesh already has a system in place to distribute state-owned land to landless people. While the implementation of these laws and policies is far from perfect, with a number of key improvements, the state-owned land distribution processes in Bangladesh could provide an important component of more comprehensive solutions to finding new homes and land for those displaced by the effects of climate change. The system in Bangladesh could also provide a potentially useful model and interesting example for other countries to consider in formulating their own approach to land solutions to climate displacement.

The UN Guiding Principles on Internal Displacement define an "internally displaced person" as "persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of....natural or human-made disasters, and who have not crossed an internationally recognized state border."

Thus, the majority of persons displaced by the effects of climate change will be internally displaced persons for the purposes of the Guiding Principles. To this end, this study recommends the following 7 steps that could be taken by the Government and national, regional and international stakeholders, in order to create and implement a truly effective and coordinated response to climate displacement in Bangladesh:

- Undertake a comprehensive review of existing national laws and policies
- Design and implement rights-based national laws and policies
- Undertake a review and re-design of the existing institutional framework
- Design and implement domestic land solutions
- Increase coordination and knowledge sharing among international and regional donors
- Create an UN and NGO working group on climate displacement
- Improve coordination & communication between the Government & civil society.

References

Barua, P, and Shahjahan, M 2013, *Superior Settlement for Climate Displaced People of Bangladesh: Approach for Durable Solutions*, Available at SSRN: http://ssrn.com/abstract=2370767 or http://dx.doi.org/10.2139/ssrn.2370767 (Accessed on 10th August, 2016).

BRAC 2011, Impact of Char Development and Settlement Project on Improving the Livelihood of Char Dwellers, *Working Paper No 17*, p 40.

Ministry of Environment and Forest 2009, Bangladesh Climate Change *Strategy and Action Plan (BCCSAP) 2009,* Government of Bangladesh.

Germanwatch 2016, Global Climate Risk Index 2016: Who Suffers Most From Extreme Weather Events? *Germanwatch*, p 32.

Hutton, D and Haque, CE 2004, *Human Vulnerability*, Dislocation and Resettlement: Adaptation .

Processes of River-bank Erosion-Induced Displaced in Bangladesh, Disasters, Vol. 28, No 1, pp41-62.

Ishtiaq, A and Mahmud, MS 2011, Migration objectives and their fulfillment: A Micro study of the rural-urban migrants of the slums of Dhaka city, *Malaysia Journal of Society and Space*, Vol. 7, No 4, pp 24-29.

IPCC, 2014 Summary for policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom, p 32.

Naser, MM. 2011, Climate Change, Environmental Degradation, and Migration: A Complex Nexus. *Water Management & Marine Environmental Law and & Policy Review*, Vol. 36, No 50, pp 713-725.

Rahman, MS 2012, The Internally Displaced People of Bangladesh: A Background Paper, South Asian Organization for Human Rights (SAHR).

Shahjahan, M 2015, *Durable Solutions for Climate Displacement in Bangladesh*, Lambert Academic Publishing, Germany, p125.

YPSA and DS 2012, Climate Displacement in Bangladesh : The Need for Urgent Housing, land and Property Rights, YPSA and Displacement Solutions, p 36.

YPSA and DS 2015, *Rights of Climate Displaced Persons: A Quick Guide*, YPSA and Displacement Solutions, p25.

YPSA and DS 2014, *Climate Displacement in Bangladesh: Stakeholders, Laws and Policies - Mapping the Existing Institutional Framework,* YPSA and Displacement Solutions, p 176.

YPSA and DS 2015, *Guidance Note: New Land for Climate Displaced Persons in Bangladesh*, YPSA and Displacement Solutions, p 40.

Addressing Disability Inclusive Climate Change and Disaster Management in Bangladesh: A review of existing laws, Policies and Strategies

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Abstract

People of Bangladesh have long historic experience of combating various natural hazards such as floods, cyclones, droughts, tidal surges, tornadoes, river erosion, high arsenic contents of ground water, water-logging, increasing water level and soil salinity. Increasing disaster risk of Bangladesh with wider inequity in the social and economic setting has also been reducing the coping capacity of the poor people. Persons with Disabilities are often forgotten, and most likely to be abandoned during disasters as well as more likely to be invisible and overlooked in emergency relief operations. In addition, moving and transferring persons with disabilities requires handling techniques to avoid injury or further injury. This study has reviewed the existing laws/act, policy, plans and actions relevant to the disaster management and climate change of Bangladesh to identify the gaps based on which recommendations can be made to address the issue of persons with disabilities in line with UNCRPD as well as Rights & Protection of Persons with Disabilities Act 2013, Bangladesh. The review was mainly based on the comprehensive desk review collecting existing laws, policies, strategies, plans of Bangladesh Government related to climate change and disaster management that supposed to be addressed disability issues as per article 11 of UNCRDP. Different published Government gazettes and policies and strategies were collected from reliable sources and downloading documents from the relevant government website for review. The study recommended that Persons with disabilities should be brought into mainstreaming, including rehabilitation, in climate change adaptation and disaster management process and effective participation of persons with disabilities should be ensured at all levels of disaster management committee in Bangladesh as mentioned in the disaster management rules.

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Special Code of Conduct should be developed and incorporated into the existing policies/plans to deal with persons with disabilities during the disaster period.

Background

According to the Intergovernmental Panel on Climate Change (IPCC) fifth assessment report (Working Group I), climate change is now indisputable, and since the 1950s, many of the observed changes are unprecedented over decades to millennia and entire globe is facing this as one of the main challenges. Bangladesh has ranked fifth among 10 countries most vulnerable to climate change-induced natural disasters in the last two decades from 1993 to 2014. During this period, Bangladesh suffered damages worth US\$1,832.70 million, wrought by 250 types of natural catastrophes (Germanwatch, 2014).

People of Bangladesh have long historic experience of combating various natural hazards such as floods, cyclones, droughts, tidal surges, tornadoes, river erosion, high arsenic contents of ground water, water logging, increasing water level and soil salinity. But in recent time, the increasing intensity and magnitude of disasters due to climate change, occurrence of unprecedented disasters have made significant stress on the life and livelihood of the poor people. Increasing disaster risk on a poverty prone country like Bangladesh with wider inequity in social and economic setting has also been reducing the coping capacity of the poor people (Bijoy and Chakraborty, 2013).

World Disasters Report 2007 focuses on discrimination in situations of disasters, persons with disabilities are doubly vulnerable on account of impairments and poverty, yet, they are often ignored or excluded at all levels of disaster preparedness, mitigation and intervention. Common experience reveals that due to lack of planning, limited access to services and facilities, transportation system, persons with disabilities are left behind. In the event of disasters, the care givers of the Persons with Disabilities (PWDs) strive to provide assistance for the above mentioned reasons. Again, there is also a possibility of discrimination when the resource is scarce (IFRC, 2007).

Climate change induced disasters impact on the built environment and further limit persons with disabilities' access to information, services and resources. In light of aging populations, higher accident rates from increasing vehicle ownership and more frequent climate-induced disasters we can, without action, expect the situation to worsen. The Hyogo Framework for Action (2005) (HFA) references vulnerability and highlights the increased vulnerability of certain groups e.g. women and children. Reference to disability, however, is poor. Despite the HFA's focus on risk, the HFA does not recognize the increased risk that persons with disabilities face nor the positive contribution that persons with disabilities and Disabled People's Organizations (DPOs) can make within Disaster Risk Reduction (UNISDR, 2005).

The prevalence of disability is believed to be high for reasons relating to overpopulation, extreme poverty, illiteracy, lack of awareness, , lack of medical care and services and above all. Although disability is a major social and economic phenomenon in Bangladesh, there is very little reliable data available on this issue, especially in the absence of a comprehensive national survey on persons with disabilities. According to the report of Bangladesh Population Census 2011, national prevalence rate of persons with disabilities only 1.4%, which was significantly lower than the 9.07% revealed by the Household Income & Expenditure Survey (BBS, 2010). On the other hand, the National Forum of Organizations Working with Disability (NFOWD) and Handicap International (HI) estimated that 5.6 percent of the population suffered from a disability. The 8 million people with disabilities in Bangladesh suffer from a range of disability types and severity (Ali, 2013).

In this circumstances, the United Nations Convention on the Rights of Persons with Disabilities (CRPD) Article 11 (on situations of risk and humanitarian emergencies) calls upon States Parties to take "all necessary measures to ensure the protection and safety of persons with disabilities in situations of risk, including situations of armed conflict, humanitarian emergencies and the occurrence of natural disasters" (WHO, 2013). Recently, there have been initiatives that respond to Article 11 of the CRPD. Goal 7 of the Incheon Strategy: To Make the Right Real (2012) promotes disability-inclusive Disaster Risk Reduction (DRR) and seeks disability-inclusive planning and appropriate disaster response for persons with disabilities (UNESCAP, 2012). The Yogyakarta Declaration (2012) of the 5th Asian Ministerial Conference on DRR makes both general and specific references to disability and includes the first disability stakeholder annex. In response, the government of Indonesia drafted a national regulation on disability and Disaster Risk Reduction (UNISDR, 2012).

In particular, when it comes to disaster preparedness - accessibility to build environment, information and services rarely get the spotlight. In addition, there is a severe dearth of validated information to put this issue in context. A number of peer reviewed and grey literature discusses the above mentioned population groups in the context of general development agendas i.e. employment, livelihood and health. However, hardly any document can be obtained that discusses accessibility as a core prerequisite of climate change, disaster preparedness for persons with disabilities in Bangladesh. This dearth of 'relevant, reliable and valid information' leads to a lack of shared understanding of the accessibility challenges faced by persons with disabilities, and as such limits the capacity to address them. And also get the clear direction for implementation of the Article 11 of the UNCRPD local, regional, state level.

This report has reviewed the existing laws/act, policy, plans and actions relevant to the disaster management and climate change of Bangladesh to identify the gaps based on which recommendations can be made to address the issue of persons with disabilities in line with UNCRPD.

Bangladesh has formulated a number of laws, policies, strategies and institutional frameworks relevant to climate change, disaster management, rescue and emergency management, coastal zone management and building construction etc. This study intends to assess the different Laws, Policies, Plans, Acts, Standing Orders, Strategies and Programs of Action that directly or indirectly related to disaster management and climate change considering the rights of persons with disabilities as mentioned in article 11 of UNCRPD. Through updating as well as implementing disability inclusive climate change and disaster related laws and policy incorporating the recommendations of review the rights of persons with disabilities can be ensured. The specific objectives of this policy review are as follows:

- o To identify the existing policies/ act/law/plan related to Climate Change and Disaster Risk Reduction and Emergency Management in Bangladesh for reviewing the provision for persons with disabilities.
- o To figure out the possible gaps and produce recommendations for necessary improvement of disability inclusive Climate Change and Disaster Management Policy for Bangladesh

Methodology

Data Collection

Both Primary and Secondary Data Sources were used for information as part of review the current legislation and policy for addressing disability inclusive climate change and disaster management in Bangladesh. To supplement to the review process a number of key informant interviews were conducted as primary data collection source, a questionnaire/checklist was also developed for the interview. Total 15 interviews conducted among the key informants representing from researchers, Govt. officials and professionals working with disabilities issue for their opinion about the laws, policies and strategies that addressing disability, climate change and disaster management of Bangladesh. The findings of key informant interview were utilized as data triangulation with the findings of documents review, which enhanced the credibility of information.

The review is mainly based on the comprehensive desk review collecting existing laws, policies, strategies, plans of Bangladesh Government related to climate change and disaster management that supposed to be addressed disability issues as per article 11 of UNCRDP. Different published Government gazettes and policies and strategies were collected from reliable sources and downloading documents from relevant government website for review.

Data Analysis of Review

All data gathered through the key informant interviews and secondary sources were analyzed in systematic way such as summarized the findings by first reading through the notes and categories responses of key informants according to the criteria. During reporting confidentiality of the interviewees was preserved. Instead, interview findings were paraphrased and opinions and ideas were simply reported and the reasons for these opinions and ideas were captured. Once the analysis was done, the list of laws, policies, plans, strategies placed in ordered as references.

Results and Discussion

Since the independence, Bangladesh has been adopting different laws and policies for the greater interest of people along with the signing and ratification of many international convention and treaty. In 2008, Bangladesh signed and ratified UN convention on the Rights of Persons with Disabilities (CRPD) as one of the significant convention followed by the adoption of 'Rights & Protection of Persons with Disabilities Act 2013'. This act covered most of the issues including the Natural Disaster, Risk and Humanitarian Emergencies issues in relation to the rights of persons with disabilities. But it is also important that for ensuring the protection and rights of persons with Disabilities Act 2013'. This article assesses the following Policies, Plans, Projects, Acts, Standing Orders, Strategies and Programs of Action relevant to climate change and disaster management in line with the article 11 of UNCRPD and lists are as follows:

- 1) The Environment Policy (1992)
- 2) Coastal Zone Policy (2005)
- 3) The National Adaptation Program of Action (2005)
- 4) Bangladesh National Building Code (2006)
- 5) The Bangladesh Climate Change Strategy and Action Plan (2009)
- 6) The Standing Orders on Disaster (2010)
- 7) The Perspective Plan of Bangladesh (2010-2021)
- 8) The National Plan for Disaster Management (2010-2015)
- 9) Cyclone Shelter Construction, Maintenance and Management Policy (2011)
- 10) Disaster Management Act (2012)
- 11) Rights & Protection of Persons with Disabilities Act (2013)
- 12) Flood Response Preparedness Plan of Bangladesh (2014)
- 13) Disaster Management Rules (2015)
- 14) National Social Security Strategy (NSSS) of Bangladesh (2015) and
- 15) National Disaster Management Policy (2015).

The Environmental Policy built upon the 1992 United Nations Conference on Environment and Development and acknowledged that sustained development of the country was based on the well-being of the environment and ecosystems as they provide the services necessary for ensuring progress. This policy recognized the need for a better and more comprehensive approach to address climate change and environment issues. Climate change causing frequent flood, cyclone, tidal surge, salinity intrusion, drought in northern part of Bangladesh. The policy described the 15 major sectors of Bangladesh towards realization of the overall objectives (MoEF, 1992). The Bangladesh Environment policy was formulated in 1992, which was 14 years and 21 years earlier than the UNCRPD and the Rights & Protection of Persons with Disabilities Act 2013 respectively. There is scope to update the environment policy through adapting issues of persons with disabilities particularly in the Education and Public Awareness; and Science, Technology and Research sector.

The Government has made the **Coastal Zone Policy 2005** in relation to development objectives. These policies provide general guidance so that the coastal people can pursue their livelihoods under secured conditions in a sustainable manner without impairing the integrity of the natural environment (MoWR, 2005). This policy directly includes persons with disabilities in the only Reduction of vulnerabilities sections mentioning that 'it should include special measures for children, women, the disabled and the old' despite the scope in the other sections. But it is not clear what special measures will be taken for persons with disabilities to reduce their vulnerabilities.

The Bangladesh National Adaptation Program of Action (NAPA, 2005) identifies 15 priority activities, including general awareness raising, capacity building, infrastructure development, mainstreaming adaptation, inclusion of climate change issues in curriculum, Exploring options for insurance and other emergency preparedness measures to cope with enhanced climatic disasters and project implementation in vulnerable regions (MoEF, 2005). There is a huge gap since no specific actions and priority issues focusing the needs of persons with disabilities in the National Adaptation Program for Action of Bangladesh. However, there were many scopes to address the rights of persons with disabilities particularly in the priority activity no. 4, 5, 6, 7 and 15.

Bangladesh National Building Code (BNBC) first published in 1993 to have proper code for the construction of buildings all throughout the country. Bangladesh govt. took initiative to update the building code that was published in 1993 and in 2006 GoB published the BNBC code 2006 applicable for Bangladesh, which is modified again in 2012 (HBRI, 1993). The government has adopted National Building Code and others policies, act where accessibility of persons with disabilities should be included and ensured in all the infrastructure in line with the Rights & Protection of Persons with Disabilities Act 2013 of Bangladesh.

Bangladesh Climate Change Strategy and Action Plan (BCCSAP) 2009 is a 10-year program (2009-2018) designed to build the capacity and resilience of the country to meet the challenge of climate change. The BCCSAP is designed as a 'living document' to continue to implement the nation's climate change adaptation and mitigation programs, as well as to deepen understanding of the phenomenon. The Bangladesh Climate Change Strategy Action Plan makes clear reference to adaptation, mitigation, research and development, capacity building, institutional development, mainstreaming, disaster management and knowledge management (MoEF, 2009). BCCSAP is the only document, which particularly addresses the issue of climate change and the future potential strategy and actions of government but did not address the disability issue though persons of disability are the most vulnerable to the impact of climate change.

The Standing Orders on Disaster (SOD) 2010 describes the roles and responsibilities of citizens, public representatives, NGOs, Ministries and other organizations in disaster risk reduction and emergency management. The SOD also established the necessary actions required to implement Bangladesh's disaster management model (MoDMR, 2010). Even though the standing order on disaster has given focus to persons with disabilities but still there is gaps as well as scope to incorporate the things for ensuring

rights of persons with disabilities. Representation of persons with disabilities in planning process and involvement with the different committee is also limited here.

The Perspective Plan of Bangladesh (2010-2021) "Making Vision 2021 A Reality" is a strategic articulation of the development vision, mission, goals and objectives to make Bangladesh a middle-income country. The Perspective Plan has eight development priorities which include mitigating the impacts of climate change. It has identified 18 management strategies to make Bangladesh resilient to the adverse impacts of climate change. The Perspective Plan tries to incorporate the persons with disabilities in the plan particularly in the social protection part (BPC, 2010). The plan mainly intends to give the benefit to persons with disabilities under the social safety net program. One of the important areas of the perspective plan is environmentally sustainable development, which covers environment, climate change and disaster management. But no inclusive climate change adaptation and disaster management related plan found in this national document.

The National Plan for Disaster Management (NPDM) 2010-2015 is an outcome of the national and international commitments of the Government of Bangladesh. The plan has been developed on the basis of the vision and the mission of Ministry of Food and Disaster Management (MoFDM) to reduce the vulnerability of the poor to the effects of natural, environmental and human induced hazards to a manageable and acceptable humanitarian level (MoDMR, 2010). Person with disabilities has narrowly been highlighted in this plan. There has no scope of person with disabilities to be a member of the committee in different level, which can reduce the chance of participation in the planning process.

Cyclone Shelter Construction, Maintenance and Management Policy 2011 has been formulated by the Ministry of Disaster Management and Relief. The government hopes that from now onwards if this policy is followed, then it will be possible to ensure proper use of the multi-purpose cyclone shelters that have already been constructed, under construction and to be constructed in the coastal areas of Bangladesh. Cyclone Shelter Construction, Maintenance and Management Policy 2011 tried to address the issues of the persons with disabilities that should have in a shelter. It has included suitability of nearby road towards cyclone shelter, accessibility to the shelter including the ramp facilities, reserving of reasonably sized room for person with disabilities and separate toilet facilities etc (MoDMR, 2011). However, it can also add the facility of accessible toilet and water and sanitation facilities, enough lighting and ventilation system, secure place for female with disabilities to protect them from sexual abuses, option to nearby residing of caregivers of person with disabilities etc.

The Disaster Management Act 2012 is intended to promote a comprehensive disaster management program including an all-hazard, all-risk, all-sector approach where risk reduction, as a core element of disaster management, has equal emphasis on emergency response management and a greater focus on equitable and sustainable development. The Disaster Management Act 2012 mostly focused on legal bindings of different authorities for effective disaster management in all level (MoDMR, 2012). Based on the need and rights of persons with disabilities it is very much important to have option for in-depth planning for them as they are not only vulnerable but most vulnerable among the vulnerable people. But there is no indication of accessible infrastructures facilities including ramp, which should be prerequisite for mobility of persons with disabilities.

Protection of the Rights of the Persons with Disabilities Act, 2013 was passed with a view to ensuring the rights and dignity of persons with disabilities. The Act is meant to guarantee educational, physical and mental improvement of persons with disabilities and to support their participation in social and state activities by removing all sorts of discrimination. The persons with disabilities must get the national identity cards, and be listed in the voters roll. Even, they will be able to contest in the polls. The Rights & Protection of Persons with Disabilities Act 2013 addressed all the applicable rights of persons with disabilities including the rights in relation to disaster management. During the disaster period, persons with disabilities are mostly sufferer. However, the general understanding of special needs and rights of persons with disabilities are very poor among the persons involved with disaster management or response program.

Department of Disaster Management under the Ministry of Disaster Management and Relief of Bangladesh Government developed the **Flood Responses Preparedness Plan 2014** for Bangladesh. The overall objective of this Flood Responses Preparedness Plan is to strengthen the existing capacity of the Government to lead and ensure an effective, timely, and coordinated response that will mitigate the risks and reduce the impact of disaster on the vulnerable communities (MoDMR, 2014). Government of Bangladesh (GOB) has developed a Standard Operating Procedures (SOP) to ensure timely emergency response to any hazard including flood and cyclone. The Procedure describes the responsibilities and activities of GOB at national and local level for first three months of any emergency situation. But there is no strategy for persons with disabilities in the SOP during Disaster Emergency Responses Program by different Government Ministries/Department/Agencies.

The Mission of **Disaster Management Rule 2015** is to bring a paradigm shift in disaster management from conventional response and relief practice to a more comprehensive risk reduction culture. The overall objective is to strengthen the capacity of the Bangladesh disaster management system to reduce unacceptable risk and improve response and recovery management at all levels. Disaster Management rule 2015 is the most significant breaking point for the person with disabilities. It has acknowledged the necessity of voices of persons with disabilities with the planning and execution process of disaster management (MoDMR, 2015a) . By this rules, persons with disabilities get more opportunities to participate in disaster management issues from inter-ministry level to union level committee either as direct committee members or as supplementary member to provide the opinion to committee members through participating in the meeting. However, there are still some gaps in the different layer of these rules. The rules give no option for persons with disabilities to be the member of the earthquake committee, cyclone preparedness committee and city corporation committee.

Government of Bangladesh has embarked upon the formulation of a comprehensive **National Social Security Strategy** (**NSSS**) **2015.** In this regard, the NSSS is fully home-grown and based on the political, social and economic realities of Bangladesh. The NSSS builds on the past rich experience of Bangladesh and seeks to streamline and strengthen the existing safety net programs with a view to achieving better results from money spent (BPC, 2015). The Strategy of Social Safety Net for persons with disabilities not fully focused in the National Social Security Strategy (NSSS). During and after the time of disaster responses, the strategy of rehabilitation program for persons with disabilities is not included in the proposed NSSS.

According to the article 19 of the Disaster Management Act 2012, the **National Disaster Management Policy 2015** has been developed and approved in September 2015. This is the latest approved document in the disaster management field. The basis of development this policy is to ensure the good governance in the disaster management and accountability of all relevant stakeholders involved with the disaster management (MoDMR, 2015b). This policy is developed after almost three years later of formulation the rights and protection act of persons with disabilities but it has not reflected the issue of persons with disabilities and disaster management as expected. The policy only focuses the disability issue in a particular part and highlighted only on disability data, inclusion in the committee and design of infrastructures though they are most vulnerable segment of population.

Conclusion and Recommendations

UN Convention on the Rights of Persons with Disabilities was signed and ratified by Bangladesh in 2008. In line with UNCRPD, Bangladesh Government adopted Rights and Protection of Persons with Disability Act 2013. This document reviewed 15 acts, rules, policy, plan/strategy of Bangladesh government; those have relation with disaster/climate change and disabilities. This report reviewed different documents, among them, some documents had been developed and approved before the ratifications of UNCRPD in 2008 by Bangladesh and some documents were developed and approved before the adopting of Rights and Protection of Persons with Disability Act 2013 as well as some documents reviewed after the formulation of the disability act in 2013.

Government of Bangladesh has been trying to incorporate the disability issue in the current act, rules and policies after ratification of UNCRPD particularly after formulation of the Rights and Protection of Persons with Disability Act 2013. However, each policy, plan, act and rule have significant gaps, which need to incorporate to ensure the rights of persons with disabilities in line with Rights and Protection of Persons with Disability Act 2013 and UNCRPD. During the review of the selected documents it is found that after adoption of Disability Act 2013, most relevant documents highlighted the issue of disabilities compare to the others developed and approved before 2013. Persons with disabilities are at higher risk of death, injury and additional impairments, as a result of exclusion from disaster risk reduction policies, plans, programs and act. It is utmost important that due to climate change the increased disaster events that persons with disabilities face is recognized in all policies, plans and acts after 2013 and considered their rights issue during the development or formulation of those documents.

A number of recommendations outlined and described below are based on the evidence synthesized in this review of policies/ act, plan and strategies relevant to the climate change and disaster risk reduction as well as key informant interviews, which must be incorporated in the relevant acts, policies, plans/strategies for ensuring the rights of persons with disabilities in line with Rights & Protection of Persons with Disabilities Act 2013 of Bangladesh and UNCRPD.

It is essential to identify the persons with disabilities within each community by collating information on persons with disabilities, their locations, and specific needs. So keep provision in the relevant plan/policy to conduct a comprehensive disability survey to identify type of disabilities and chalking plan for them as well preserve data in each ward and union level for local level disaster management.

- Persons with disabilities should be brought into mainstreaming, including rehabilitation, in climate change adaptation and disaster management process.
- Effective participation of persons with disabilities should be ensured at all levels of disaster management committee in Bangladesh as mentioned in the disaster management rules. And initiate community based disability inclusive disaster risk management system so that they can be involved contributes to national inclusive planning on DRR.
- Emergency and preparedness planning are important components in disaster risk reduction including regular participation of persons with disabilities in emergency preparedness drills and other disaster risk reduction measures at the local and district levels, which can prevent or minimize risk and damage when disasters occur.
- 1 The understanding of disability among the relief workers is still low. So policy/plan should incorporate the provision of disability-inclusive training for all relevant service personnel and for all relief workers to properly deal with persons with disabilities including and to ensure that they are not excluded from vital rescue and relief works.
- Policy/plan should incorporate the issue of inclusive early-warning systems and priority evacuation assistance, which can be easy to understand under stress situation and be available in several accessible formats, including audio and visual technology. Persons with disabilities should receive priority evacuation assistance from local rescue members. Involvement of NGOs/CSOs could be mandatory to supplement the issue of disaster and disability including inclusive warning system and identifying of persons with disabilities in the vulnerable area for priority evacuation assistance along with the taking care of them during the disaster event.
- Organization of Persons with Disabilities (DPOs) should be targeted by government plan to strengthen the capacity and resources of Organization of Persons with Disabilities (DPOs) and actively involve them in all stages of disaster management. DPO's involvement with the disaster management can help to take inclusive preparedness measures, rescue operation, relief as well as plan accessible and inclusive infrastructures. Capacity development of DPOs along with their families can take precautions and prepare plans in their own homes.
References

GermanWatch 2014, Global Climate Risk Index 2014: Who Suffers Most from Extreme Weather Events? Germany, p 28.

Bijoy, MR and Chakraborty, TR 2013, An overview on gaps and opportunities of Disaster Management in Bangladesh managing climate induced disasters, Network of Climate Change, Bangladesh.

IFRC 2007. World Disaster Report: Focus on Discrimination, *International Federation of Red Cross and Red Crescent Societies*, p 239.

UNISDR 2005, Progress Report on the Matrix of Commitment and Initiatives to Support the Implementation of the Hyogo Framework, p 50.

BBS 2011, *Population Census and Housing Counting*, 2011, Bangladesh Bureau of Statistics, Government of the people's Republic of Bangladesh.

BBS2010, Bangladesh Household Income and Expenditure Survey, 2010, Bangladesh Bureau of Statistics, Government of Bangladesh

Ali, Z 2013, *Economics of Disability and Children at Risk in Bangladesh*, Bangladesh Institute of Development Studies, Dhaka, p 14.

WHO 2013, Maternal, Newborn, Child and Adolescent health: Integrated Management of Childhood Illnesses, *World Health Organization*, Geneva, p 90.

UNESCAP 2012, 'Incheon Strategy to "Make the Right Real" for Persons with Disabilities in Asia and the Pacific,' United Nations Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand, November, p 55.

UNISDR 2012, Yogyakarta Declaration on Disaster Risk Reduction in Asia and the Pacific, *National Agency for Disaster Management (BNPB)*, Indonesia, p 54.

Ministry of Environment and Forest 1992, *Bangladesh Environmental Policy*, 1992, Department of Environment, Government of Bangladesh.

Ministry of Water Resources 2005, *Coastal Zone Policy*, 2005, Government of Bangladesh, p 15

Ministry of Environment and Forest 2005, *National Adaptation Programme of Action (NAPA)*, Government of Bangladesh.

Housing and Building Research Institute 1993, Bangladesh National

Building Code 1993, Government of the people's Republic of Bangladesh.

Ministry of Environment and Forest 2009, Bangladesh Climate Change Strategy and Action Plan 2009, Government of the people's Republic of Bangladesh.

Ministry of Disaster Management and Relief 2010, Standing Order on Disaster, Government of the people's Republic of Bangladesh.

Bangladesh Planning Commission 2012, Perspective Plan of Bangladesh (2010-2021): Making vision 2012 A Reality, Economic Relation Division, Government of the people's Republic of Bangladesh, 100p

Ministry of Disaster Management and Relief 2010, National Plan for Disaster Management 2010-2015, Government of the people's Republic of Bangladesh.

Ministry of Disaster Management and Relief 2011, Cyclone Shelter Construction Maintenance and Management Policy 2011, Government of the people's Republic of Bangladesh.

Ministry of Disaster Management and Relief 2012, The Disaster Management Act 2012, Government of the people's Republic of Bangladesh.

Ministry of Social Welfare 2013, Protection of the Rights of the Persons with Disabilities Act 2013, Government of the people's Republic of Bangladesh Ministry of Disaster Management and Relief 2014, Flood Responses Preparedness Plan 2014, Government of the people's Republic of Bangladesh.

Ministry of Disaster Management and Relief 2015, Disaster Management Rule 2015, Government of the people's Republic of Bangladesh.

Bangladesh Planning Commission 2015, National Social Security Strategy (NSSS) 2015, General Economic Division, Bangladesh Planning Commission, Government of Bangladesh Ministry of Disaster Management and Relief 2015, National Disaster Management Policy 2015, Government of the people's Republic of Bangladesh.

Water Crisis, Adaptation Practices and Management Strategies in Chittagong Hill Tracts (CHT) Area: A Case Study on Naniarchar Upazila

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Abstract

Water crisis involves water stress, water shortage or deficits and water scarcity. Water crisis or water scarcity is the lack of sufficient available water resources to meet the demands of water usage within a region. The prime aim and objective of the present study is to explore the causes and consequences of water crisis during water crisis period in the study area in terms of sustainable upland water management. This paper attempts to characterize and analyze the water crisis condition in Naniarchar Upazila, of with a focus on characteristics of existing water bodies and their water availability. Primary data has been obtained through the Field Survey consisting of mainly two components: questionnaire survey and in-depth interview. For questionnaire survey, stratified random sampling techniques are adopted as data generation devices. There are 120 representative samples are taken from four specific study areas to conduct questionnaire. The findings of the study are demonstrated that the people of this region have limited source of pure water and they depend on nearby spring and Tubewell. It is revealed from the study that about 50% dwellers are suffering from severe water crisis during the winter and hot summer season. Though most of the conscious habitants are used to saving water in pitcher or aluminum pot but significant portion dwellers have no water saving appliance during the crisis periods. So deep tube wells would be a great asset with construction of water reservoir dams. Therefore, it should be needed community based water supply system and provide minimum electricity facility in remote areas for sustainable upland water management particularly at Naniarchar Upazila of Rangamati District.

Key words: Adaptation, Management, Hilly, Naniarchar, Rangamati, Bangladesh.

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Introduction

Water plays a key role in the life of a human being. It is essential for public health, irrigation, crop production, fisheries, forestry, ecosystems, industry, hydropower generation, communication and recreation. Water crisis undermines the security of public health, food, environment and livelihood (Mohiuddin and Alam, 2011). Water crisis is a global problem. Water crisis or water scarcity is the lack of sufficient available water resources to meet the demands of water usage within a region (UNDP, 2011). FAO (2014) and WHO (2008) reported that about 2 billion people are to be short of access to clean water and 1 billion people do not have enough to even meet their daily needs. World water vision report explained that water crisis exists today in different region in the world. It is a crisis of managing water so badly that billions of people and the environment suffer badly. The Poverty Report of the World Food Program in Bangladesh Bureau of Statistics indicated that poverty incidence in the Chittagong Hill Tracts (CHT) is higher than the national average of 48% for rural areas in Bangladesh (BBS, 2013). Access to safe water and sanitation facilities in the CHT is generally limited because of the remote and scattered nature of many of the villages. Cultural, socioeconomic and technical factors with poor understanding of diseases and illness, their causal relations with safe water use and sanitation practices are responsible for the low utilization of safe water and latrines and inadequate personal hygiene in the CHT region of Bangladesh. Due to difficult terrain, long distance and isolated area. The CHT regions are often largely neglected by government extension services and also access to physical and social infrastructure is poor. Local planning through effective community participation can be reduced significantly disparity of these types access to land use (DANIDA, 2009). About 16 lakh habitants are living in the Chittagong Hill Tracts area and almost 50% of them are deprived from water facility (Khan, 2015). So, it is an urgent issue to know the causes and consequences of water crisis during water crisis period of sustainable upland water management at Naniarchar upazila of Rangamati district which is a hilly, remote and underprivileged of electricity coverage area.

The prime objective of the present study is to review of water crisis and effects with adaptation practices and management strategies with geospatial aspect at Naniarchar Upazila in Rangamati district. The specific objectives are taken as follows;

- i. To find out the existing condition water bodies in the study area.
- ii. To explore the causes and effects of water crisis in the study area.
- iii. To asses the adaptation practices during water crisis period with existing water management strategies in the study area. And finally
- iv. To draw some recommandations as guide line for sustainable management strategy to overcome from water crisis in the context of hilly area.

Materials and Method

Selection of the Study Area

Naniarchar upazila is an arrangement of natural gifts like hills, lake, rivers and springs. Maximum people are experienced with the water scarcity during the dry season. That's why; Naniarchar upazila has been taken as the study area for the present study. In terms of area, Naniarchar upazila is the 6th largest Upazila of Rangamati District. It is located at northern side about 45 kilometers from Rangamati Sadar. Its total area is 393.68 sq. km located in between 22°43' and 22°57' north latitudes and in between 92°02' and 92°11' east longitudes. This area is formed geologically during the tertiary period. It is also comprised large sandstones, sandy shale's and shale's of tertiary geological age. These have been subjected to considerable folding, faulting, tilting and dissection. The Chengi river is flowing on the middle of Naniarchar upazila. It runs through Naniarchar Upazila besides Mahalchari upazila and reached to Kaptai Lake comprised only 0.98sq. km riverine area. The soils of the study area are classified as Lumy (doash) Sandy and Clay (BBS, 2008). According to Population Census 2011, total population 42965, male 22130; female 20,835 average temperature of the study area varies from maximum 25.6°C to minimum 11.9°C and annual rainfall is 2158 mm and humidity 71.6% (BBS, 2011).



Map 01: The Study Area (Naniarchar Upazila of Rangamati District)

Source: Basde map collected from Banglapedia, 2008

Data Collection and Analysis

The present study is carried out both the combination of primary and secondary data sources which are also collected from different sources. In the present study, primary data are collected through field observation, questionnaire survey, in-depth interview, photographs and maps. Peoples' perceptions have been collected through Field survey by questionnaire. A pre-planned open questionnaire is prepared for in-depth interview. In-depth interviews are conducted with ten renewed experts as well as resource persons and their opinions and comments are recorded through face to face interview to enrich the findings of the study. There are 120 samples are considered from different types of dwellers in the study area. The respondents are preferred from the hilly habitants (tribal and Bengali), workers, housewife, school teacher, NGOs' workers, local social leaders, local authority officers, union council members and farmers in the study area. Upland water management related authorities suggestions are also considered and incorporated to draw a sustainable upland water management in the context of the study area. Significant secondary information related to water crisis, adaptation practices and management have been gathered from previous upland water management related books, thesis, reports, various articles of journals, reports of the UNDP, FAO, DoE, DPHE, related NGOs reports and some renowned research organizations publications. Therefore, all the collected data are inputted and analyzed by Microsoft Word, Microsoft Excel and Statistical Package for Social Science (SPSS 16.0). The statistical data have been presented in the tabular and graphical from to make it easy and understandable.

Result and Discussion

The study area is in critical situation in terms of the existing water facilities due to the lack of approprate water technologies. Tubewell facilities are rare due to the deep ground water table (at about 1200 ft depth) and hence normally the installation of tubewells due to heavy stone layers in the soil and high drilling cost. Consequently people have to collect surface water from natural sources like; cowdug well, spring water, rock canal and river which are nothygienic. According to the Socio-economic Baseline Survey of Chittagong Hill Tracts cultivation (through plough) is the occupation of 18% of the total population in CHT. Jhum cultivation is the occupation of 14% indigenous population along with 3% and 3.5% population respectively are involved in business and salaried jobs and also more than 9% of the population is day labours (Barkat, 2009). It is observed from the survey about 25% of Field members are students and more than 20% Field members are old age people. About 9% of the Fields are female-headed (7% among

indigenous peoples and 12% among the Bangalees). According to Socioeconomic Baseline Survey of CHT about 62% Fields in the region irrespective of ethnicities, according to direct calorie intake (DCI) method, are living below the absolute poverty line (below 2,122 k.cal), while 36% are hardcore poor (below 1805 k.cal) (Barkat, 2009). About 59% of the Bengali Fields are absolutely poor, and about 31% are hardcore poor.

The prevalence of absolute poor and hardcore poor among indigenous peoples are 65% and 44% respectively. About three-fourth of the Fields (74%) are living below the lower poverty line (<Tk.866/ person/month) and 86% below the upper poverty line (<Tk.1025/ person/month), according to CBN method. Poverty in CHT is higher than rural Bangladesh. In dry season most of the sources become dry. Generally women and children collect water from nearer or faraway. Some times they spend 1 to 3 hours (crossing Hilly path) that seriously hampers their livelihood activities, Field activities, and children school going. Most of the water sources are not protected and become easily contaminated (DANIDA, 2009).

This upazila is the highly hilly area of Rangamati district. Kaptai Lake is the main water bodies and occupies about one-fifth of the total area of the upazila. But this lake becomes low level of water in dry season. The sources of drinking water of upazila dwellers are tubewell 26.68%, tap 0.8%, pond 4.81% and others 67.64%. The presence of arsenic has been detected in 3% shallow tube-well water of the upazila (BBS, 2013). Coverage of Fields having access to safe drinking water only 42 % (BBS, 2011). Then most of the areas of this upazila are deprived of electricity facility. Theredid not conduct any in-depth research regarding water crisis, management and adaptation at Naniarchara upazila in Rangamati district area although few research were conducted in Bandarban district as well as whole CHT area.

So, the present research will find out assessment of the situation of water crisis, behind the causes on it and adaptation practices of the dwellers of Naniarchar Upazila.The authors' randomly select the study area of Naniarchar Upazila from CHTs because the water crisis condition and consequences have been generalized to the whole CHTs area and it considered by in depth study and critical analysis of previous literatures.

Water Crisis Condition in the Study Area

It is unpleasant news for the people of CHT region of Bangladesh that many springs are almost going to be dried out in this hilly region. It is assumed that there were many (about 200,000) springs were flowing over the CHT area before 100 years ago (Alam and Mong, 2004). Though there are no statistics of how many springs are still flowing at present but the local people can easily understand that many springs which are crossing the CHT region are

dying each year. The vital spring located at Ghagra, on the way to Chittagong and Rangamati is now become simply a remnant of the forceful spring of 7-8 years back which had a mentionable depth of water flowing all year round. A pretty good numbers of springs on the way of Rangamati and Mohalchhari have damaged out in the recent years.

The famous Nyoungmrong spring at Raikhali union under Rangamati district that has been providing water for irrigation and Field work for hundreds of people a round the year is waterless now. Even the Brimong spring which becomes the sole water source after the death of the Nyoungmrong spring is also on the wane (Alam and Mong, 2004).

So, the natural water sources are dying day by day and the water scarcity in rapidly increased with its severity. All of the respondents agreed with the existing water crisis and they are concerned about the water crisis in the hilly area during the dry season. Most of the respondents are very much disappointed about the existing water crisis condition.

Source of Drinking and Field Water in the Study Area

Water is a part and parcels of our life. During scarcity of fresh drinking water, people drink impure water and as a consequence they suffer from different types of water-borne disease i.e., Diarrhoea, Hepatitis, Kidney disease etc. The main sources of water in Naniarchar Upazila are tube-well water, well, spring, Chara and so on. The major sources of water in the study area are shown in the following Table 1.

Source	Frequency (f)*	Percentage (%)
Tube well	80	19.09
Spring	80	19.09
Seepage water	56	13.37
Pond	50	11.93
Pond Hole/ Doba	40	9.55
Natural Well	36	8.59
Narrow spring/ Chara	32	7.64
Lake	30	7.16
Artificial Well	15	3.58
Total	419	100

 Table 1: Major source of water in the study area

Source: Field Survey, 2015 *Multiple answers considered It is observed from the above table 1 that tube well and natural springs are the most common source of water among all types of sources. In addition, people used to collect drinking water from nearby spring; seepage, pond, and lake also (Table 1).

The maximum water bodies are situated at bottom of the hill because of topographic condition in the study area while most of the people live in the top of the hills. The study revealed that almost three fourth portion of water sources are located near the bottom of the hills. On the other hand, most of the water sources of Ghila Chhari (Study Area-4) are located along with Bazaar. But it is perceived that most of the water sources are located at bottom of the hills and far from the human settlement in Burighat (Study Area-3).

Location area	Percentage (%)	
Along with Bazaar	12.5	
Valley area	17.5	
Near the bottom of hills	70.0	
Total	100.0	

Table 2. Relative Location of Water Bodies in the Study Area

Source: Field Survey, 2015

Availability of Water Bodies in the Study Area

In case of water availability in most of the water sources water is not available a round the year. It is observed from the study area that majority of respondents (73.3 %) argued that maximum water-bodies water do not remain available during the hot and dry summer, where 26.7 % respondents are claimed some water sources are supplied limited water. According to the information of NGO Forum, about 60% people get the water with available facility in rainy season but it may be reduced to 4% in the hot and dry season.

Distance of Water Sources from Field in the Study Area

The distance between the sources of water and the point of consumption can play an important role to water consumption. It is a hard laborious job to carry water in the hilly areas. The availability of water within the house, on the premises, at a nearby street or at a distance from the house can be influenced water consumption. Accessibility as well as privacy at the source also often influences water consumption. It is observed from the survey that maximum water sources are 200 to 300 feet far from their own house when water available in the study area. The general average distances of water sources from the Fields in the study area are shown in the following fig 2.



Source: Field Survey, 2015 Figure 2: Distance of Water Sources from Field.

The above figure is indicated that maximum peoples (56%) are used to carrying water from nearby sources within the sources are 200 to 300 feet far from their own houses during the dry season. Only 9.2 % to 10% peoples are living closest the water sources which are also below 100 feet and 100 to 200 feet in the dry season in the study area (Figure 2).

Ownership Pattern of Water Bodies

Ownership pattern of water bodies is a great indicator of water sustainability. In rural area who is the owner of a water source, most of the case he does not share with other neighborhoods. It is observed from the study around 53.3 % water bodies ownership are holding by the local community while 46.7 % water bodies' ownership belongs to personal. Personal ownership is a common factor of seasonal water crisis in the study area because of they don't want to share with other families during crisis period.

Water Retention Ability of Water Bodies in the Study Area

The depth of the water reservoir and consumption volume of the locality is important factor for retention ability in the study area. It is observed from the survey that 50.8% water-bodies are capable to water retention ability through whole year. Seasonal water retention characteristics are also observed almost 38.3% in rainy season and 10.8 % in winter season (Figure.3).



Source: Field Survey, 2015 Figure 3: Water Retention Ability of Water Bodies

Physical appearance of water in the study area: Most of the residents are more or less satisfied with physical appearance of supply water in the study area. The views of the people related to physical appearance of supply water are shown in the following (Figure 3).



Source: Field Survey, 2015 Figure 4. Physical Appearances of Water

It is observed from the above fig.4 that about 52.37 % respondents urged with the physical appearance of water is comparatively good but it is not available for all season in the whole study area. On the other hand, 46.7% respondents claimed that they are not satisfied and the drinking water which are getting having bad physical appearance (Figure 4).

According to views of the respondents' the observed water crisis seasons in the study area are shown in the following Figure 5.



78

Source: Field Survey, 2015 Figure 5. Water Crisis Seasons in the Study Area

It is found from the above fig.5 that maximum respondents (46.7% and 36.7%) are experienced with water crisis during late summer and early summer season in the study area. On the other hand, 12.5% respondents suffered by the water crisis during early winter and 4.2% respondents suffered by the water crisis during the late winter. Considering all of the circumstances, most of the respondents (46.7% and 36.7%) are experienced with water crisis in summer season because of different environmental changes. Majumder (2013) also mentioned that hilly habitants are usually suffered by the drinking water during the hot summer season.

Severity of Water Crisis in the Study Area

It is observed that water crisis is mostly occurred in summer season and little in rainy season. Various reasons are responsible for this specific seasonal water crisis. Most of the respondents claimed that when water level down of Kaptai Lake during the hot summer season and crisis is being start. Moreover, there are insufficient number of tube well which are not maintain properly during dry season. For this reason drinking water scarcity is also increased. It is also known from the respondent that deforestation, ground water level down and low precipitation are slightly responsible for this water scarcity in the study area. It is also found that some water sources are dried up due to high temperature in summer season also responsible of water scarcity in the study area. According to views of the respondents' the observed severity condition of water crisis in the study area are shown in the following Fig.6 and Map 2.



Source: Field Survey, 2015

Figure 6. Severity condition of water crisis in the study area.



Source: Based map collected from Banglapedia, 2008

Map 02 : Water Crisis Severity Map of the Study Area

It is observed from the above fig.8 that about half portion (50.0%) of the dwellers are suffering severe water crisis in the study area. On the other hand, 25.8% inhabitants are suffering low severity and 24.2% dwellers are suffering medium water crisis in the study area.

Factors Responsible for Water Crisis

Geological condition of Naniarchar upazila is not suitable for ring tubewell. Naniarchar upazila is a highly hilly and remote area and most of the villages are not under electricity coverage. According to views of the respondents' the identified factors which are responsible for water crisis in the study area are shown in the following Table 3.

Types of factors	Frequency*	Percentage (%)
Topographic factor	120	14.98
Geological formation	115	14.36
Jhum cultivation	60	7.49
Population factor	56	7.0
Ground water level fluctuation	110	13.73
Hydro -electric plant	120	14.98
Location of lake on upper stream	100	12.48
Electricity facility	120	14.98
Total	801	100

Table 3. Factors	s Responsible	for Water	Crisis in	the Study Area
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Source: Field Survey, 2015

*Multiple answers considered

Consequences of Water Crisis

The major sources of drinking and cooking water in Chittagong Hill Tracts are not safe. People have to travel long distances to fetch drinking water and spend substantial amount of time for the same during water crisis seasons. The distance and traveling time varies by season. Water crisis are occurred in Naniarchar upazila due to its mountainous topography and upstream location from Chengi River and Kaptai Lake. As a result different Field, business and environmental problems are occurred in this area. Finally, geological formation, fluctuation of Kaptai lake water and hilly topography are the main factors of water crisis. Peoples are suffering different impacts on different sectors. Agricultural irrigation activities become very difficult in crisis period.

Environmental Consequences due to Water Crisis

In general, peoples are familiar with environmental effects due to water crisis in the study area. It is observed from the study that a significant number of the respondents (33.3%) are experienced with different species of birds are declined due to water crisis. Then there are great impact on wild

life and wild vegetation community according to 28.3% and 16.7% respondents. In order to analyze the data mammalian species and reptile species are affected also in the study area.

Environmental consequences	Frequency	Percentage (%)
Mammalian species are affected	16	13.3
Reptile species are affected	10	8.3
Birds are affected	40	33.3
Wild vegetation community are affected	20	16.7
Wild life are affected	34	28.3
Total	120	100.0

Table 7: Environmental	Consequences	due to	Water	Crisis
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Source: Field Survey, 2015

Water Crisis Adaptation Practices in the Study Area

Adaptation methods with water crisis are not very much developed in Naniarchar upazila. The common observed techniques and practices with water crisis by the habitants in the study area are shown in the following Figure 7.



Source: Field survey, 2015

Figure 7: Adaptation methods with water crisis

It is observed from the above fig.7 that most of the inhabitants are adopted with water crisis by digging deep well (39.2%) and rain water harvesting (38.3%) respectively and 13.3% dwellers used to storage water in tank/pitcher and a less number of dwellers construct earthen dam (9.2%). It is a common and scientific method of water storage and practicing different developed and developing countries. So, it may be assumed that collection of

rain water is not satisfactory and people have no proper idea about rain water harvesting system in the study area.

Water Saving Appliance in Fields

Due to water crisis people uses some saving appliance in their house to store water. According to field survey, it is observed that 71.7% dwellers are tried to use for saving appliances to store water and a small portion (28.3%) dwellers have no any water saving appliance. It is noticeable that 36.13 % respondents are used pitcher, 16.81% used plastic drums. A small number of dwellers 6.72% use plastic water tank whereas 4.21% use metaled water storage house (Table 8). Simultaneously, local dwellers are used to practice various traditional water saving methods such as; Gacher Chara, Bamboo Pipe and Umbrella storage are shown in the following Photo (a,b,c,d,e and f).

Saving appliances	Frequency*	Percentage (%)
Pitcher	86	36.13
Metalled water storage house	10	4.21
Plastic water tank	16	6.72
Plastic Drum	40	16.81
Aluminum pot	86	36.13
Total	238	100

Table 8. Water Saving Appliance in Fields

Source: Field survey, 2015 [* Multiple answers considered]

Social Change (ISSN : 1997-938X)

Volume 6, No. 1 & 2, 2016



Photo (a to f): Traditional rain water harvesting strategies in the study area (Photo a and b indicated Bamboo pipe system, Photo c & d Gacher Chara system, Photo e is indicated Umbrella storage system and Photo f is reflecting Traditional natural well).

Water Management System in the Study Area

Upland water management is the art and techniques of managing water resources in such a way, that maximum benefit may be derived from them.

Upland Water Management by the Local Authority: Existing water sources are managed differently by different ways. In the study most of the water bodies are managed by Upazila Parishad that accounts for 49.2% and 26.7% water bodies are maintained by local community and personally maintain 24.2% water sources in the study area (Figure. 8).



Source: Field survey, 2015 Figure 8: Water management authority in Naniarchar Upazila

Government Initiatives for Managing Upland Water

There are different government bodies acting for upland water management. Such as Ministry of CHT Affairs, Rangamati District Council and their different bodies related with water management. Major function for upland water management is tube well installation as same as construction of dam which made up 39.09%. Encouraging tree plantation program is 18.24% (Fig. 12). It is very much disappointed that there are less initiatives to control Jhum cultivation (modification to scientific way). The major Government initiatives for managing upland water in the context of CHT region are shown in the following figure.9 and table 9.





cr Dam name		Location	Geographic L	Water	
SL	Dum nume	Location	Latitude	Latitude	Availabili ty*
1	12 no. Tila Dam	Burighat Union	N 22°4720.83 ²	N 22°4720.83 ²	А
2	17 no. Tila Dam (1)	Burighat Union	N 22°4721.83 2	N 22°4721.83 ²	SA
3	17 no. Tila Dam (2)	Burighat Union	N 22°4718.63 2	N 22°4718.63 ²	Ν
4	Dam of Mannan Leader	Burighat Union	N 22°4715.13 2	N 22°4715.13 ²	SA
5	Dam of Kashem Khan	Burighat Union	N 22°4713.83 2	N 22°4713.83 ²	SA
6	Boropul-para Dam (1)	Sabekhyong	N 22°5230.93 ²	N 22°5230.93 ²	SA
7	Boropul-para Dam (2)	Sabekhyong	N 22°5217.13 ²	N 22°5217.13 ²	А
8	Islampur Dam (1)	Burighat Union	N 22°4919.63 ²	N 22°4919.63 ²	SA
9	Islampur Dam (2)	Burighat Union	Not Applicable	Not Applicable	N
10	Khamar-bari Dam	Naniarchar Union	Not Applicable	Not Applicable	А

Table 9. Existing different dams in Naniarchar Upazila

[Source: Field survey, 2015]

*Here, A= Available Whole year; N= Not Available; SA= Seasonally Available

NGOs Activities for Managing Upland Water

Different national and international NGOs are implementing various programs for upland water management in this area. According to the survey, tube well installation (i.e. deep tube well, ring tube well) is the major activities of all the NGOs that constitute 60%. They provide Gravitational Flow System in terms of 13% respondents. In some cases they inspire rain water harvesting which made up 11.5%. In some cases they construct irrigation dam and launch awareness build up programs in according to 10% and 5.5% respondents in the study area (Table.10).

Activities	Percentage (%)
Tube well installation	60
Irrigation dam construction	10
Gravity Flow System providing	13
Inspiring rain water harvesting	11.5
Awareness build up	5.5
Total	100

Table 10. NGO's Activities for Managing Upland Water

Source: Field survey, 2015

Ideas about Upland Water Management in the Study Area

During the survey, it is found that 29.28 % respondents said that construction of dam should be increased in the valley area to store a lot of water. Provideing deep tube well instead of ring tube well according to 28.78%

respondents because ring tube well do not run long year. It was remarkable that 25.06% respondents suggested rain water harvesting technology development while 11.17% stressed on community water reservoir develop. At least 5.71% respondents mind that community water supply system should develop even government should subsidize in this sector (Table 11).

Management systems	Percentage (%)
Rain water harvesting technology development	25.06
Construction of dam	29.28
Provide deep tube well instead of ring tube well	28.78
Community water reservoir develop	11.17
Community water supply system develop	5.71
Total	100

Table 11. Ide	as about Upland	Water Management in	the Study Area
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Source: Field survey, 2015

Suggestion to Reduce Water Crisis in the Study Area

According to questionnaire survey, 13.36% respondents said to provide enough tube well as same as provide electricity in remote areas and 13.14 % respondents in study area said control corruption in providing tube well (Table 12). Un-scientific slush and burn method of farming is a great barrier for sustainable upland water management. So 12.25% respondents suggested controlling Jhum cultivation in the study area. Mono culture (trees) is very much harmful to hold water level although most of the respondents are not aware about it. Minimum 2.90% respondents suggested to plantation of highly leaf trees instead of teak trees (Table 12).

Suggestions	Frequency*	⁴ Percentage (%)
Providence of enough tube well	120	13.36
Provide electricity in remote areas	120	13.36
Increase voltage of electricity	40	4.46
Geological structure testing before tube well installation	30	3.34
Testing of water quality	37	4.12
Provide facility in highly vulnerable area	38	4.23
Plantation of highly leaf trees instead of teak trees	26	2.90
Proper planning to reduce water cr isis	13	1.45
Introduce modern water management technologies	47	5.23
Engage efficient Engineer	56	6.23
Control corruption in providing tube well	118	13.14
Control Jhum cultivation	110	12.25
Control deforestation	96	10.69
Efficiently control water leve 1 of Kaptai lake	47	5.24
Total	898	100

 Table 12. Suggestions to Reduce Water Crisis in the Study Area

Source: Field survey, 2015

Conclusion

Water crisis is a global problem that is particularly acute in the dry lands but also hilly areas of the world. A multidimensional approach is suggested here to reduce water crisis on one hand and extremes of too much water on the other. Supportive modern technologies should introduce and implementation requires appropriate policy and institutional support to engage stakeholders and agencies in efforts that lead to sustainable solutions. Naniarchar upazila needs to shift towards an integrated policy for upland water management, where the policy will include all sectors (i.e. domestic, agricultural and business), where the focus is on the watershed or catchment scale, and where cooperative management between regional partners is used to define equitable and efficient shares. To achieve sustainable upland development a number of key challenges remain such as protecting upland ecosystems, eradicating poverty in line with the Millennium Development Goals (MDGs), and ensuring economic and social security. Finally, it can be said that the conscious community people identified that Jhum is the major cause of biodiversity loss. It is a matter of great hope that the people of the study area have realized the adverse effect of the biodiversity loss from their homesteads and hilly regions especially for some important species as they

are facing problems like lower production, drying up of creeks and small river or chara less rainfall, higher temperature, shortage of water, etc. So they should aware to culture those species especially vastly flourishing trees instead of teak mono culture plantation and restore their homestead biodiversity with one which will enrich biodiversity and restore water bodies.

References

BBS 2008, *Rangamati district Agriculture Statistic*, Bangladesh Bureau of Statistics, Ministry of Planning, Govt. of People's Republic of Bangladesh.

Alam, MF & Mong, N 2004, *Indigenous people in CHT face worst water crisis*, The Daily Star, 18 June, p. 5.

Banglapedia 2008, *The National Encyclopedia of Bangladesh*, 2nd edn, Asiatic Society of Bangladesh, Dhaka, Vol.II, p. 431.

Barkat, A (ed.) 2009, Socio-Economic Baseline Survey of Chittagong Hill Tracts, United Nations Development Programme (UNDP), Bangladesh.

BBS 2001, *Statistical Year Book of Bangladesh*, Bangladesh Bureau of Statistics, Ministry of Planning, Govt. of People's Republic of Bangladesh.

BBS 2013, *Bangladesh Population Census-2011*, Planning Division, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.

BBS 2005, *Handbook on ENVIRONMENT STATISTICS*, Bangladesh Bureau of Statistics, Planning Division, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.

DANIDA 2009, 'The Issues of Conflict, Human Rights, Development, and Land of the Indigenous Peoples of the Chittagong Hill Tracts, Bangladesh 2003-2006', *Jumma Net Chittagong Hill Tracts White Paper*, Rangamati, p.103.

BBS 2011, *Rangamati District Statistics 2011*, Bangladesh Bureau of Statistics, Planning Division, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.

FAO 2014, Achieving Food and Nutrition Security in the Chittagong Hill Tracts, Food and Agriculture Bangladesh Office, Dhaka, pp 14-15.

Kabir, MR & Faisal, IM 2000, Indigenous Practices for Water Harvesting in

Bangladesh, 1st edn, AHDPH, Dhaka.

Khan, ZH 2015, Study on Water Supply System at Rangamati Municipal Area' *Journal of Environmental Engineering*, Vol.3. no.1, pp.15-22.

Majumder, MK 2013, Drinking water crisis in CHT acute, *Green Watch* Dhaka, 28 September, p.01.

Mohiuddin, M & Alam, MK 2011, Opportunities of Traditional Knowledge in natural Resource Management Experience from the CHT, *Indian Journal of Traditional Knowledge*, Vol. 10, No. 3, pp. 474-480.

United Nations (UN) 2014, Water: A shared Responsibility, *The United Nations World Water Development Report-2*, UN, USA.

UNDP 2011, Promotion of Development and Confidence Building in the Chittagong Hill Tracts, Annual Report-2011, Chittagong Hill Tracts Development Facility (CHTDF), Bangladesh.

World Health Organization (WHO) 2008, Progress in Drinking Water and Sanitation: Special Focus on Sanitation, *MDG Assessment Report-2008*, p.25.

Improvement of Supply Water Scenario in Chittagong Metropolitan City, Bangladesh

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Abstract

Chittagong Water Supply and Sewerage Authority (CWASA) is the soul agent for supplying of supply water for city dwellers. Participant observation and Key Informant Interview methods are used for evaluating the supply water scenario in Chittagong City. Present study reveals that CWASA fulfill nearly 38% demand of water for city dwellers in 2015. Scarcity of supply water have been created two type of problems like dwellers do not get their demanding water as a result interrupted their daily life, besides degraded of the supply water quality because non suction or non-supplied period different types of impurities of liquids entrance in the pipe line. With the purposes, two prime measures such as recovery of household water demand and ensure the supply water in Chittagong Metropolitan City.

Keywords: Supply water scenario, effects and recovery measures.

Introduction

Urban supply water has become a critical factor in socioeconomic development in most part of the world. This is now a major public health issue in Bangladesh, especially in addressing the quality of urban life. The extent and availability of safe drinking water is an important indicator of sustainable development, and access to clean water constitutes a principal component of the Millennium Development Goals (MDGs). In the case of Bangladesh, roughly 80 percent of all diseases are linked to contaminated drinking water, and some 28 percent of the children's deaths are attributed to waterborne diseases, caused mainly by pathogenic microorganisms (Aziz *et.al*, 1990). About 25 percent of the total population live in urban Bangladesh, and only 44 percent of the urban people are served by tap water supply (BBS, 1995 & Population Census, 2001).

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In Bangladesh, supply water crisis in urban areas is at burning issues, particularly its availability and quality. The port city of Chittagong is not only facing the problem of inadequate supply water, but also serious threat due mainly to the scarcity of safe water. However, in 2016 CWASA fulfill only 38% demand of water to urban dwellers and its very worst situation in urban poor or lower class residential areas (CWASA, 2016 and Molla, 2011).

Materials and Methods

Participant observation and Key Informant Interview methods have been used for this work done. In fact, this paper has been prepared by the Unpublished MS thesis of the author. However for exploring the present scenario of the supply water, author physically observed and had conversation with a number of dwellers about the present condition of supply water and selected experts for Key Informant Interview methods. Mainly, engineer of GIS section of CWASA, director of the Department of Environment (DoE), city planners from Chittagong Development Authority and two NGOs who are working in/for drinking water and sanitation are conducted. The main purposes of this study are to analysis the present scenario of supply water in Chittagong Metropolitan City and to prescribe the proposed solution measures for required water of city dwellers in their household level.

Study Area

Chittagong City is located by the Karnaphuli River, the second largest city and the country's biggest industrial and also port city in Bangladesh. The city is currently expanding its industrial area and port boundary from the both bank of the Karnaphuli River. Its population is constantly increasing due to inflows from neighboring villages and natural growth and this trend will continue because of its advantage as a commercial and industrial hub. This expansion of the city and its increasing population will be suffering from an adequate supply of drinking water often associated with water quality problems too.

Research Interest

For conducted this work, this city has been selected for a number of reasons; Primarily Chittagong City is an expending centre of south eastern part of Bangladesh, which is being directly influenced by the tidal water and salinity. Thus, the problem of safe water is likely to be more acute than any other area. Secondly, Chittagong is inhibited by about 4.02 million people (Amin, 2006). CWASA is supplying water to the city dwellers by its limited distribution network system and they are able to meet only one-fourth of the total demand for water of the port city (Amin, 2006).

Results and Discussion

Chittagong city is the industrial hub and port city in Bangladesh. Its functionality and rate of urbanization, industrialization, transportation and territorial expansion are very past than other metropolitan as a result huge population is agglomerated gradually here. Therefore, city authority is failure to fulfill the demand of city dwellers particularly household water supply. In this point of views, following measures may recovery of household water demand and ensure piped water quality in the Chittagong Metropolitan city. These measures divided into two parts, first part was considered into the analysis of the demand and supply ratio of supply water and second parts focusing on recovery of household demanding water and ensuring the supply water quality in Chittagong Metropolitan city.

First Part: Demand-Supply Analysis of Supply Water in CMC

The City of Chittagong is inhabited by over 4.02 million people (Amin, 2006). About 0.4 million people are served by 21,000 house connections and 0.2 million people collect water from 588 street hydrants that are installed and maintained by the Chittagong Water Supply and Sewerage Authority (CWASA), and the Chittagong City Corporation (CCC). CWASA is the sole organization that supplies water to the city dwellers through its limited distribution networks, but capable of supplying only 30 percent of the total demand (585 million litters water per day- MLD) generated by over 4 million city population. History of water demand and supply in CMC indicates that between 1990 and 2007, the total demand of supply water in the city has increased from 270 MLD) in 1990 to 585 MLD in 2007- a 46 percent increase over the period. In response, the total supply (ground and surface water capacity) of CWASA has increased from 134.5 to 190 MLD or 71 percent. While the capacity of ground water supply increased from 45 to 99 MLD (46 percent) between 1990 and 2007, the capacity of surface supply water rose very slightly- from 89.5 to 91 MLD (0.98 or less than 1 percent) during the reference period. It is striking to note that in the year 2006 CWASA was able to meet only 30 percent (175 MLD) of the total supply water demand in CMC. Although the capacity of ground water supply has increased steadily in the city to meet the growing demand, in reality CWASA's overall supply capacity has fallen from 50 percent to 30 percent in fulfilling the collective demand besides, 38% demand fulfills in 2015.

Second Part: Recovery of Household Demanding Water and Recommend to Ensure the Supply Water Quality

A. Recovery of Household Water Demand

Recovery of household water demand has been classified into different sub categories those are as follow,

Rainwater Harvesting

The average rainfall is 2320 millimeter nearly four decades in Bangladesh (Abhoea Odidoptor, 2016). The rainfall behavior is depending on the regions, particularly north-eastern region those are covered by hilly with rain forest areas rainfall is high besides south-west regions rainfall rate is low. The Chittagong city is situated in north-south region in Bangladesh. Heavy rainfall occurred in May to October in total six months in these regions. During this month (May to October) city dwellers can hold rainwater for household purposes. For example, people do not get their household water due to rough terrain and topographical problem in CHTs; besides salinity problem in south western regions (Patuakhali to Satkhira) these areas' people are holding rainwater for their household purposes. Although, few dwellers use rainwater in holding on bucket at Bakolia and rain water harvesting on overhead on roof in Halishahar areas in the Chittagong Metropolitan City. Besides, CWASA can be used in the storage of rainwater than to distribute in the rainy season it may reduce production cost with proving the demanding water for city dwellers.

Setup Overhead and Reservoir on High Land or Hilly Areas

Basically mid and northern side of Chittagong city is covered by high or hilly area (CDMP, 2009). As a result, water overhead and reservoir should be built on the hilltops (above figure). During rainy



season or suction period, water is stored in this overhead or tanks and it's distributed without the help of lift pump and use of shortage supply of electricity and also it benefited by gravity flows.

Uses Water from Surface Water Bodies

Only thirty eight percent (38%) demand of dwellers is fulfilled by CWASA in Chittagong city (CWASA, 2016) as a result, city dweller is collecting household water from surface water sources, mainly Pond and Dighi (Rahman et al, 2011). Although, dramatically changing the prices of land, rampant urbanization and unplanned industrialization and illegal filling have been accelerating the losses of water bodies in Chittagong city. However, existing water bodies should preserve and conserve for alternative water sources for household. For example, in Khulna division almost every villager uses pond water for household even for the drinking purposes. They have kept their pond from every type of pollutions and digging every year for alive from saline water. We are strongly recommended following two laws, particularly "All Playgrounds of Municipal Area, Open Area, Park and natural water reservoir including Municipal Area of City, Divisional Town & District Town, Conservation Act, 2000" and Local Government (CityCorporation) Act have been ensuring the preservation and conservation of alternative water sources particularly water bodies in the Chittagong Metropolitan City.

Reuse of Supply Water and Refine of Industrial Water Before Discharge

Ablution, dishwashing, house cleaning and bathing purposes of using water should be used for homestead agriculture, cleaning toilets and vehicle washing and use of vegetable fields. Besides, Halda and Karnafully Rivers are the main sources of raw water for Mohara treatment plants. So, nonpolluted water can be/ is easily distributed on the CWASA link after treatment, but polluted water purifying is so costly and time oriented. If ensured Effluent Treatment Plant (EPT) in every industry than river water keeps safe from industrial pollution, although the Chittagong city is industrial hub and commercial city. Although, industrial polluted water not only polluted the river water, but also these are polluted surface water bodies in Chittagong city.

Reduce the Abuse of Supply Water

Supply water using pattern depends on a number of things, including family size, income, occupation, religion and lifestyles of the users. High class income groups use huge amounts of water for bathing, washing machine, flushing toilet and also abuse of water for gardening and cleaning/washing vehicles. The middle class income group also has similar patterns of using supply water but in limited quantity. However, the lower class people who

face water scarcity in the city at all time. If we can ensure public awareness in managing supply water in CMC, especially in managing the water by following mention categories than the situation can hopefully be improved (table).

SI.No.	Water using sector		
01	Ablution (Muslim) (Lower, Middle and Higher R/A)		1
02	Personal hygiene (Lower, Middle and Higher R/A)	Face wash Tooth brushing Shave Hand wash	2
03	Showering (Middle and Higher R/A)		3
04	Bathing (Lower, Middle and Higher R/A)		4
05	Bath tab (High R/A)		5
06	Flashi ng Toilet (High R/A)		6
07	Cloth washing (Lower, Middle and Higher R/A)		7

Table: Abuse of S	Supply Water	in CMC by	Categories	of Uses
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Source: Molla, 2011

Reduce Water System Loss

Supply water system loss is the main problem in Chittagong city. Normally, CWASA is failure to fulfill the demand of dwellers besides system loss speed up its severity in the city area. Supply water system losses are depending on income generating groups, nature of the pipe and installment times and so on. Poor people are doing a huge number of illegal linkage on the pipeline for fulfill their demand and sometime leakage of pipeline by internal pipeline corrosion (iron) and broken (PVC pipe) plastic pipe. As a result, supplying or suction period, huge volume of the supply water losses by these causes. Nearly, 30 -28% supply water have less losses somewhere, it is 50% in a Chittagong Metropolitan area (The Daily Pathom Alo, March 17, 2011). Although, CWASA take attempts to reduce the system losses of supply water from supply link and this percentage reduce 15% with the help of JICA. So, CWASA should use linkage detected equipment with the financial help of JICA those are used in JAPAN.

Preservation of Impervious Surface and Protect Ground Water Sources

Impervious surface accelerates the rapid surface runoff of rainwater as a

result surface water do not percolation on the ground. Ultimately ground water level goes under ward, besides over withdrawals of ground water speed up this condition. While, ground water level is the second major sources of piped water in Chittagong city, but in summer season few areas dweller do not want to withdrawals of water by tubewell. So, the existing impervious surface should be protected by ground water beside rainwater should be flowing on underground by a pipe in the hole.

B. Ensure Supply Water Quality

Ensuring supply water quality in the Chittagong Metropolitan City has been classified into different sub categories those are as follows,

Regular Monitoring of Water Quality along the Distribution Networks

Uses of disinfectant residuals control the growth of microorganisms in distribution systems and also act as a final barrier to help maintain the microbial safety of supply water. Realistic residual concentration at least inactivate the least resistance microorganisms such as E.Coli and thermo tolerant Coli forms that are used as the main indicators of water safety (Payment, 1999).

Timely Repair and Maintenance

Contamination via cross-connection, disclose pipe joints or pipe breaks may influence water quality. Pathogens may enter the system through contaminated supply water, in line reservoir, etc. System personnel needs to immediately repair the faults point of supply and water holding system. The best way to control leakage is to replace the deteriorated pipelines as planned by CWASA.

Improving Information Systems, Planning and Appropriate Funding

CWASA should immediately take attempts to establish data-base management systems including demand assessment for future service provisions. This could be dining in conjunction with on-going population growth projection in the study area. CWASA should explore alternative sources of funding to meet not only the growing demand safe supply water in the city but also to ensure efficient service delivery.

Uses of Advanced Technology

CWASA should use thick PVC pipeline which is neither corrosive nor easy to leakage.

Online Quality Control Assessment

CWASA should also promote online quality control assessment system from treatment plant to consumer (households).

Provisions for Staff Training

CWASA should arrange training camps and workshops at different levels for employees including lab. assistants, scientific officers, engineering, and field personnel. Thematic areas that should receive priorities are assurance of water quality, selection of materials such as PVC pipe for installation, ensuring proper service connection, rehabilitating old pipe and set up new pipe, sluice valves and chamber repair, identifying leakage or fault line with immediate repairing skills.

Awareness Building among Users/Stakeholder

Every morning before using the water for drinking or cooking, the water from the taps should run for several minutes. Consumers- the city dwellersshould also be very careful in storing supply water. To store water safely, pots should be washed out on a regular basis, preferably by bleaching powder. CWASA should take necessary steps or initiatives to organize seminars, symposiums, advertisements, social campaigns etc. and ensure the participation of all income groups (elite to poor) in awareness building activities, including discouragement of unauthorized connections and fair water pricing in the city area.

Participatory and Co-management Approach

A participatory and co-management approach, including all stakeholderslocal community, non-governmental organizations, local-government representatives and CWASA officials can ensure an effective, efficient and sustainable water supply delivery system in the Chittagong Metropolitan City.

Conclusion

The existing water supply system of CMC is far from being satisfactory due mainly to old fashioned management practices. In overall, the dwellers of CMC have been suffering from irregular, inadequate and unsafe water supplies due mainly to poor management. The situation is worse in low class residential areas i.e. slums. Regular monitoring of water quality along the distribution networks, timely repair and maintenance, cleaning the pipeline, using the proper chemical to protect waterborne disease, supplying safe water, water conservation, using water for vital causes, improving information systems, uses of advanced technology, provisions for staff training, awareness building among users/ stakeholder, community-based comanagement governing systems have been strongly suggested.

Acknowledgement

The author is grateful to Professor Dr. Mohammad Abu Taiyeb Chowdhury and Assistant Professor Kazi Md. Barkat Ali, Department of Geography and Environmental Studies, University of Chittagong for providing the all required facilities and supports to carry out the work.

Reference

Amin, MO 2006, *Status of Water and Sanitation Services in Chittagong Water Supply and Sewerage Authority*, Bangladesh, Capacity Building Workshop on Partnerships for Improving the Performance of Water Utilities in the Asia and the Pacific Region. UNCC, Bangkok.

Aziz, KMA, Hoque, BA Huttly Minnatullah, SKM; Hasan Z, Patwary, MK Rahaman, MM and Cairncross, S 1990 Water Supply, Sanitation and Hygiene Education- Report of a Health Impact Study in Mirzapur, Bangladesh, *Water and Sanitation Report Series-1*, Washington, D.C, U.S.A, p.p-1-13.

BBS 1995, Bangladesh Bureau of Statistic, Governments of the Peoples Republic of Bangladesh, Dhaka, Bangladesh.

CDMP 2009, Engineering Geological Mapping of Dhaka, Chittagong and Sylhet City Corporation Area of Bangladesh, Comprehensive disaster Management Program, Ministry of Food and Disaster Management (MoFDM), Governments of the Peoples Republic of Bangladesh, Dhaka, Bangladesh. CWASA 2010. Preparation of Master plan for water supply and wastewater Management of the detailed planned area of Chittagong", Chittagong, Bangladesh.

Molla, MH 2011, Water supply in Chittagong city, Bangladesh: an assessment of its quality, uses and health impacts on urban dwellers, Unpublished Master Thesis, Department of geography and environmental studies, university of Chittagong, Chittagong-4331.

Payment, P 1999, Poor efficacy of residual chlorine disinfectant in drinking water to inactive water borne pathogen in distribution system, Canada *journal of Microbiology*, 45, pp. 709-715.

Population Census. 2001. *Population census*, Ministry of Planning, Peoples Republic of Bangladesh, Dhaka, Bangladesh.

Pourashava Ordinance, Government of Bangladesh. 1976. *Peoples Republic of Bangladesh*, Dhaka, Bangladesh.

Rahman, IMM, Islam MM, Hossain, MM, Hossin, MS, Begum, ZA, Chowdhury, DA, Chakraborty, MK, Rahman, MA, Nazimuddin,M and Hasegawa,H. 2010, *Stagnant surface water bodies (SSWBs) as an alternative water resource for the Chittagong metropolitan area of Bangladesh: physicochemical characterization* in terms of water quality indices, *Environ Monit. Assess* (2011), Vol 173. pp. 669-684.

Effectiveness of Green Climate Fund in Channeling Fund to Developing Countries Based on the Proposals for Structure and Administration.

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Abstract

Between 2004 and 2011 only \$132 million in adaption funds were received through the UNFCCC process. With the establishment of the Green Climate Fund in Songdo Korea, \$100 billion per annum is requested of to be raised to be channeled through the Green Climate Fund. Based on the proposals for structure and administration of the GCF, how effective it will be in channeling climate finance to developing countries, is the recent hot topic for a developing country like Bangladesh? Against the backdrop, the paper focuses on the major challenges faced by the developing countries in other financial mechanism under the UNFCCC. Also it emphasizes on how the challenges are addressed in the GCF basically in its administration and fund disbursement for examining the effectiveness to accomplish the basic principle under the UNFCCC.

Introduction

With the core objective of effectiveness and efficiency, one innovative approach from the UNFCCC to channel fund to developing country in response to adverse effect of climate change, is the creation of the Green Climate Fund (GCF). The basic principle of financing developing countries is stemmed in the Article 11 of the United Nations Framework Convention on Climate Change (UNFCC, 1991). Meeting of the parties at Cancun, Mexico in 2010 framed the regulatory framework and basic arrangement for its administration echoing these principles. It provides that "developing countries particularly vulnerable to climate change, to be provided with long term scaled up, predictable new and additional finance, technology and capacity building consistent, with relevant provisions to implement urgent short, medium and long term adaptation action plans and projects at the local national sub-regional and regional levels."

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In line with the principle, the purpose of the fund is "to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international Joint community to combat climate change." The scope of "having a say" for the developing countries in the board of the GCF with equal participation from both developing and developed country parties has been the influential factor in shaping the administration (Ylia and Kati, 2012).

Against this background, this essay will discuss the major challenges faced by the developing countries in other financial mechanism under the UNFCCC followed by how the challenges are addressed in the GCF basically in its administration and fund disbursement. By the discussion, the paper examines the effectiveness of the GCF to accomplish the basic principle under the UNFCCC. Lastly taking the example of Bangladesh, the paper draws conclusion with a discussion on what should a climate change affected country do to fully utilize the fund in future?

Major Challenges For Channeling Fund

Being empowered to operate with entrustment to one entity under Article 11 of the convention, the major obstacle of the global climate fund is, divergent of views of both developed and developing countries in sourcing long term finance. Developing countries argue that public sectors in developed countries should be the main source and funds ought to be channeled through the UNFCCC. They rely on specific financial commitment from developed countries based on their historical responsibility of climate change and the scope of funding from other sources like multilateral and bilateral entities; public sector and innovative finance are to be used only to complement the public sector funding.

Never theless, developed countries are reluctant to any specific prescription on budget from public source. However, they voice in favor of strong role of private and innovative sources. They argue that expectation of receiving a huge scale of amount from the public sector is impractical. It has been a contentious issue for many years in financing against the adverse consequence of climate change. However, recently, it is evident that some of the developing countries' financial and economic capacity has improved rapidly while developed counties are tagged with financial debt and less industrial production (Rowena, 2012) resulting to grow mistrust between Annex 1 and non-Annex 1 parties' respective level of commitment Luis, 2009) under the UNFCCC (Richard *et.al*, 2009). Though it is argued that in terms of climate finance, financial crisis is irrelevant against financial
The other major concern for instance in fast track finance is, lack of common approaches in reporting that makes aggregation across developed countries highly difficult. To be specific, it shows the common problem with the MRV of financial support under the UNFCCC.

Ultimately, in all these issues of climate change debate, the sufferers are the world's poorest countries with weak financial capacity, infrastructures and over population. As the financial mechanisms those were active before could not meet the most urgent call from these countries, they sought for such a framework in which they have equal access with an independent administration. Therefore, the effectiveness of any financial mechanism depends on how well it addresses this concern of developing countries.

Effectiveness of the Green Climate Fund

A. Administrative Structure: Developing Countries Equally Placed

1. *The Board-* In every international financial mechanism the trust between the parties is very important along with equal opportunity in making financial decision which has been ensured both in institutional framing and fund disbursement in the GCF compared to highly debatable GEF.

Importantly, the fund governance of the GCF has addressed the issue by creating a board of 24 members with equal share from both developed and developing countries with the aim of emission reduction having climate friendly program. Moreover, representation in the board is based on the UN regional groupings and representatives from Small Inlands States (SIDS) and Least Developed Countries (LDCs) who are selected within their constituencies. It intends to help low income countries to cut their GHG emission associated with adaptive capacity in the cycle of change in climate (Liane, 2012).

2. *The Secretariat-* In the first meeting of the board in August 2012 the decision for establishing a fully independent secretariat presided over by an executive Secretary was reached. The criteria of selecting an executive secretary were documented that he/she would be selected by following a transparent procedure. The creation of an independent secretariat is new to international mechanism which makes the fund a distinct legal entity from COP and other entity. Developing countries think it is one of their moral victories as they did not want the GCF to work under the authority of an

existing institution. Moreover, they expect the GCF to work more as an institution than a financial institution.

3. *Interim Trustee-* Although the creation of the board as well as a secretariat with separate legal entity is appreciated by developing countries but inclusion of the World Bank as an interim trustee instigated huge debate. Historically, this institution supported economically sound countries along with the allegation of being 'overly bureaucratic and non-transparent.' The apprehension is, it might support the industrialized countries that would accelerate greater decision making power with the help of their huge financial capacity. Additionally, it is already endowed with the responsibility of climate investment fund which may create conflict of interest with unfair competition between the two funds. In addition to that as it has been asked to work as support staff for the new fund in aiding 'operational procedure,' this apprehension gets deeper. However, as long as no substitute exists the donors support this organ because of the trustee is to work with the guidance of the board and accountable to it for performing its duties with its 'fiduciary standard' and high level of confidence,

4. Standing Committee- By the Cancun agreement, a standing committee was established to work on "improving coherence and coordination in the delivery of climate change financing, rationalization of the financial mechanism, mobilization of financial resources and measurement, reporting and verification of support provided to developing country parties." It was advocated by developing countries with apprehension that without having adequate power over the operation of the GCF, the COP might not be able to monitor their interest in board. They, therefore, promoted the need of a specialized committee for finance under COP. In COP 17, parties agreed on the composition and role of the Standing Committee. It was decided that the committee would have 20 members with equal share from both Annex I and non-Annex I countries with necessary relevant experience. The committee was intended to be a forum of communication and exchange of information among climate finance bodies by addressing fragmentation of climate finance flows.

5. *COP* and the Fund- Nevertheless, the accountability of the fund to be ensured by the guidance of the COP which means that its relationship is as same as the GEF as opposed to accountable to and function under guidance and authority of the COP as it is Adaptation fund (AF). The latter one was opposed by most of the developed countries for two reasons as by this the COP would have direct authority over the selection and release of all Board and Secretariat members and the cop would have final say on all rules and

guidelines proposed by the board which was opposed by China and G-77 supporting the AF model. Nevertheless, the present standard is meant to be operational with the aim of establishing equal footing for both high income and vulnerable countries associated with the mechanism of the board.

B. Fund Disbursement

Effective and timely support with effective institutional development was the far cry by the developing countries which is positively addressed in the GCF. Specifically, the development of direct access process developed with the experience of adaptation fund and the scope of using different instruments along with dual windows(adaptation and mitigation) is instrumental in channeling fund to the vulnerable countries.

1. Instruments and Windows- Grants, concessional loans, market based loans, equity investments or guarantees are different forms that can be used as instruments to fund in climate finance. However, there are divergent of views regarding their effectiveness in mitigation and adaptation. As it is available by the approval of the board for identifiable additional cost to make the project viable that is helpful for the welfare of the developing country with private and public finance. While in poorer countries grants are preferable for mitigation. It is instrumental for the GCF to work on a link between the form of finance and purpose of it restoring enough fund to meet timely demand (Neil et al., 2011). According to the governing instrument any developing country is eligible to get funding from the GCF, which will include " agreed full and agreed incremental costs for activities to enable and support enhanced action on adaptation, mitigation(REDD-plus), adaptation, capacity building, technology transfer and development (including carbon capture and storage), and preparation of national reports by developing countries." (Richard, 2011).

2. Direct Access- From the early experience of climate finance, it was a major question how funding could be accessed. As an answer to this, One of the remarkable development of the GCF is 'direct access' to fund which was aspired by the developing countries for a long time as they had to face difficulties in receiving fund for available sources including the GEF (YuliaYamineva and Kati Kulovesi, 2012). In answer to the debate on how developing countries or which agency or organization(s) would be permitted to receive fund, this mechanism permits countries to access to fund by national, international or regional accredited entities opposed to present practice of third party implementing agency like UN. As it is an already tested mechanism in the adaptation fund, it has obtained overwhelming

support that led it to be included in the GCF. It is hoped that this will ensure more participation in funded activities with low transaction cost by maintaining high fiduciary standards (Richard, 2011) although it may take some time to improve capacity for stringent level of fiduciary standards, competitive procurement practices and environmental and social safeguards demanded of existing third party implementing agencies but the inclusion of the concept gives the hint that it has support from high income countries which is essential in building confidence.

3. Country Driven Approach- Institutionally, the country driven approach with the aim of "promoting and strengthening engagement at the country level through effective involvement of relevant institutions and stakeholders" is another important step forward that envisioned in the mechanism focusing capacity building developing countries. Particularly, on in institutionalization of a national authority, to design proposals for funding in line with national climate strategies along with other national strategies consistent with that is a very important development to improve capacity of poor countries for getting access to the fund. Importantly the question of immediate demand of a country is also included by streamlined program and approval process to enable timely disbursement associated with a simplified approval process.

The Additional Role of Developing Countries- GCF will resume taking project for funding from least developed countries, small island countries and African states from June, 2015. As national institutions are expected to be accredited to GCF for improving direct access to the fund, the job of nominated National Designated Authority of these countries have been the core to improve their capacity by taking support from GCF representative and their experts. National institutions should show much interest in reviewing their capacity of self-assessment. Along with challenges, there are opportunities to gain direct access subject to some steps mentioned below-

Before all, the national institutions should improve their capacity in the area of environmental and social safeguard and practices in line with Environment Impact Assessment (EIA) guideline because of its wide acceptability in both public and private sector. We should improve our EIA practices at both project and program level.

Secondly, with the aim of improving fiduciary standards and project management capacities, strong effort is demanded as the fiduciary standard needed might not be seen within one entity as we follow range of institutions in fiduciary risk management of our public fund, where auditor general office, accounts department, finance cell of different ministries,

internal audit and monitoring process of different institutions, implementation, monitoring and evaluation of IMED and accountability through public accounts committee play critical roles, and all these needs to be factored. Therefore, in the accreditation application process, all the capacities wants proper articulation, maintenance, recording and presentation in favour of the fiduciary standards. Moreover, in the self assessment process, we have to be frank and self-stimulating in order to meet gaps, if any. Third and most importantly, project or proposals that are yet to be forwarded to GCF should be well designed and credible bankable. Different ministries have already developed significant number of project ideas which should be converted into bankable projects by applying further effort to get access to GCF for funding.

Conclusion

Potentially, the GCF with its innovative institutional framework and disbursement process would allow developing countries to negotiate more effectively in mitigation and adaptation against global climate challenge. However, there are concerns that yet to be resolved about how the fund of US\$ 100/year would be mobilized requires a political compromise between the two fractions. Nevertheless, the controversial issues need to be addressed as early as possible to accelerate the progress achieved in the "delivery of fund" to the developing countries in the future (Yulia and Kulovesi, 2012). As long as option is kept for the recipient countries to raise voice in management, hopefully, the issue might be resolved of late. Moreover, option of direct access with country driven approach would definitely allow countries to chase immediate crisis. In addition the promise of making a simplified approval process would add to the beneficial outcome of the GCF that needs to properly utilized by developing countries taking the steps mentioned above.

Referance:

Bird, N, Jessica, B and and Liane, S 2011, *Design challenges for the Green Climate Fund*, Climate Finance Policy Brief, Heinrich Boll Foundation North America and Overseas Development Institute.

Clerk, P 2012, Green Climate Fund at Risk of Being 'Strangled at Birth': UN Talks', *The Financial Times*, 5th December, 2012

Drummand, L 2011, 'UNFCCC Green Climate Fund Created, *Sustainable Development Law & Policy*, Vol. 5, No 6, p 69

Echeverri, LG and and B, M 2009, *The Financial Mechanism of the UNFCCC*, A brief History, ECBI Policy Brief,

Rowena,M 2012, Foundations of the International Climate Law : Objectives, Principles and Methods, in Erkki J. Hollo, Kati Kulovesi and Michael Mehling (eds.) Climate Change and the Law series Springer, New York Steward, RB 2009, *Climate Finance, Regulatory and Funding Strategies for Climate Change and Global Development*, New York University Press, USA, p 70

Yamineva, Y and Kati, L 2012, The New Framework for Climate Finance under the United Nations Framework Convention on Climate Change: A Breakthrough or an Empty Promise, in Erkki J. Hollo, Kati Kulovesi and Michael Mehling (eds.) *Climate Change and the Law IUS Gentium: Comparative Perspective on Law and Justice*, Springer

9th Article Environmental Analysis and Household Health Risk in Existing Solid Waste Management Practices on Different Residential Areas of Chittagong City.

Ahmed, MZ 2005, *Modernization of Solid Waste Management Practices in Dhaka Through Public and Private Sector Participation*, Unpublished MURP thesis, Department of Urban and Regional Planning, Bangladesh University of Engineering and Technology, Dhaka

BBS 2011, Bangladesh Population Census 2011, Bangladesh Bureau of Statistics, Government of the people's Republic of Bangladesh.

Chowdhury, A, Shariful, A and Moynul, M 2007, Urban Waste Disposal: A Profile of Municipal Solid Waste Management Systems of Chittagong City Corporation, *Journal on Disaster Management*, Vol. 5, No 2, pp 19-30

Islam, A 2007, *Generation and Management of Solid Waste at Ambaghan Residential Area*, Chittagong, Unpublished B-Sc (Hon's) project paper, Institute of Forestry and Environmental Sciences, University of Chittagong, Chittagong.

Sabur, MA 2009, Solid Waste Management in Chittagong City: A Case Study of Residential Areas, Unpublished M. S Thesis Paper, Department of Geography and Environmental Studies, University of Chittagong. Chittagong.

Sabur, MA and Rahman, MM 2010, Who remains neglected? Community actions in residential waste management of Chittagong city, *Proceeding at*

2nd International Conference on Solid Waste Management in Developing Countries, Khulna, Bangladesh

Sharma, BK 2000, *Environmental Chemistry*, GOEL Publishing House, Meerut, India, pp 45-71.

Rao, PV 2003, *Textbook of Environmental Engineering*, Prentice-Hall of India. Private Limited, New Delhi, p 147

Trivedi, PR and Raj, G 1992, *Solid Waste Pollution*, New Delhi: Akashdeep Publishing House, India, p 60

Flood Coping Strategies of Haor People: A Case Study on Hakaluki Haor, Bangladesh

Bebek Kanti Das* and Nusrat Jahan Koley**

Abstract

The haor system support major subsistence and commercial fisheries, major rice growing, rich grazing ground for livestock and serve as a source of fuel, food and fertilizers for the local populations. The swamp forests which were once dominant with the flood tolerant tree species like hijal (Barringtonia acutangula) and koroch (Pongamia pinnata) have been reduced to a few small patches. So Hakakuli Haor area was selected due to unique haor wetland area in the country and the main theme is Haor Dependency and flood coping strategies as a part of integrated disaster management. In this study both environmental and socio economic conditions were collected by a questionnaire survey. This study provides a wealth of information and advancing knowledge about the related topics. Besides, it has been tried to cover the topic in a way to provide everyone with a clear conception of the environmental effects and economic, social benefits of the Hakaluki Haor. Every data were recorded from the field survey and the factual data have been collected from various secondary sources while the perpetual data are based on observation and opinion of 170 respondents of the study area(Belagaon and Bakshimali). Finally it has been statistically justified and analyzed and showing by some statistical methods. So it is hope that, this research will help everyone whose are interested to know about the different Environmental characteristics, impacts of flood, dependency on resources of haor, problems of disasters specially flood in haor area, the coping strategies and others remarkable problems of Hakaluki Haor area and some solutions to mitigate the problems with local people's perception.

Keyword: Hakaluki haor, Flood, Resource, Dependency, Coping Strategies.

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Introduction

The Haor basin encompasses the floodplains of the Meghna tributarities and is characterized by the presence of numerous large, deeply flooded depressions known as haors between the rivers. The basin is bounded by to the north by the hill ranges of Meghalaya (India), to the south by the hills of Tripura and Mizoram (India) and to the east by highlands of Manipur (India).this vast alluvial plains include about 6000 permanent shallow water bodies known as beels surrounded by larger areas of seasonally flooded plains. The numerous rivers rising in the hills of India provide an abundant supply of water to the plains and cause extensive flooding during the monsoon up to a depth of six meters.

During dry seasons, most of the water drains out leaving one or shallower beels. This becomes mostly overgrown with aquatic vegetation or completely dry the end of dry season exposing rich alluvial soils extensively cultivated for rice. The Haor basin includes about 47 major haors and some 63000 beels of varying size (CNRS, 2000). Wetlands in Bangladesh have long been facing serious degradation and loss, due to many Natural and anthropogenic factors. Besides natural causes, factors like overuse of resources, lack of property rights, human encroachment, and conversion to other uses and also absence of effective enforcement of laws are some of the most important factors for the decline in wetland biodiversity of the country (Islam, Irfanullah 2005). Hakaluki haor is one of the major wetlands of Bangladesh. With a land area of 18,386 hectares, it supports a rich biodiversity and provides direct and indirect livelihood benefits tonearly 190,000 people (CWBMP pro-doc 2000). These freshwater wetlands occupy four landscape units- floodplains, (low-lying depressions in the flood plain), freshwater marshes, lakes and swamp forests The haors have been described as bowl-shaped natural depressions between the natural levees of the river subject to monsoonal flooding every year (Islam and Paul, 1978).

Various environmental problems are common in the study area such as air, water and soil pollution. Historically, most of the landmass of Bangladesh has evolved as floodplains of the three major eastern Himalayan Rivers. Floods and Riverbank erosion are therefore, a common phenomenon in this delta. Many factors of both natural and anthropogenic origin may be identified as the causes of floods and erosions in Bangladesh. It is clear that the floods come in early and departure in late and its severity is also highly increased. Climatic change and high rainfall and sedimentation are the causes of floods. Few families are affected due to riverbank erosion and high river current, loose soil and deforestation are the main causes of riverbank erosion. Because of illiteracy most of people are not aware about their environmental problem. But who know about their problems are gave their opinion to mitigate flood. To mitigate the problems both constructional and non constructional strategies should be developed. The study tried to find out the local strategies to give few ideas about flood of haor area for further research and prevention of flood.

The main aim of the study is to know about flood coping strategies of haor people and the local people's dependency on hakaluki haor. Other specific objectives are- To study the socio-economic conditions of the inhabitants of the area, To explore the nature and types of disasters in the study area and find out the flood coping strategies of local people.

Methods and Technique

It took help from the final report of fourth year during the study in geography and environmental studies, university of Chittagong. The name of the report is Haor Dependency and Disaster Management: A case study of Hakaluki Haor. Data from the report on flood and other relevant has been used to produce the present study. A field survey was conducted in 2014 to validate the data of Haor Dependency and Disaster Management: A case

study of Hakaluki Haor report. This survey conducted on environmental pollution and flood disaster at the villages of Jaifarnagar union and Bhakshimail union under Juri and Kulaura upazila of Maulvi bazar district. However, the methodologies involve the following steps:

Selection of Study Area

The total study area has been identified by the help of topographical sheets, some books websites and the local people. The location of the study area (Bhakshimail union of kulaura upazila and Jaifarnagar Union of Juri upazila of Maulibazar District.) are shown by map. (Map-1 & Map-2).



Source: Redrawn from Banglapedia Map-1: Location of the Maulvi Bazar District.



Jource. Redrawn from CRRB, GID Dhit

Map-2: Location of the Study Area.

Evaluation of Different Sources of Data

The data sources are clustered into primary and secondary categories depending on the content of information. Primary source is identified as data

or information gathered by observing phenomena or surveying respondents for this study and secondary data are collected data for other studies.

Primary and Secondary Data Collection and Extraction

The major key activity of ground truthing of existing data is to visit the part of haor area to collect missing information and to verify the existing information. A well structured questionnaire has prepared and used in the field to collect information from the respondents and arranged some KIIs & FGDs.

Documentation of available information will be assessed for the study with secondary data and through some field visit. Satellite images of haor will also collected from internet. Above all field visits, collection, compilation and extraction of secondary information from relevant agencies will be completed and validated through different level of consultation to achieve targets/output. Information from web page will also be gathered on Haor development and Wetland management. Collection of Haor related policy statements, rules, regulations and international obligations from FD, FRI, IUCN and other sources.

Data Analysis

Assessment for the study through collection of secondary data, consultation, field visit, match/mismatch analysis and overlaying of criteria, relevant data and validated through coordination of technical support group, line agency and other stakeholder consultation.

Research Findings

Disaster is a sudden adverse or unfortunate extreme event which causes great damages to human beings as well as plants and animals. Disasters occur rapidly, instantaneously and indiscriminately. The intensity of disasters is always viewed in terms of human beings. Different types of disasters of Hakaluki haor area, causes of this disasters and problems faced by the local people, relief facilities and condition of disaster management or operation authorities in the study area is clearly find out. Frequent flood is a major problem of this area. About 22.4% inhabitants of the study area are only faced by flood.



Figure 1 : Types of Disasaters in Haor Area

Water height during flood is also notable. Water raise 1-2 feet during flood and it raises up to 3-4 feet, when floods occur.

Causes of Flood in the Haor Area

Due to Flood plain area, floods occur almost every year. But some others reasons or causes are more responsible for a hazardous flood. According to the study, causes of flood are given below by the figure-2



Source: Field survey, 2014. Figure 2 : Causes of Flood in the haor Area

According to the data of the respondents, most of the floods occur in the Bangla month of Ashar and 56.5% peoples told it. But 19.4% respondents said that floods come in the month of Jystha. The duration of flood is about 2-4 month said by 25.3% respondents. Maximum respondents of the study area (28.8%) told that flood end in the month of Ashwin. So Access rainfall is one of the remarkable causes of flood in the study area. Breakdowns of dam fill up of haor and Indian over streams also responsible for the floods in the study area.

Damages Status after Flood in the Study Area

Normal floods carried some benefits only for the farmers but all time it affects the country or region seriously. It damages lot of resources and lives. Some types of damages are recorded from the study area and shown in the following figure 3



Source: Field survey, 2014. Figure 3 : Damages of resources due to flood

From the research, it is founded that flood damages not only crops and houses but also the lives of the local inhabitants.

Respondents Problems During Flood

Generally peoples of poor class and middle class suffer much during a flood specially those who live in flood prone areas. In haor area flood occurs almost in every year and peoples face various problems. Peoples face the problems of food crisis, scarcity of drinking water and also in communication during a flood. Lack of fodder for animals and pure water is another problem in the study area. (Figure 4).



Source: Field survey, 2014. Figure 4 : Created problems due to flood

Adoption of multiple coping strategies influenced by economic status, gender, age, social status and intensity of flood etc. were observed in the study. It is implicit in the discussion, on sequence of coping strategies , that different individuals, families, entering the sequence at different times had different strategies. the lower income people including the destitute, the hard core and the poor are worst hit since they live in shelter that are most vulnerable to hazards. Their living abode which varies from 'jhupri' to half pucca was under water for 1 to 3 months. the depth of water inside their house varied 1ft to 6ft.

The responses from middle income group including lower- middle, middlemiddle and upper middle revealed that these people had suffered a great deal due to cultural and social values. Their living arrangement range from semi pucca, flat to two storied or higher buildings. About two third were owners of their house the depth of the water inside their house varied from 1ft to 5ft (mostly within 3 ft).

The upper income or rich group were also included in the study. Their house were 2-4ft under water for 7days in highest flood of 2004. However, the type of sufferings and coping strategies were different among them. According to 77.6% respondents, the highest flood occurred in the year 2004. Data about highest flood in the study area given below by the figure-5



Source: Field survey, 2014. Figure 5 : Highest flood year in the Hakaluki haor area

The upper income group did not suffer at all in this aspect. As usual they had plenty of food in their home and places of their relatives.

Shelter Places during Flood

During natural disasters many people's goes to shelter places for safety and they also try to save their livestock from the disasters and that's why they send them in a secure place. Data about the shelter places also recorded from the haor area.

About 75.9% respondents of the hakaluki haor area stay at their own house during the period of a flood. Only 13.5% peoples go to the relative's house. (Figure 6).



Source: Field survey, 2014 Figure 6 : Shelter place during flood

Many seriously affected low income families did not go to flood shelters during floods. The shelter is far away and very dirty. It is difficult for the women to stay there. Those staying at home all slept together in the same room, sometimes women on bed and men on floor. They tried to combat the flood water by constructing higher brick wall, making bamboo ramps, raising the furniture, sending the valuables to the relatives.

In the study area most of the peoples have domestic animals. So they also try to save their domestic animals from the disasters and sometime they go to shelter places with their cattle. Data on cattle shelter places in the study area shown by the following figure- 7



Source: Field survey, 2014.

Figure 7 : Cattle's shelter places during flood

According to data, maximum respondents (47.6%) keep their cattle in own house. Only 14.7% respondents' use high roads as cattle's shelter places during floods.

Measures Taken by the Respondents to Face Flood

Various types of steps are taken by the local peoples to face the problems of flood. Data on types of measures taken by the respondents are shown by the following figure-8





From the study, it is found that, about 62.4% local people had no steps during flood but they sometime they take helps of boat to face the problems of flood. During the times of disasters many types of reliefs also provided by the some persons or authorities to the affected peoples. Opinions of the respondents about such relief activities are shown by the following figure 9



Source: Field survey, 2014.

Figure 9: Relief activities during flood

According to 62.9% respondents there are no activities of relief during floods. Only 37.1% said that they get some reliefs.

Some Authorities take initiatives of relief activities in the flood affected area. On the basis of the respondents opinion, those authorities are identified and shown by the following figure 10



Source: Field survey, 2014. Figure 10 : Flood releif operative aothorities

From the data it is seen that, only 18.8% respondents told about the relief activities of the Government during flood. Some NGOs also take initiatives said by the 9.4% respondents.

Peoples of Hakaluki haor area suffers from flood due to various social, economical and structural problems. it is interesting to note that many of the affected people have taken precaution to reduce impact of flood. for example making special effort to bringing water from a distant place, boiling water and using alum('fitkiri') for purification as health safety measures. There is another point to be noticed that there has been a community effort in combating the situation and everyone tried to help each other in these haor areas. But due to economic crisis they could not take all necessary steps to face an extreme flood. So they give some suggestion to solve these problems. Their opinions are presented by the following table.

Respondents suggestion for solving floods	Percentage (%)
Problem	
Build Embankment	31.2
Provide relief	5.9
Medicine Supply	5.9
Digging Pond	57.1
Developed Road	57.1
Faith	9.1

 Table -1. Respondent's Suggestion for Solving Floods Problem

Source: Field survey, 2014.

From their opinion, it is seen that, Set up of deep tube wells, digging ponds and developed roads are very much necessary to solve the problems of flood.

Discussion

To match the challenge of unprecedented flood disaster, different government and local government agencies and organizations developed and adopted different management practices and attempted to provide necessary relief services. In doing so, each of the agencies came across some similar sets of problems; however, some problems were different from each other. The following points give an overview on the role of different agencies in flood management.

Sedimentation Control

According to officials and local elected representatives, sedimentation control is a major issue both for fisheries group and rice producers. As a result, any effort to bring local people in the fold of management of Hakaluki haor would require a well designed policy adoption to control silt deposits on the beels and the paddy land. The general demand is to construct barrages (temporary) to avoid.

Submergible Embankments

Boro crops are often threatened by early monsoon flash floods. Consequently, the probability of crop damage is very high in the haor basin. In fact, it is the major problem in the area. This has resulted in another popular demand for construction of submergible embankments so that rice can be salvaged from the onslaught of early monsoon floods. Although popular, this proposition runs in conflict with environmental interests for two reasons a) such construction will lead to expansion of Boro land and so a reduction of kanda land will occur and b) it might prohibit fish migration during crucial periods of fish movement and will therefore reduce fish stock.

Afforestation

Hakaluki haor like other haor in Bangladesh provides fuel wood, medicinal plants, reeds and grass for the people. The swamp forests in the haor basin are unique forests that survive deep flooding during monsoon months. However, due to human pressure these forests are virtually non-existent. As a result, the poor groups of people suffer the most. The ecology also suffers as fish stocks decline and erosion occurs. Considering these, there has been also popular demand for continuing with afforestation programs. This is also

the most pro - poor effort because much of the benefit from such programs (if designed properly) would directly benefit the poor people in the haor area who would collect fuel wood, construction materials and also medicinal herbs from these new plantations. Using the above three components, it is possible to develop an elaborate bio-economic model where all the relationships are well developed and the policy options are weighed in terms of maximum returns.

Resources Development for Coping with Flood in Hakaluki Haor area

- Maintaining ecological and biological diversity
- The views of communities and their traditions also developed towards the haor.
- The adoption of effective collaborative land-use planning strategies
- A commitment to capacity building aimed at ensuring that government agencies, community groups and other stakeholders have the technical skills and resources necessary to manage natural resources on a sustainable basis.
- To organize education and awareness raising activities among the local community which
- To Identify and quantify the impacts of destructive and unsustainable fishing practices and Develop and implement recommendations to help mitigate destructive and unsustainable fishing practices.
- To Identify and document the ecological parameters that underpin the favorable growth of plant and plant communities including soil type, climate and weather conditions, topography, drainage etc.
- It should be Identified the key threats to critical plant communities in the Haor and develop recommendations aimed at mitigating these threats
- To identify critical plant communities especially swamp forests and work with local community groups and relevant government agencies to ensure that these sites come under appropriate protection as sanctuaries.
- Raise awareness among local community groups about the ecological importance and urgent need to begin the process of restoring and regenerating the swamp forests of Hakaluki Haor.
- Identify the most highly degraded beels and develop strategies to recover these sites

1.5.5. Development of flood management system in Hakaluki haor Area

- The orientation of planning authorities needs changes. Emphasis needs to be laid both on flood control strategies and management system of relied operations.
- Government facilities needs to be imparted training in management of relief and rehabilitation during disaster and post disaster.
- In preparing annual revenue budget a contingency provision for meeting

- probable disaster should be made in the light of the probability of occurrence of flood and erosion.
- Radio, TV and other mass media require lying emphasis on enhancing community awareness. This would help prepare people to face the disaster.
- There is the need to give priority to reconstruction of bridges, culvert and katcha roads damage by flood.
- In each area, vulnerable to flood, erosion, a specific shelter for storing of essential items may be set up.
- Future provision of ADP for reconstruction of educational institution should incorporate a provision for using the same as shelter during the disaster period.
- Long term disaster management systems suitable for Bangladesh have to be evolved and brought into operation.

Concluding Remarks

Hakaluki Haor once a pristine freshwater ecosystem teeming with a diverse array of wildlife and aquatic resources and covered with unique swamp forests, has in recent times fast become a degraded landscape now facing an increasing range of pressures and threats. This process of rapid degradation is also having devastating consequences on the many communities living in, around, and downstream of Hakaluki Haor who have for generations depended upon the vital functions, services, and benefits this wetland has provided. It is evident from the preceding discussion that the Hakaluki haor ecosystem generates a set of economically valuable goods and services. These serve over 80% of the people living in the haor basin. These economic values arise from: a) fisheries production, b) rice production and c) NFNRPs. Besides these direct use values, the wetland ecosystem also provides several other streams of indirect values. These include the economic benefit of a) watershed services - maintaining the water flow and supplies by recharging, storing and regulating water flows, b) flood control services - through storing waters during flash floods, so the downstream people in the river basins are protected from flash floods and crop damages, c) biodiversity benefits - by conserving rich and diverse wetland biodiversity, d) carbon sink services wetland ecosystems also serve as carbon sinks and therefore benefit the global community and e) recreational and knowledge benefits for tourists, academics and researchers. So to reduce various problems of Hakaluki Haor area the awareness of people should be increase. Nationally some warning centre should make so that people can safely line here. Different steps should be taken by the local people as well as government for a sustainable environment of the haor area.

Acknowledgement

The authors take the pleasure and feel proud to express their deepest Sense of gratitude, sincere appreciation and profound regards to reverend teacher Dr. Md. Maksudur Rahman, Professor; Dept of Geography and Environmental Studies, Dhaka University and Md. Mahbub Murshed; Assistant professor, Dept. of Geography and Environmental Studies, University of Chittagong for their valuable Suggestions, co-operation and in company with field journey. A special thank goes to Mr. Anwar Hossain, an officer of DoE, Kulaura branch,Khan Bari, Hospital Road, Moulvibazar for his suggestion and helps for the site selection during the study period. Special thanks to the respondents of Belagaon and Bakshimail in Moulvibazar district and local people for their co-operation to complete the research.

References

Ahamed, AU and Mirza, MMQ 2000, Review of *causes and Dimensions of Floods with particular Reference to Flood '98: National perspectives"* In: Ahamed, O.k. (eds), Perspectives on Flood 1998, The University Press Limited, pp.67-68.

Ahamed, E and Hossain ANHA and Rahman K and Rahman, SMM 2002, Flood 2000: Causes and Consequences in Bangladesh, In: Rashed, K.B.S. (eds), Flood 2000, *Bangladesh Unnayan Parishad (BUP)*, pp 1-19

Nishat, A, Hussain, Z, Roy MK and Karim, A 1993, Freshwater Wetlands in Bangladesh: Issues and Approaches for Management, *IUCN-The World Conservation Union*. Dhaka, Bangladesh, pp 67-70

Akonda, AW 1989, Wetlands of Bangladesh, In: Scott D A(ed). A Directory of Asian Wetlands. Worldwide Fund for nature, The Conservation Union, International Council for Bird preservation, *International waterfowl and wetlands research Bureau*, p 65

Anon 1985, Haor Development Reconnaissance Study: Early Implementation projects". *Special report of Bangladesh Water Development Board*, Dhaka, p 55

Banglapedia 2008, *The National Encyclopedia of Bangladesh*, Asiatic Society of Bangladesh, Dhaka, pp 80

Chowdhury, MI 1977, *Optimization of benefits from the Haors of Sylhet and Mymensingh*, An analysis of LANDSAT Data, Department of Geography,

Jahangirnagar University, Dhaka, p 56.

CNRS 2003, Biophysical and Socioeconomic Characterization of Hakaluki Haor: Step towards Building Community Consensus on Sustainable Wetland Resources Management, *Working Paper 6*, Centre for Natural Resource Studies, Dhaka, p 35.

CNRS 2000, Biophysical and Socioeconomic Characterization of Hakaluki Haor: Step Towards Building Community Consensus on Sustainable Wetland Resource Management, Working Paper 4, *Centre for Natural Resources Studies*, Dhaka, Bangladesh.

CWBMP 2005, *Wetland Resources*, Hakaluki Haor Management Plan, Government of Bangladesh, p 65

The Flood Action Plan 2014, Flood Action Plan of Northeast Regional Water Management Project, Government of Bangladesh, p 35.

Hughes, R 1992, The Wetlands of the Haor Basins of Sylhet and Mymensingh and the potential impacts of the Second Agricultural Development project, *A Review, Asian Wetland Bureau*, p 50.

Islam, AKM and Paul, N 1978, Hydro-biological study of the Haor Hakaluki in Sylhet", *Asiatic Society of Bangladesh*, p 45.

IUCN, 2006, Inception Report: Economic Evaluation of Hakaluki Haor, Special study. *Canadian International Development Agency (CIDA) and International Union for onservation Nature (IUCN)*, p 80.

Islam, N, Ahsan, RM and Hossain, SH 1999, *People's perception of the 1998 flood and their coping strategies*, The 1998 Flood: Impact on environment of Dhaka City, Departmnt of Environment(DoE) with cooperation from IUCN, The World Conservation Union, Dhaka, pp.187-200.

Khan, MS 1989, *The Genetic Resources of Hakaluki Haor*, A Preliminary report ,Bangladesh Centre for Advanced Studies(BCAS),Dhaka, p 77

Sarker SU and Hussain, KZ 1990, Study on Wetland Wildlife of Hakaluki - A Case Study, *International Union for Conservation Nature*, Dhaka, p 55.

Environmental Analysis and Household Health Risk in Existing Solid Waste Management Practices on Different Residential Areas of Chittagong City

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Abstract

Solid Waste Management is one of the key features of an urban area for public health and also for its aesthetic view and image. Due to improper solid waste management system, the overall living standard can be seriously affected. Waste Management is an obligatory function of Urban Local Bodies in Bangladesh. Residential waste management is one of the major tasks among other waste management functions run by the concerned City Corporation. Typically waste generation rises with the rapid growth of urban population. Chittagong, the second largest and a rapidly urbanizing city in Bangladesh is consisted of 41 administrative wards. The estimated population of City Corporation was 3.5 million in 2011. The total area of Chittagong City Corporation (CCC) is approximately 60 Sq. Miles. On an average 1200 metric tons of solid waste is generated daily in Chittagong, mostly from residential zones. The CCC can collect only around 60% of generated wastes in the city. It means a 'gap' exists between the daily generation and collection of solid waste in Chittagong. The uncollected wastes remain disposed of or left out on the vacant land, road and drain sites, river, canal and low-lying plain land. Such inadequate and uncontrolled waste management have an impact on local environment which can cause serious health hazards to the citizens, particularly to the local residents. This study focuses on environmental health risks associated with solid waste management in three different residential areas of Chittagong city as Khulshi, Chandgaon and Purba Bakulia.

Keywords: Solid Waste, Residential Waste Management, Community Based Organizations, Chittagong City Corporation.

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Introduction

Urban solid waste is considered to be one of the most immediate and serious environmental problems confronting urban governments in developing countries (Rao, 1998). Inadequate collection and disposal of solid waste can cause serious environmental degradation and health risk. Urban population in Bangladesh is increasing rapidly and consequently the civic bodies are facing considerable difficulties in providing adequate services such as supply of water, electricity, roads, education and public sanitation, including Municipal Solid Waste Management (MSWM). Chittagong is the second largest city in Bangladesh. It consists of 41 wards. The jurisdiction of the 41 wards in Chittagong City Corporation (CCC) is approximately 60 sq. miles. Population of Chittagong City is increasing very fast. The estimated population in 41 wards of Chittagong City Corporation was 3.65 million in 2004 (UNDP, 2004). Based on the previous population prediction for the 41 wards of Chittagong City Corporation could be 5.10 million by the year 2020. The waste generation rate rises along with the population density. Chittagong City Corporation can collect about 60% of generated waste while 40% remains uncollected (Islam, 2007). The uncollected wastes are thrown illegally by the residents into river, vacant land, low land, on street and along with the drain. In consequences, which supports in prolong water logging at residential areas. However, accumulation of large amount of uncollected waste produces offensive odor and pollutes the environment as well as in air, water and soil pollution. It also acts as a breeding ground for various disease vectors such as, mosquitoes, flies, rodents and cockroaches etc. Moreover, it helps produce spreading pathogenic microorganisms, which can cause fatal diseases to the local residents. This scenario is more prone in lower income residential areas than higher income residential areas of Chittagong City.

The prime objective of this study is to examine the current practice of solid waste management (SWM) in different residential areas of Chittagong City. Also it focusing on the probable environmental impacts of existing solid waste management practices on resident's health and local environment.

Methodology

The study is mainly based on primary field survey. However, secondary sources of information were also used to know the current status of solid waste management system in Chittagong City. The primary survey was included a household questionnaire survey on householders at neighborhood level. An opinion survey was also conducted on related stakeholders. Four different types of semi-structured questionnaires were developed conducting the household survey. These questionnaires have been developed on the basis of objective adopted to assessing the community actions in solid waste management in different residential areas of Chittagong. Chittagong as a developing city residential areas are generally segregated, which can rigidly be divided into three groups: higher, middle and lower-income neighborhoods. Based on the opinion survey three different residential areas were selected for household questionnaire survey:

(1) Khulshi Hill's Residential Area (higher-income), (2) Chandgaon Residential Area (middle-income), and (3) Purba Bakulia (lower-income) in Chittagong (Map 1). Total sample size was 120; equally 40 questionnaires were administered in each residential area using a simple systematic random sampling method. Relevant secondary information on solid waste management has been gathered from local authority, university library, government and non government organizations using their reports, thesis, journals and documents. The collected quantitative data were analyzed and processed by various computer techniques such as SPSS programming, GIS and MS Excel.



Map : Location of the Study Area

Waste Management Practices in three Different Residential Areas

Solid-waste management may be defined as the discipline associated with controlling the generation, storage, collection, transfer and transport, processing, and disposal of solid waste (Rao, 2003). According to study, house-to-house garbage collection performs by the CBO found in higherincome residential area as Khulshi and home maids or servants store domestic wastes in the closed basket or bin. In Chandgoan (middle class residential area) the household garbage collection procedure is the same like Khulshi. Residents in Chandgaon have reported to face some problems in respect of solid waste management at their locality such as insufficient dustbins, CCC collecting wastes irregularly and incompletely, nuisance of vectors (mosquitoes, flies rodents, cockroach etc.) on the bin sites. In Purba Bakulia (lower class residential area), most of the householders do not use bin at household level. When they store waste at indoor level they use open bucket or plate. There is no disposal point or container provided by the CCC. The households in this area generally dispose of wastes in open drain, river, canal, roadside and low vacant land. This may have a great health risk to the householders. In such cases children and women are most at risk from fatal diseases.

Environmental Awareness of the Households about the Waste Management System

Improper solid waste management affected the overall living condition. This problem is acute in the residential areas. According to household survey, it is found that most of the households (76.7%) said that existing solid waste management polluting the urban environment. This scenario is more severe in Purba Bakulia where 97.5% of the households said that existing solid waste management polluting the local area. The households of Chandagaon residential area was also not happy with the existing waste management system, although they receive services provided by the CBO and CCC.

Environmental Analysis on Factors Responsible for Polluting the

Local Environment

This research also collects data from the different residents on factors for responsible of polluting the environment in regards of solid waste management.

Factors	Khulshi	Chandgaon	Purba Bakulia	Total
	(n=40)	(n=40)	(n=40)	(n=120)
1. Offensive odor comes from open	60.0	75.0	97.5	72.5
container/community bin/khal				
2. Drainage congestion occurs	45.0	37.5	72.5	66.67
vectors breeding ground				
3. Creating public nuisance	30.0	67.5	60.0	57.5
4. Surface water pollution	12.5	47.5	67.5	42.5
5. Polluting urban neighborhood	30.0	27.5	17.5	25.0
environment				
6. Not applicable	55.0	10.0	2.5	22.5
7. Construction waste	2.5	-	-	0.83
8. Traffic congestion	-	2.5	12.5	5.0
9. Tidal water entered house (rainyseason)	-	-	25.0	8.3

Table 1: Factors responsible for polluting the local environment (percentage of the sample)

Source: Field Survey, 2009

N.B. Multiple Answeor Considered.

O Offensive odor comes from the open container is one of the most important factors causing pollute the environment in Khulshi and Chandgaon residential area (Table 1). On the other hand, due to absent of container or community bin in Purba Bakulia, most of the residents also CBO/NGO dispose of waste into the khal, for this reason bed smell comes from the khal which pollute the air.

0 About 67% of households said that drainage congestion occurring vectors breeding centre due to disposal of waste in open drain. It is due to the absence of container or residents are not aware about environmental effect of solid waste. In Purba Bakulia most of the households are disposing of waste into the drain. For these reason vectors (mosquitoes, flies etc.) breeding on the drain, which pollutes the local environment (Plate 1). This is also responsible for originating some common human pathogens; about 72.5% households agree this statement. This scenario is to same extent common in Khulshi and Chandgaon residential area.



Chandgaon



Purba Bakulia

Plate 1: Residents of Chandgaon and Purba Bakulia dispose waste into the drain; these are act as vectors (flies, mosquitoes etc.) breeding ground.

O Open dumping creates public nuisance. Uncollected and untreated wastes may cause foul odorous, irritating dust, ravages of natural beauty and clogging of sewers and open drains etc. These are all known to be public nuisance in local neighborhoods of Chittagong.

o Solid waste also responsible for water pollution, about 42.5% of households said that decomposed biodegradable solid wastes are leached out or drained off by rain water or directly disposed of in open water (khal, river). These decomposable or disposable wastes posses high Biochemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) pollution load, dissolve and suspended caused severe surface water pollution (Ahmed, 2005). About 47.5% and 67.5% of households in Chandgaon residential area and Purba Bakulia are respectively said this statement (Table 1).

o Solid wastes and refuse in urban areas contribute to soil pollution (Sharma, 2000). According to household survey, it is found that in Chandgaon residential area wastes are scattered around the dustbin. On the other hand, CCC cleaners do not collect the waste regularly. This domestic waste is a complex mixture of foods remains, paper, plastic and many notorious chemicals. These remaining wastes are being decomposed and mixed with rain water, which can cause soil degradation.

o Tidal water creates water logging in Purba Bakulia (Hafez nagar, Syed shah road, Mia khan road etc.) due to indiscriminately dispose of waste into the khal (Plate 2). It was observed that basin of the khal is silted by the wastes. Water logging is also occurred at Chandgaon residential area (Road No 4, 7, 8,) due to dispose of wastes in open drains.





Awareness of the Households about Health Risk

According to household's survey, 100% of households said that mismanagement of urban waste have a great health risk. In Purba Bakulia and some parts of Chandgaon residential area (block 'A'), infectious medical wastes and toxic industrial wastes are not segregated from domestic waste, exposing the waste handlers to a wide array of risks. Moreover most CBO cleaners and waste pickers (tokai), commonly find their livelihood through sorting of urban solid waste. They have high occupational health risks, including risk from contact with human facial matter, paper that may have become saturated with toxic materials, bottles with chemical residues, metal containers with residue pesticides and solvents, needles and bandages from hospitals waste all contribute to occupational health problems (Trivedi, *et.al*, 1992).

Responsible Factors Related to Health Risk

In Purba Bakulia and some parts of Khulshi and Chandgaon residential areas, large quantities of waste are uncollected which clog drains, leading to stagnant waters which that encourage mosquito vector abundance and pathogen survival (Table 2).

Factors	Khulshi	Chandgaon	Purba Bakulia	Total
	(n=40)	(n=40)	(n=40)	(n=120)
1. Vector -borne (mosquito, flies,	92.5	87.5	90.0	90.0
rodents, cockroach, etc.) disease				
abundance				
2. Bad odors create respiratory	52.5	50.0	57.5	53.3
ailments				
3. Conjunctivitis	10.0	27.5	37.5	25.0
4. Polluting urban neighborhood	7.5	12.5	2.5	7.5
environment				
5. During rainy season water	-	12.5	2.5	5.0
logging occurs				
6. Do not know	-	-	7.5	2.5

Table 2: Factors related to health risk (percentage of the sample)

Source: Field Survey, 2009

N.B. Multiple Answeor Considered.

0 Waste borne vectors (mosquito, flies, rodents, cockroach, etc.) can spread diseases, as opined by many respondents in one study area (90%). This scenario is more severe in Purba Bakulia.

0 About 33% of households said that uncollected wastes around the container, making a bed smell can create respiratory ailments (bronchitis, asthma). This is also a common health risk in Chittagong City.

0 Aesthetic views of the surrounding environments are deteriorating due to overall mismanagement of garbage disposal system in residential areas.

Disease related to Solid Waste Management

Inadequate collection and disposal of garbage can cause serious environmental degradation and health risk. It was reported that solid waste pollution is causing the spread of at least forty nine vector-borne diseases like typhoid, diarrhea, dengue etc. in the capital city Dhaka (Ahmed, 2005). Table 3 presents the list of diseases which can be spreaded to the households, servants, waste pickers, cleaners due to mismanagement of solid waste, as received by the respondents.

Diseases	Khulshi	Chandgaon	Purba	Total
	(n=40)	(n=40)	Bakulia	(n=120)
			(n=40)	
1. Skin disease or allergies (including	70.0	60.0	75.0	68.33
rashes, hypo pigmentation, fungal				
infection)				
2. Fever (Typhoid/Malaria/Dengue)	85.0	65.0	50.0	65.83
3. Diarrhea/Cholera	70.0	65.0	65.0	45.83
4. Conjunctivitis, Headache, Nausea	27.5	15.0	22.5	21.67
5. Dysentery	27.5	15.0	5.0	15.83
6. Asthma, Bronchitis	7.5	15.0	15.0	12.5
7. Do not know			20.0	6.67

Table 3: Types of diseases related to solid waste management in study areas (percentage of the sample)

Source: Field Survey, 2009

N.B. Multiple Answeor Considered.

o Table 6.3 shows that about 68.33% of households are said that due to mismanagement of solid waste skin diseases or allergies (including rashes, hypo pigmentation, fungal infection) may affect the people who handle the waste in the household level and dump sites. In such a case children and women who manage household wastes and waste pickers are at risk from skin diseases.

o Fever (Typhoid/Malaria/Dengue) is a mosquito borne disease. It is a viral disease and caused by mosquito bite. Dustbins, drains and stagnent water are the breeding place of mosquitoes. According to household survey most of the respondents (65.83%) said that mismanagement of domestic waste responsible for spreading dengue, typhoid and malaria. Children are highly vulnerable from such types of fever.

o Most of the households do not use antiseptic after bin wash and the CCC also do not use antiseptic powder in container after collecting the waste. These untidy conditions can cause dysentery, diarrhea. According to household survey almost 45.83% of households said that lack of management of domestic waste responsible for diarrhea, cholera etc.

0 Headaches and nausea from anoxic conditions where disposal sites have high methane, carbon dioxide, and carbon monoxide concentrations.

According to household survey about 21.67% of respondents said that due to mismanagement of domestic waste can cause conjunctivitis, headaches and nausea.

Affected Households and their Disease Types

Solid waste management is commonly a collective system. Households are directly involved in this management. Due to mismanagement of domestic waste in households level householders are affected some common pathogens. Table 4 shows the nature of affected family due to mismanagement of domestic waste in last three months. According to Figure 1, it is shown that about 32.5% of the respondents are said to be affected. It is remarkable that the residents of Purba Bakulia are more affected area compared to other surveyed areas. (Figure)



Source: Filed Survey, 2009 **Figure :** Number of affected families (percentage of the sample)

According to household's survey, it is found that the affected family members are children (20%), second largest affected groups are household head (8.33%). It can be said that due to mismanagement of domestic waste children's health is more vulnerable than adult family members in lower-income areas like Purba Bakulia.

Diseases	Khulshi (n=40)	Chandgaon (n=40)	Purba Bakulia (n=40)	Total (n=120)
1. Typhoid/Malaria/Dengue	7.5	20.0	22.5	16.67
2. Skin disease or allergies	5.0	12.5	17.5	11.67
3. Diarrhea/Cholera	-	-	27.5	9.16
4. Asthma, Bronchitis	-	12.5	12.5	8.33
5. Dysentery	-	-	7.5	2.5

Table 4 Affected diseases of households in last three months (percentage of the sample)

Source: Field Survey, 2009

N.B. Multiple Answeor Considered.

Table 4 shows that 16.67% of the households are affected by typhoid, malaria, or dengue. It is mentionable that about 22.5% of households in Purba Bakulia were affected mainly by dengue and malaria. In Chandgaon the scenario is to some extent the same. In Purba Bakulia, about 27.5% of the respondents were affected by diarrhea, may be caused through garbage littering around their living space, which was not found in other higher-income residential areas.

Conclusion

The existing solid waste management practices in three different residential areas, finds that Purba Bakulia is much vulnerable than Khulshi and Chnadgaon. In research, it was finding that CBO-run solid waste management system in Khulshi and Chandgaon is proved to be better compared to NGO-run system in Purba Bakulia. This study finds that, households in Purba Bakulia are more at risk from residential garbage mismanagement. House-to-house waste management is not present in Purba Bakulia where garbage littering is a common due to not having adequate waste-bins at the neighborhood level. The poor live there used to through their household waste on the open places such as ponds, canals, drains etc. All this is known to be vectors breeding grounds which are largely observed in Bakulia during the field visit. The household survey result shows that they, particularly their children, were suffering from diarrhea and dysentery. This could be due to garbage littering and mismanagement of garbage at the household and local level influencing vector-borne diseases. In generally, environmental situation and resident's health risk are worse in lower income residential area than middle or higher income residential areas of Chittagong City.

References

Ahmed, M Z 2005, *Modernization of Solid Waste Management Practices in Dhaka Through Public and Private Sector Participation*, Unpublished MURP thesis, Department of Urban and Regional Planning, Bangladesh University of Engineering and Technology, Dhaka

BBS 2011, *Bangladesh Population Census*, Government of the peoples Republic of Bangladesh, others, Bd

Chowdhury, A Shariful A. and Moynul, M. 2007, Urban Waste Disposal: A Profile of Municipal Solid Waste Management Systems of Chittagong City Corporation, Journal on Disaster Management: Urban Risk, Disaster Management Bureau, Dhaka. Pp.19-30

Islam, A 2007, *Generation and Management of Solid Waste at Ambaghan Residential Area Chittagong*, Unpublished B-Sc (Hon's) project paper, Institute of Forestry and Environmental Sciences, University of Chittagong, Chittagong.

Sabur, M A 2009, Solid Waste Management in Chittagong City: A Case Study of Residential Areas, Unpublished M. S Thesis Paper, Department of Geography and Environmental Studies, University of Chittagong. Chittagong.

Sabur, M A and Rahman, M M 2010, Who remains neglected? Community actions in residential waste management of Chittagong city, *Published at 2nd International Conference on Solid Waste Management in Developing Countries*, was held 13 to 15 February, 20111 at Department of Civil Engineering, KUET, Khulna, Bangladesh.

Sharma, B K 2000, *Environmental Chemistry*, GOEL Publishing House, Meerut, India. pp. 45-71.

Rao, P V 2003, *Textbook of Environmental Engineering*, Prentice-Hall of India. Private Limited, New Delhi, pp. 92-147

Trivedi, P R and Raj, G 1992, Solid Waste Pollution, New Delhi: Akashdeep Publishing House, India

Web links: www.undp.org www.unescap.org www.wasteconcern.org www.wastesafe.org www.ccc.org.bd www.wikipedia.com
Urban Impact on Environment : A Focus on Dhaka and Chittagong

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Abstract

The rapidly growing urban population in metropolitan cities and its outskirts is increasing environmental pollution posing 'problems to human health and threatening the general quality of life. A desirable state of urbanization with the overriding considerations of communications, traffic system, and housing and residential patterns has been stressed upon recently by the urban planners. What the city dwellers expect from the city development authority is a well planned city with systematic clustering of houses in the residential area well connected to the city's main points-administrative and commercial districts-through linking roads accessible by transports. The study focues the problem of urbanization in Dhaka and Chittagong in respect of Environmental degradation stems from rural-urban migration from villages and small market towns with rural characteristics to the metropolitan urban centers full of development activities. All such development activities centering on urbanization come in disharmony with ecological factors leading to 'gradual degradation of life-support systems including air, water and land'. Enormous population pressure in the core of the city even downtowns aggravates situation. Drainage is poor. Most drains remain chocked. Flooding and water logging during rainy season very much trouble the pedestrians. Rain water with waste accumulates. resultantly roads, lanes and by-lanes become the 'pools of water'. 'Waste-water goes out through open drains which run along the roads.'

Introduction

Recently urban growth is extremely unplanned showing a high degree of

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congestion and overcrowding and malfunctioning of the traffic system. High- rise residential buildings are springing up in Dhaka, Chittagong and Sylhet (to some extent). Many of such buildings tend to serve commercial purposes. The business activities are found in 'greater or lesser degree all along the roads' and pavements but 'intensify at the cross-roads.'

The urban communities in Dhaka and Chittagong exhibit a very high density 'human population' with inadequate space to live and little road infrastructures to move. The rapidly growing urban population in metropolitan cities and its outskirts is increasing environmental pollution posing 'problems to human health and threatening the general quality of life'. Drainage is poor. Most drains remain chocked. Flooding and water logging during rainy season very much trouble the pedestrians. Rain water with waste accumulates. Resultantly roads, lanes and by-lanes become the 'pools of water'. 'Waste-water goes out through open drains which run along the roads.' The capital city is growing vertically owing to lack of space. The question that may arise is whether RAJUK impose strict building codes to ensure construction of building in a manner that will not create concrete jungles even in narrow lanes inaccessible by bus, trucks, speedy ambulances and fire brigade. A few developers and builders follow 'technically sound structural designs'. Most of them perhaps do not bother to use 'correct materials in correct proportions'. But construction of high-rise apartments is going on in an unimaginably fast pace. More, construction materials like sands and iron lying on pavement narrowing down space for the pedestrians to move is simply outrageous.

A desirable state of urbanization with the overriding considerations of communications, traffic system, and housing and residential patterns has been stressed upon recently by the urban planners. What the city dwellers expect from the city development authority is a well planned city with systematic clustering of houses in the residential area well connected to the city's main points-administrative and commercial districts-through linking roads accessible by transports. Distressingly the tremendous growth of urban population in Dhaka has aggravated the crisis of unplanned urbanization in Dhaka with concrete jungles growing thickly all the way around and mushrooming of vehicles plying in a limited number of roads.

Environment Degradation

Urban studies to-date aim at environmental issues. As a matter of fact there is a thrust on the impact of unplanned urbanization on city environment. Admittedly major urban areas in Bangladesh are the seats of the forces of civilization. Civilization-man's greatest achievement-is the result of the totality of concern with development intervention buressed by the onset of globalization.

Dhaka represents a prototype of cosmopolitized urbanization with mechanical revolution in communication, ICT for illustration and strikingly dynamic trends in mobility pattern. At times it is swamped with environmental hazards reflected in conflicting variables-'converging forces of population,' technology and a 'complex eco-system'. All development management with input needs like water, gas power and energy including the environmental attributes of land-use, drainage, solid and liquid wastes, air and adjoining sub-urbs, has turned out to become counterproductive increasing stress on environment.

Developmental trends at the city point emphasizing environmental modifications are rather non-ecological. Man-environment interface in Dhaka in the wake of misdirected urban development that seriously impairs ecology has become a matter of concern to the urban planners. Dhaka is the capital as well as district and divisional headquarters. The total population of the city is13 million. Dhaka is a 'historic city' with a legendary past 'running into hundred of years.' It possesses a distinct 'cultural identity' It is the seat of central government growing up as politico-administrative center with the preponderance of political and bureaucratic influences. The city has gradually turned into a hub of cultural and commercial activities. A lot educational institutions scattered here and there represent one of the marked patters of its contemporary phase of urbanization.

Recently growth around Dhaka is extremely unplanned showing a high degree of congestion and overcrowding and malfunctioning of the traffic system. High- rise residential buildings are springing up . Many of such buildings tend to serve commercial purposes. The business activities are found in 'greater or lesser degree all along the roads' and pavements but 'intensify at the cross-roads.' The city exhibits a very high density 'human population' with inadequate space to live and little road infrastructures to move. The rapidly growing urban population in Dhaka and its outskirts is increasing environmental pollution posing 'problems to human health and threatening the general quality of life'

Environmental degradation stems from rural-urban migration from villages and small market towns with rural characteristics to the metropolitan urban centers full of development activities. All such development activities centering on urbanization come in disharmony with ecological factors leading to 'gradual degradation of life-support systems including air, water and land'. Enormous population pressure in the core of the city even downtowns aggravates situation. Drainage is poor. Most drains remain chocked. Flooding and water logging during rainy season very much trouble the pedestrians. Rain water with waste accumulates. resultantly roads, lanes and by-lanes become the 'pools of water'. 'Waste-water goes out through open drains which run along the roads.'

It is heartening to note that action has been taken to recover river. There are reports that huge illegal structures built along the banks of Buriganga, Turag and Sitalakhya have been knocked down barring some stray incidence of resistance against river recovery operation. The DCs of Dhaka, Narayanganganj, Gazipur and Munshiganj have been asked by the High Court (HC) on June 25 to 'take measures to protect the rivers under their jurisdiction' Some pieces of land created by encroachment on the river bank have been recovered; more to be done to demarcate the rivers. Even then encroachment of low lying areas and wetland and occupation of sand along riverbank is going on. The implementation of detailed area plan (DAP) suffer setback due largely to inept management and politico-legal constraints. The illegal structures spring up in city canals are difficult to be removed under the plan.

Disaster in Chittagong in June 2007, the worst in recent time, claimed more than 120 lives injuring many. The rescue operation was on to retrieve bodies from beneath the mudslides that wrought havoc in hill top slums in the wake of torrential rains. The reasons behind landslide, according to expert are unstable geographical formation, reckless construction, lack of a proper sewerage system and lack of knowledge about nature's ability to lash back with huge fatalities. There has been an increasing institutional concern for a planned urbanization to make Dhaka and Chittagong suitable for living. Urban development authorities like RAJUK and CDA are supposed to do the needful according to Master Plan. These implementing agencies do not have adequate infrastructural facilities, manpower and recourses to implement the plan. Besides, co-ordination among the operating development agencies like City Corporation, urban development authorities, environment department, WASA, PDP, to mention a few, is awfully missing.

Conclusion

Developmental trends at the urban level are rather non-ecological contributing much to the havoc created by climate change. Manenvironment interface in Dhaka, Chiattagong and other major urban areas in the wake of misdirected urban development seriously impairs ecology. It has become a matter of concern to the urban planners. City environment has worsened in the wake of unplanned urbanization. There is hardly any marked development over the years. The authorities are spending lavishly mostly in unproductive sectors without producing any commensurate results. But there is rampant corruption and blame game to account much for fuzzy urban governance.

Since a couple of decades urbanization has assumed 'greater significance' influencing 'growth, distribution, density and structure of population.' Even then there is no proper system of waste disposal. There is a generation of 'organic pollution hazard'. The garbage spreads everywhere in the form of heaps all over the filthy city points. Now there are dumping grounds in outer loosely built up communities. Well maintained garbage disposal system is lacking. The city corporations in statistical metropolitan areas are collecting garbage through its scanty resources and manpower. The garbage collected from the residents and offices through van is disposed on the dumping ground. In many city-points some amount of solid waste is discharged into the drains or canals causing a great deal of water pollution. The waste from kitchen throwing out of window is emptied into the river through rain water. Garbage disposal requires responsible urban governance which is supposed to give immediate action. Haphazard garbage disposal may cause hazardous diseases.

References

Ahmed, SU 1986, A Study in Urban History and Development, Citizen Press London, p 70.

Chowdhury, RH, 1980, Urbanization in Bangladesh, Centre for Urban Studies, Dhaka, p 65.

Siaj Ud Doullah, 2015, Urban Governance in Bangladesh : Contemporary policy Issue, Millennium publication, Dhaka, p 45.

Climate Change Adaptation in Relation with Human-Environment Interactions for Cope with Climate Variability: A Risk Management Approach of Bangladesh

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Abstract

Climate change is one of the most dreaded problem in the new millennium. The most commonly used methods for national climate change vulnerability and adaptation (V&A) assessments are climate scenario driven, and focus on predicting future vulnerability based on biophysical aspects of change. By discounting the role of human behaviour in shaping contemporary responses to climate variability these methods have been unable to develop meaningful policy responses. This paper describes an approach designed to assist countries in assessing the impacts of, and developing adaptations to, climate change. The approach is vulnerability-based, emphasising humanenvironment interactions under current climate and climate change. It shifts from a linear, predictive climate change impacts adaptation methodology to one of risk assessment that integrates the biophysical and socio-economic interactions of an activity or system. The major questions under consideration are, 1) "To what extent will climate change alter the present range of impacts, increasing the risk of vulnerability?" and 2) "How best can development paths be modified to reduce current and future vulnerability to climate?" The starting point is the relationship between current climate, the ability to cope and vulnerability. Current climate variability and extremes are manifested as a coping range, encompassing existing adaptations with a residual range of vulnerability separated by a critical threshold. The degree to which climate change is likely to exceed a particular threshold will increase or decrease the exposure to climate-related risk for a particular activity or system. Adaptation needs are identified through critical threshold exceedance on an appropriate planning horizon and managed by shifting the coping range using planning and policy mechanisms.

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Introduction

The Intergovernmental Panel on Climate Change's (IPCC) Third Assessment Report (TAR) concludes that climate change is happening now and some sensitive systems are responding (IPCC, 2001b), and that serious and irreversible damages will occur within ranges of climate change projected for this century (IPCC, 2001a). These conclusions increase the need to develop policy for adaptation to climate change. Regional estimates of the magnitude and rate of climate change vary widely, implying a need for a "wait and see" approach until forecasts improve, but decisions that will be affected by climate change over their lifetimes are constantly being made. For example, many developments in the agricultural, water, urban, industrial and forestry sectors are constructed under assumptions of a stationary climate.

In coming decades, these benefits may be severely limited or even reversed under climate change unless adequate modifications are put in place. Maladaptations (e.g. inappropriate forest clearance) may exacerbate climate risks. Potential opportunities may be missed (Yohe and Dowlatabadi, 1999). How do policy makers respond to a threat that is likely to occur but is highly uncertain in the way that it will manifest? This problem is particularly acute for developing nations. Many developing nations are vulnerable to current climate (Smit and Pilifosova, 2001), most have highly variable climates and all are limited in their capacity to adapt to climate extremes. Despite limited contributions of historical greenhouse gas emissions, developing nations are highly vulnerable to future impacts (AOSIS, 1999; Apuuli et.al, 2000). Increasing adaptive capacity to climate change is a development issue that competes for resources with other development issues, such as food security, social equity, education and health (Munasinghe, 2000 and Rayner, 2000). Critics of international funds being spent on investigating long-term adaptation needs argue that reducing the substantial current vulnerabilities should take precedence (Kelly, 2000).

More than 100 National Communications containing vulnerability and adaptation (V&A) assessments have so for been submitted to the United Nations Framework for Climate Change (UNFCCC), but their impact on adaptation policy has been limited. Most of the V&A assessments were based on the seven step framework for impact assessment first described by Carter *et.al*, (1994) and elaborated on in UNEP (1998) and Carter and Parry (1998). This method, referred to henceforth as the standard method, describes a cause and effect pathway that projects climate change scenarios through impact models then formulates adaptation measures. Different scenarios can lead to quite different adaptation strategies. Alternative

approaches are to try and distinguish the most likely pathway (what will happen) or to distinguish desirable and undesirable pathways (what happens if). It is a linear methodology based on a causal chain of events, the results of which are conditional upon the input scenarios and generally limited to estimates of potential vulnerability. In this paper, we argue that the standard method has reached its limits of utility for policy formulation.

We aim to argument and improve on the standard method of impact and adaptation assessment by incorporating the four following aspects:

- v Changing the focus of assessment from a climate-based approach to a vulnerability-based approach.
- v Managing uncertainty by moving from a predictive (prescriptive) approach to a risk-based (diagnostic) approach.
- Recognising the role of behaviour in adaptation by taking adaptations developed to cope with climate variability as the baseline upon which to adapt to climate change.
- Managing adaptation over appropriate time horizons, taking account of how both climatic and socio-economic changes may alter vulnerability.



Figure 1: Adaptation Policy Framework developed

Approach of the Adaptation Policy Framework

The standard method has successfully been used to assess the level of threat posed by enhanced climate change (Mc Carthy et al., 2001). The knowledge

that systems have always responded to climate, and that significant vulnerabilities are on the horizon, shifts the focus of adaptation assessments from "What are the potential adaptations to climate change" to "How do we adapt to climate change?" Instead of assessments generating information about potential adaptation, which is useful for inferring the need for mitigation, the demand is shifting to practical application, a far more difficult role. This moves the focus of adaptation frameworks away from scenario-based "what if" questions, towards providing guidance to policymakers.

The key issue for adaptation is not climate change itself but is vulnerability to climate change. Climate change is a significant global issue because of vulnerability. Vulnerability is a social response to climate change impacts and can be reduced by either adaptation, or mitigation. We build on the relationship between vulnerability, impacts and adaptation as described by IPCC, 2001. Future vulnerability is related to the changed frequency of threshold exceedance under climate change (i.e. over long-term planning horizons). The development of increased adaptive capacity to cope with future climate will be informed by the risk of threshold exceedance over the long-term, but will build on adaptive strategies developed to cope with current climate.

Better practical management of uncertainties by moving from a predictive approach to a risk-based approach. Uncertainty about climate change is unlikely to be significantly reduced in the short term, but neither can we adopt a "wait and see" strategy. Rather than trying to predict impacts through individual scenarios, we focus on the triggers, or critical thresholds, that signal a state of vulnerability. By using the same set of climate variables in threshold measurement, scenario construction and impact assessment it is possible to determine where a threshold is located within a range of future climate uncertainties. This approach to managing uncertainty does not reduce the total uncertainty, but establishes agreed goals around which it is possible to assess the overall risk of achieving (positive) or avoiding (negative) goals within the context of projected climate change .

Planned adaptation is a behavioural response to information about the future. Planned adaptation needs to take account of information about climate change and to develop appropriate behavioural responses, which will be based on current individual, community and institutional behaviour. Adaptation measures need to be consistent with current behaviour and future expectations if they are to be accepted by stakeholders. Existing adaptation is a response to the net effects of current climate (variability and change) as expressed by the coping range. An understanding of current adaptation

capacity is necessary to understand current vulnerability. The analysis of behavioural responses to current climate variability also aids in the construction of climate scenarios.

Management over appropriate time horizons. If adaptive capacity is to be addressed in a proactive manner, both short-term and long-term vulnerabilities need to be managed (Adger and Kelly, 1999). Climate change will manifest over the coming decades but current vulnerabilities and national development plans will both manifest over the short term. Given the demands on limited available resources (financial, technological, human) in the context of human development, adaptation will need to demonstrate short-term gain, even if further benefits are expected over the long term.

Box 1. Definitions of vulnerability, impacts and adaptation as defined by IPCC (2001b)

Vulnerability (V)

The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.

Impacts (I)

Consequences of climate change on natural and human systems. Depending on the consideration of adaptation, one can distinguish between potential impacts and residual impacts.

Adaptation (A)

Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation.

Adaptive Capacity

The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, take building

on advantage of opportunities, or cope with the consequences.



Figure 2. Structure of vulnerability, impacts and adaptation where V and A are separated by a critical threshold, (Tc) marking the level where impacts result in an unacceptable degree of harm. IPCC (2001b)

Adopting a Vulnerability-based Approach

This paper integrates the biophysical and socio-economic aspects of climate variability and change to develop an understanding of how climate risks may change over time, and to develop adaptation options to manage those risks. The basic unit is the coping range, which relates the major climatic drivers of a system with outputs that can be measured in terms of success or failure. The coping range is distinguished as a range of variability expressed in terms of climate or related system variable(s) that can be linked to climate, such as streamflow and water supply, agricultural yield, forestry yield or levels of income or profit. Within the coping range, conditions range from being desirable to tolerable levels of harm, while beyond the coping range, tolerance (and resilience) levels are exceeded. Combinations of climate variability and extremes can drive a system beyond its limit of tolerance, defined by a critical threshold (Barnett, 1999). Because the starting point for any adaptation is current behaviour, we analyse current climate vulnerability and how that vulnerability is managed before proceeding on to an assessment of future risks. This exploration is ideally carried out with stakeholders, and may result in different stakeholder-specific coping ranges for the one activity. For example, dryland and irrigation farmers have very different coping ranges with regard to seasonal rainfall, with dryland farmers requiring regular rainfall to maintain soil moisture while irrigators are more dependent on volume in storage and can cope with seasonal rainfall deficits.

Table 1: Table comparing the structure of the standard methods and adaptation policy framework. The key difference is that the standard method projects each discipline from now into the future separately, with each pass

the last, whereas the APF builds an understanding of system specific links between the biophysical and socio-economic under current climate, then projects the whole structure through time.

Methodology	Structure	Begins	Builds	Moves forward	Output
Standard	Linear, Causal	Starting focus on climate change science	Builds from one discipline to the next	Builds layers that project forward in time: climate, biophysical impacts, socio- economic impacts, adaptation	Scenario-derived options for adaptation to future conditions, often based on biophysical impacts, delivered to wards the end of the project
APF	System, relational	Starting focus on stakeho- lders' experie- nce of current climate	Builds using an interdisciplinar approach	Builds framework linking biophysical to socio-economic under current conditions, then projects the whole framework over planning horizons	Knowledge of current adaptations and adaptive capacity during the project, comparison of current and future climate risks mid project, options for policy, planning and management at the end

Characterising Climate Risk

The coping range is used to identify climate-related hazards, and thus to characterise climate risks. Climate risk associates a climate-related hazard with the likelihood of given climatic conditions, with vulnerability being the socio-economic response to a given hazard (Downing *et.al*, 1999). The relationship between hazard, vulnerability and risk is not clear-cut and in this paper we will provide the basis to several formulations that can be applied within V&A assessments. Under current climate, most climate risks deal with recurrent phenomena, which are frequency based. Characterising climate risk under climate change requires dealing with both frequentist and single-event uncertainties. Understanding and dealing with these uncertainties is a significant factor in the choice of analysis and needs to be clearly communicated amongst researchers and stakeholders (Anderson, 1998).

Frequentist uncertainties are probabilistic descriptions of recurrent phenomena used to characterise climate variability and extremes. Return events such as the 1 in 100 year flood, likelihood of a specific extreme temperature, probability of a given severity of drought, cyclone frequency and magnitude are all examples of recurrent climate phenomena. Thresholds linked to specific magnitudes and frequencies of simple and complex climate phenomena have been constructed to manage agriculture, water resources, energy management, emergency response and so on. These tools are generally well established and lack of access or lack of resources to adapt and apply them is largely a development issue. Providing that access or those resources would qualify as a form of capacity building.

The characterisation of risk under climate change requires the development of both frequentist and single-event probabilities to properly account for current and future vulnerability (Ahmad and Warrick, 2001). Each impact is affected by different climatic variables. Characterising these variables in the appropriate mode (mean, variability and extremes) is a challenge for climate scenario developers. Most impacts will occur in response to new extremes, the product of both variability and mean change (Smit and Pilifosova, 2001). All too often, climate variability and change have been dealt with separately. Future climate is characterised in terms of changing means while current climate is expressed in terms of variability and extremes, or "signal" and "noise" (Mearns and Hulme, 2001). This distinction is useful for understanding how far climate may move from its current state, for the attribution of climate change and for describing global climate model output, but is not so useful for understanding and managing climate change impacts.

Current Vulnerability

Current vulnerability to climate can be assessed by linking the climatic stimuli affecting an activity to outcomes that can be used to measure success or failure. These outcomes will provide criteria that can be used to identify an appropriate level of harm. For example, climate variables such as seasonal rainfall, degree-days (temperature), humidity and radiation can be linked to crop yield and hence to income; and rainfall intensity and duration can be linked to flood and property damage, loss of life and livelihood.

The characterisation of a climate hazard can be approached in two ways. The first is to fix a level of hazard, such as a peak wind speed of 10ms-1, hurricane severity, or extreme temperature threshold of 35°C then survey how vulnerability changes across different regions or through time in response to that hazard. Different societies will show varying degrees of vulnerability depending on their physical setting and social capacity. This is

the approach most commonly taken in disaster and geophysical hazards assessments. The second is a vulnerability-based approach that determines the level of harm that is deemed unacceptable then links that to a specific frequency and/or magnitude of climate events. A good example is drought, where the amount and duration of rainfall deficit and the resulting impacts are location-specific. This second method provides a better definition of the coping range because it is based on the mutual interaction of climate and society. The range of climate affecting the system can then be divided into the coping range and range of vulnerability separated by a critical threshold that marks a change from acceptable to unacceptable conditions (fanst and Smadon, 2001).



Figure 3: Schematic diagrams showing relationship between (a) the coping range and baseline critical thresholds and vulnerability under a stationary climate, (b) how climate change can lead to an increase in exceedance of a current threshold, and (c) how adaptation can establish a new critical

threshold, reducing vulnerability to climate change.

A coping range can be simple, influenced by one or two climate drivers as in Figure 3, or complex, influenced by multiple drivers. The critical threshold combines both behavioural aspects and biophysical aspects of an activity because it marks a point where climate drives impacts beyond a level that is considered tolerable (Glandt,1999). Stakeholders and investigators jointly formulate thresholds that become a common and agreed metric for an assessment (Jones, 2001). Thresholds can be defined simply, as in the amount of rainfall required to distinguish good conditions from drought, or can be complex, such as the accumulated deficit in irrigation allocations over a number of seasons (Jones and Page, 2001). In most cases, critical thresholds are constructed using frequentist statistics. By providing a level where conditions result in an unacceptable degree of harm, critical thresholds can be used for risk assessment under both current climate and under climate change (Alcamo. *et.at*, 1998).

Historically realised adaptation (usually developed in response to experienced stress) defines the behaviour upon which any response to climate change is likely to be based. Adaptation analogues show that adapting to a future climate is influenced by past behaviour (Glantz, 1996;). This includes both autonomous and planned responses. Where adaptive capacity to current climate is low, capacity building in the form of development assistance will be required (Kelly and Adger, 2000).

Future Vulnerability

Figure 2b shows how the coping range may be breached under climate change. For example, represented in terms of temperature (or rainfall), the hot (wet) baseline threshold is exceeded more frequently while the exceedance of the cold (dry) baseline threshold reduces over time. Vulnerability will increase to extreme levels for the hot (wet) threshold over time. Figure 2c represents the expansion of the coping range through adaptation and the consequent reduction of vulnerability. The amount of adaptation needed is a function of the planning horizon under assessment and the likelihood of exceeding a given threshold over a given planning horizon.

Planning horizons relate to the lifetime of decision-making associated with a particular activity - how far into the future is it planned? Is climate change likely to occur with this planning horizon? Do current planning decisions assume the continuation of historical conditions? How do we incorporate climate change into long-term planning? Planning horizons have a bearing on how far into the future an assessment makes its projections. The same

activity can be affected by several planning horizons used by different stakeholders (e.g. financial, urban planning and engineering horizons for infrastructure).

Figure 3 shows a time-slice through Figure 2 reflecting a particular planning horizon. It has a structure similar to Figure 1 but where Figure 1 is based on anomalies of change, Figure 3a accounts for vulnerability and adaptation under current climate and Figure 3b incorporates climate change. Figure 3a shows current impacts (Ib), the coping range Cr and a reference critical threshold (Tb). Under climate change impact events may exceed the coping range more frequently (Figure 3b), so that potential vulnerability exceeds current vulnerability (Vb). Adaptation will increase the coping range, raising the critical threshold and reducing potential vulnerability. There are two ways to survey adaptation using this structure. One is to test the likelihood of critical threshold exceedance under climate change under conditions where the coping range remains constant or changes in response to socio-economic change. This refers to the question "How much do we need to adapt from current conditions?" The other is to test how much climate change, adaptive capacity may be able to accommodate, thereby identifying "safe" levels of change for a particular activity, referring to question "How much can we adapt by a particular time horizon?".

Characterising Future Risks



Figure 3a: Baseline impacts (Ib) relate to baseline climate variability. The coping range (Cr) lies below a baseline threshold and vulnerability



Figure 3b: Structure of change where impacts increase from baseline variability. Planned adaptation increases the level of the critical threshold relative to impacts from baseline (Tb) to that under climate change (Tc).

This approach allows the risk of impacts to be assessed without first having to predict climate change. Rather than trying to predict one outcome from many (e.g. the probability of climate change being x), we can use the whole range of uncertainty to assess risk. Bayesian techniques can also be used to

great advantage. By testing how different probability distributions for a given set of inputs affect the likelihood of threshold exceedance, we can determine how robust the risks to a particular activity may be.



Figure 5: Ranges of sea level rise from the IPCC Third Assessment Report (IPCC, 2001a; top left), assuming uniform probability with the range (top right), and non-uniform probabilities (lower left and right), together with cumulative probability distributions for threshold exceedance and three thresholds of 25, 50 and 75 cm. These distributions have not been produced by formal analysis and are for illustrative purposes only.

Recent debates on the need to provide probabilities for climate change have in part hinged on the limits to prediction. If the causal sequence of events leading from emissions to climate change is limited by its weakest link (e.g. predicting future economic activity and technology development over the long-term), then the outputs dependent on those estimates are similarly limited. Conversely, if probabilities are not calculated in any formal sense, people will construct their own ad hoc conclusions based on their own social construction of the component uncertainties (Schneider, 2001).

This debate need not be an either/or argument. Using constructions that involve coping ranges, thresholds and risk, can produce robust outcomes. For instance the left panel of Figure 5 shows the single event probability of

global warming as a probability distribution function consistent with methods applied by Schneider (2001), The peak of the probability distribution function shows that a global warming of $\sim 3^{\circ}$ C in 2100 is much more likely than either 1.5 or 5.5°C. However, by reconfiguring this into a probability distribution function designed to assess the risk of warming exceedance (right panel, Figure 5), all critical thresholds associated with a global warming of 1.4°C are 100% likely, reducing with progressively higher temperatures. The probability of warming exceedance decreases with increasing global warming and even if the numbers are uncertain, the structure is robust.



Figure 6: Probability of global warming calculated on the left to indicate the most likely outcome in terms on temperature increase and on the right, to assess the likelihood of threshold exceedance associated with specific levels of warming. Probabilities calculated by Monte Carlo sampling of ranges of change in radiative forcing and climate sensitivity, similar to Schneider (2001).

Can this principle be used to assess global risks? The approach described here is a bottom-up method that assesses the risk to individual activities.

It is complementary to the top-down 'safe corridors' or 'tolerable windows' approach that aims to assesses the level of global warming at which the aggregate costs and benefits of adaptation and mitigation are balanced and dangerous climate change is avoided (Toth *et.al*, 1997; Alcamo *et.al*, 1998; Petschel-Held *et.al*, 1999). The synthesis from IPCC Working Group II in the TAR was constructed using information from bottom up studies showing that risks increase as a function of global warming (Smith *et.al*, 2001).

Figure 7 is a reproduction of Figure SPM-2 of IPCC (2001b) and links global warming to increasing vulnerability for five reasons for concern. The activities most in need of adaptation will be those with critical thresholds situated towards the base of the columns Figure 4. The most robust paradigm is not one of prediction, i.e. which of the temperatures on the left are the most likely? but is one of risk, where damages will increase with global warming but probabilities will decrease. Risk assessment is needed to identify those activities facing the highest risks and implement adaptation measures if they are to have a long-term, viable future.



Figure 7: The risk of adverse effects from global warming according to five reasons for concern. The left part of the figure is global warming based on the six SRES greenhouse gas emission marker scenarios, showing the estimates based on a mid-range climate sensitivity, and the whole range. The right side shows the five lines of evidence, with increasingly negative impacts linked to the magnitude of global warming .

Adaptation

Adaptation to climate change can both ameliorate harmful impacts and exploit potential benefits. In the IPCC TAR, adaptation is defined as an adjustment, change or a response of systems and individual activities (Smit and Pilifosova, 2001). Behaviour is the missing factor from most of discussions of adaptation in the climate change literature. People cannot be expected to adjust without investigating the social contexts that have influenced past adaptation, for example why some measures are adopted and not others. The term adjustment in the IPCC definition takes the role of behaviour for granted by neglecting what leads to the adjustment (e.g. information about future climate or climate risks and the experienced stress of climate events) and how and why that adjustment is carried out. If we consider planned adaptation to future climate as being comprised of two major elements: information and response, then behaviour is the glue that links them. We cannot realistically expect to adapt to climate change until without first understanding how we have adapted to past climates. Current climate experience, the policy environment and policy horizons, social cultural and economic considerations, and the perception of the risks posed by climate change all influence future adaptation (Adger and Kelly, 1999).

Adaptation almost always comes at an initial cost, although the benefits may give rise both to short and long-term benefits (Tol *et.al*, 1998; Scheraga and Grambsch, 1998). Given the demands on limited resources (financial, technological, human), adaptation will need to demonstrate short-term gain in the context of development, even if long term benefits are expected. This choice often creates conflict within economic development planning, which is usually trying to minimise initial costs. Some form of cost-benefit analysis for the short-term benefits, however informal, will aid the allocation of resources since many adaptations will only be implemented if they can be shown to be efficient. This is also relevant for the building of adaptive capacity. Adaptation for a wide range of possible circumstances will be needed where uncertainty is too great to develop specific adaptation measures, but knowledge of the relative areas of risk within this uncertainty will inform priorities for capacity building.

By relating climate change to threshold exceedance derived from an understanding of the current coping range, policymakers can assess the need for adaptation over both short and long-term planning horizons using critical thresholds as the common metric. The most effective adaptations will be those that produce returns over a range of planning horizons and for multiple criteria. If current and future climate vulnerabilities show a similar structure with regard to a coping range, climate impacts and adaptation, they can be linked by applying planning horizons in the context of sustainability.

Stakeholders

Experience shows that where adaptation assessments have involved stakeholders, their effectiveness and implementation success is enhanced. National Assessment Synthesis Team, 2000. To accommodate the needs of stakeholders, and to increase the likelihood of risk management options being accepted, risk practitioners have learned that behaviour must be directly incorporated into national risk assessments This requires the involvement of stakeholders throughout the assessment process. Stakeholders can contribute important information about the policy environment early in the process, help to design the assessment by their knowledge of coping mechanisms, the coping range and what levels of harm can and cannot be tolerated.

Conclusion

An approach for adaptation assessment under climate change is proposed that deals with vulnerability in terms of risk, then aims to manage that risk through planned adaptation. By understanding planned adaptation in terms of human development and behaviour, this approach is designed as policy tool to help governments choose or modify their sustainable development pathways under future climate through adaptation, consistent with the UN Framework Climate Convention, and other environmental convention obligations. The ultimate objective of the framework is to help countries to minimise vulnerability and risk of exposure to future climate in the near, mid and longer term.

This approach is underpinned by four themes

- Changing the focus of assessment from a climate-based approach to a vulnerability-based approach.
- Managing uncertainty by moving from a predictive (prescriptive) approach to a risk-based (diagnostic) approach.
- Recognising the role of behaviour in adaptation by taking adaptations

- developed to cope with climate variability as the baseline upon which to adapt to climate change.
- I Managing adaptation over appropriate time horizons, taking account of how both climatic and socio-economic changes may alter vulnerability.

This approach signals a departure from the standard assessment methodology and closely approaches the emerging science of sustainability, which strongly links environment to development. We believe the approach described here provides guidance for a new direction of adaptation assessments to meet the urgent needs of developing countries in particular. Its underlying thrust is to understand what determines the vulnerability or resilience of the nature-society systems under both current and future climate. Under a range of uncertainties and possible future climates, there is much room for innovative methodological approaches to support the Adaptation Policy Framework (Burton et al., in prep.) for decision-making. Although a number of other authors have promoted a vulnerability-based approach as opposed to the standard approach, we believe that the methods of characterising climate risk described in this paper, provide the opportunity to improve upon the standard climate-driven approach.

References

Adger, WN 1996, Approaches to vulnerability to climate change. Global Environmental Change, *Working Paper 96-05, Centre for Social and Economic Research on the Global Environment*, University of East Anglia and University College London.

Adger, WN 1999, Social vulnerability to climate change and extremes in coastal Vietnam, World Development, Vol. 27, No 20, p 249-269.

Adger, WN and Kelly, PM 1999, Social vulnerability to climate change and the architecture of entitlements, *Mitigation and Adaptation Strategies*, Vol. 4, No 56, pp 253-266.

Alcamo, J, Leemans, R and Kreileman, GJJ 1998, *Global Change Scenarios of the 21st Century: Results from the Image 2.1 Model*, Pergamon & Elsevier Science, London, United Kingdom.

Ahmad, QK and Warrick, RA 2001, Methods and Tools, in McCarthy, J.J., Canziani, O.F., Leary, N.A., Dokken, D.J. and White, K.S. (eds.) Climate Change 2001: Impacts, Adaptation, and Vulnerability, *Contribution of Working Group II to the Third Assessment Report of the Intergovernmental* Panel on Climate Change, Cambridge University Press, Cambridge, p 105-143.

AOSIS 1999, Communiqué: Third Summit of the Heads of State and Government of the Alliance of Small Island States, Adopted at the United Nations, 25 September 1999,

Apuuli, B, Wright, J, Elias. C, and Burton, I 2000, Reconciling national and global priorities in adaptation to climate change: With an illustration from Uganda, *Environmental Monitoring and Assessment*, Vol. 61, No 56, pp 145-159

Anderson, JL 1998, Embracing uncertainty: the interface of Bayesian statistics and cognitive Psychology, *Conservation Ecology*, Vol 2, NO 5, pp 45-50

Barnett, J 1999, Adapting to climate change in Pacific Island countries: the problem of uncertainty, *World Development*, Vol. 29, No 20, pp 977-993

Burton, I 1997, Vulnerability and adaptive response in the context of climate and climate change, *Climate Change*, Vol. 36, No 12, pp 185-196.

Carter, TR, Parry, ML, Harasawa, H and Nishioka, S 1994, IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations, University College, *London and Centre for Global Environmental Research*, Japan, p 59.

Downing, TE, Ringius, L, Hulme, M and Waughray, D 1997, Adapting to climate change in Africa, *Mitigation and Adaptation Strategies for Global Change*, Vol. 2, No 10, pp 19-24.

Downing, TE, Gawith, MJ, Olsthoorn, AA, Tol, RSJ and Vellinga, P 1999, Introduction, In Downing, T.E., Olsthoorn, A.A. and Tol, R.S.J. (eds.), *Climate, Change and Risk,* Routledge, London and New York, pp 1-18.

Faust, BB and Smardon, RC 2001, Introduction and overview: environmental knowledge, rights, and ethics: co-managing with communities, *Environmental Science and Policy*, Vol. 4, No 5, pp 147-151.

Glantz, MH 1996, Forecasting by analogy: local responses to global climate change. In: Smith, J., N. Bhatti, G. Menzhulin, R. Benioff, M.I. Budyko, M. Campos, B. Jallow, and F. Rijsberman (eds.), *Adapting to Climate Change: An International Perspective,* Springer-Verlag, New York, NY, USA, pp 407-426

Hewitt, K 1983, *Interpretations of Calamity from the Viewpoint of Human Ecology*, Allen and Unwin, Boston, p 65

Kelly, PM and Adger, WM 2000, Theory and practice in assessing vulnerability to climate change facilitating adaptation, Climatic Change, Vol. 47, No 6, pp 325-352

IPCC 2001a, Summary for Policymakers, in Houghton, J.T., Ding, Y., Griggs, D.J., Noguer, M., Van Der Linden, P.J. and Xioaosu, D (eds.)

Climate Change 2001, *The Scientific Basis, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, pp 944

IPCC 2001b, Summary for Policymakers, In McCarthy, J.J., Canziani, O.F., Leary, N.A., Dokken, D.J. and White, K.S. (eds.) Climate Change 2001 Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, pp 1032

McCarthy, JJ, Canziani, OF, Leary, NA, Dokken, DJ and White, KS 2001, Climate Change 2001 Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, Cambridge, pp 1032

Mearns, LO and Hulme, M 2001, Climate Scenario Development, in Houghton, J.T., Ding, Y., Griggs, D.J., Noguer, M., Van Der Linden, P.J. and Xiaosu, D (eds.) Climate Change 2001 *The Scientific Basis, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, pp 739-768.

Munasinghe, M 2000, *Development, equity and sustainability (DES) and climate change*, In Pachauri, R., Taniguchi, T. and Tanaka, K. (eds.) Guidance Papers on the Cross Cutting Issues of the Third Assessment Report of the IPCC, IPCC, Geneva, pp 69-110.

National Assessment Synthesis Team 2001, *Climate Change Impacts on the United States: Foundation Report*, Cambridge University Press, Cambridge, p 35

Ogallo, LA, Boulahya, MS and Keane, T 2000, Applications of seasonal to interannual climate prediction in agricultural planning and operations, Agriculture For. *Management*, Vol. 103, No 45, pp 65-70.

Parry, ML 1986, Some implications of climatic change for human development, In Clark, W.C. and Munn, R.E. (eds.), Sustainable Development of the Biosphere, *International Institute for Applied Systems Analysis*, Laxenburg, Austria, pp. 378-406.

Environmental Pollution of Hakaluki Haor and Its Impact on Agro-fisheries Sectors

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Abstract

Hakaluki haor is one of the major wetlands of Bangladesh. With a land area of 18,386 hectares, it supports a rich biodiversity and provides direct and indirect livelihood benefits to nearly 190,000 people. Wetlands in Bangladesh have long been facing serious degradation and loss, due to many Natural and anthropogenic factors. Besides natural causes, factors like overuse of resources, lack of property rights, human encroachment, and conversion to other uses and also absence of effective enforcement of laws are some of the most important factors for the decline in wetland biodiversity of the country. Environmental problems e.g. water pollution, soil pollution and other associated causes destroy the ecosystem of Hakaluki haor. Dependent rate of the inhabitants upon Hakaluki haor seriously face livelihood. Integrated management may reduce the adverse effect.

Keywords: Wetland, Environment, water pollution, soil pollution and Hakaluki haor.

Introduction

Bangladesh is built up with diversified ecosystem containing enormous natural resources. Among of natural resources, wetlands are invaluable components of the environment, ecology, resource potential and biodiversity in Bangladesh. About half of the area of the country can be considered as wetlands. Bangladesh possesses enormous area of wetlands including rivers and streams, freshwater lakes and marshes, haors, baors, beels, water storage reservoirs, fish ponds, flooded cultivated fields and estuarine systems with extensive mangrove swamps.

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Haor is made up of more than 238 small, medium and large interconnecting beels some of which are perennial and others seasonal (CNRS report). During the dry season the area covered by these beels is approximately 4,400 ha but with the onset of the rains in the summer the entire area floods to about four and half times this size (approximately 18,000 ha) and remains underwater for up to five months. During this period, all the beels are united as one large lake, or haor, making Hakaluki Haor the largest freshwater wetland in Bangladesh.

The wetlands also support the livelihood of millions of people from such diverse activities as fishing to collecting honey and materials for thatching and fuel wood. These freshwater wetlands occupy four landscape units-floodplains, (low-lying depressions in the flood plain), freshwater marshes, lakes and swamp forests (Map-1).





Hakaluki Haor is one of the important mother fisheries in Bangladesh. Livelihood of the people living around the haor is very much dependent on its fish resources. However, due to harmful human activities, like using illegal fishing nets, dewatering of beels during the dry season to catch fish, catching gravid fish etc. the fish production of the Haor and the number of species are decreasing gradually. At present 32 out 107 fish species found in the haor are threatened (IUCN).

Environment of Hakaluki Haor is getting polluted due to different anthropogenic causes. In 2002, with technical and financial support from the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF), the Department of Environment (DoE) initiated the "Coastal and Wetland Biodiversity Management at Cox's Bazar and Hakaluki Haor" Project (CWBMP). The specific objective for Hakaluki Haor is "to ensure the conservation and sustainable use of globally significant wetland biodiversity at Hakaluki Haor through its management as an ECA". According to some literature, it is seen that there are a lot of has done about the Haor environment and dependency but no one mentioned the disasters, its impact and peoples relation to the Haor and adaptation processes of peoples to the natural disasters specially in the Hakaluki Haor area. There is a close relationship between ecological resources and environmental conditions. Many disasters are occurred due to the breakdown of the environmental balance of an area. Like many other area, Hakaluki Haor area also loss its biodiversity day by day but it is an important resource both the plants and animals to survive. Above all the resources of Hakaluki Haor provide enormous support to the local peoples. So the study on Haor dependency and disaster management in Hakaluki Haor is very much needed.

Geographical Area for the Research

The study area, Hakaluki haor, is located in the north-east of Bangladesh latitudinally between 24°35?N and 24°45?N and Longitudinally between 92°00?E and 92°08?E, Hakaluki Haor is a shallow basin nested between the Patharia and Madhab hills in the East and the Bhatera hills to the West. Administratively, Hakaluki Haor falls under the jurisdiction of two districts (Moulvibazar and Sylhet), five Upazilas (Kulaura, Barlekha, Fenchugonj, Paschim Juri, and Golapgonj), and eleven Unions (Bhatera, Baramchal, Bhakshimail, Jaifarnagar, Barni, Talimpur, Sujanagar, Paschim Juri,

Gilachhara, Uttar Bade Pasha, and Sarifganj) (Source: DoE, 2007).

For this research two unions under two upazilas of Maulibazar district have been considered to study environmental pollution and its impacts on agricultures and fisheries sector of the Hakaluki haor areas. These areas are Bhakshimail union of kulaura upazila and Jaifarnagar Union of Juri upazila of Maulibazar district are shown by map(Map-2).





Source:Redrawn from CNRS,GIS Unit

Research Goals and Objectives

The goal of the study is to know about the environmental pollution and its impacts on agriculture and fisheries sectors of Hakaluki Haor area. The specific objectives are-

- a. To know about the pollution level of Hakaluki haor areas that how much pollution are creating and what is the extent of pollution. The pollution level has been known by the inhabitants of the areas.
- b. To explore the impacts on agriculture and fish sector because of pollution and how the inhabitants are adopting with these pollution.

Methods and Techniques

The present research is a part of fourth year final report on Haor Dependency and Disaster Management: A case study of Hakaluki Haor. Only the part of pollution level has been analyzed in this research. A field survey was conducted during 21.06.09 at the villages of Jaifarnagar union and Bhakshimail union under Juri and Kulaura upazila of Maulvibazar district on the topics of "Haor Dependency and Disaster Management: A case study of Hakaluki Haor." However, the methodologies involve the following steps:

Primary and Secondary Data Collection

The data sources are clustered into primary and secondary categories depending on the content of information. Primary source is identified as data or information gathered by observing phenomena or surveying respondents for this study and secondary data are collected data for other studies.

The major key activity of ground truthing of existing data is to visit the part of haor area to collect missing information and to verify the existing information. There were prepared structured questionnaire and used in the field to collect information from key persons. There arranged also some FGD and KII. The sample size was 170.

Data Analysis

Assessment for the study through collection of secondary data, consultation, field visit, match/mismatch analysis and overlaying of criteria, relevant data

and validated through coordination of technical support group, line agency and other stakeholder consultation. Documentation of available information assessed for the study with secondary data and through some field visit. Above all field visits, collection, compilation and extraction of secondary information from relevant agencies have been sited and validated through different level of consultation to achieve targets. Information from web page has gathered on Haor development, wetland management and pollution.

Research Findings

The research findings are discussed having some basic information of the respondents and their perceptions on pollution of Hakaluki haor areas. Information from FGDs, KII and questionnaires applied for analyzing the impacts on the sectors of agriculture and fisheries.

Respondent's Nature

The study conducted a questionnaire on pollution from 170 persons. According to the finding of the research it is observed that there are some roots or causes for which respondents of the haor area lived in this area. From the table (table-01) about 79.4% respondents live in this area by born. Several causes are shown with percentage by the following table.

 Table 01: Roots or causes of Living in the Study Area and Duration of

 Living in the Study Area.

Roots or causes	Percent (%)	Duration	Percent (%)
By born	79.4	Since Birth (year)	77.1
By Married	14.1	>5y	2.9
By Occupation	1.8	5-10	2.4
By Permanent Migration	4.1	10-20	7.6
Others	0.6	20+	10.0
Total	100.0	Total	100.0

Source: Field survey, 2014

From the above table it is seen that about 77.1% respondents live in this area since their birth. Only 2.9% people live since 5-10 years. (table-01).

Occupation is a term by which medium man survive that means they can earn money in their own way. Every man has different occupation. According to collected data from the field work, it is seen that about 44.7% respondent's main occupation is agriculture.13.5% respondent were housewife and 10.6% respondent engaged with local business as their main occupation.



Source: Field work, 2009.

Figure-01: Occupation (main and secondary) of the surveyed persons.

In the aspect of secondary occupation of the respondents, about 32.4% respondents have no secondary occupation. Respondents of the study area engaged with fishing anyhow due to haor area and it is a secondary occupation for 12.4% respondents (Figure-01).

Perception on Environmental Change of Hakaluki Haor Area

In recent time Environmental change is the hot topic in the whole world. Various changes occurred day by day and it is prominent in some special places. It is seen, 93.5% of respondent told that environmental changes are occurring due to different anthropogenic and natural causes and only 6.5% of total respondents said that there are no environmental changes in the Hakaluki haor area.

Types of Environmental Changes in the Study Area

Various types of changes are recorded from the opinions of the respondents of the study are. These changes of environment are shown by the following table-02.

Types	Frequency	Percent
New settlement Development	6	3.5
Increase Population	4	2.4
New Road Construction	7	4.1
Reducing Haor Area	1	0.6
Siltation in the Haor	6	3.5
Cutting of Trees	2	1.2
Decrease Depth	1	0.6
water Pollution	1	0.6
Others	4	2.4
Water pollution + Siltation in the Haor	130	76.5
NA (Not applicable)	8	4.7
Total	170	100.0

Table-02:	Types	of	environmental	changes
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Source: Field survey, 2014

According to above table, it is seen that about 76.5% respondents mentioned water pollution and siltation in the Haor and 3.5% respondents told about the development of new settlements.

Water Pollution and its Responsible Causes

Water pollution is one of the main causes of environmental change and day by day the quality of water is decreasing. So the data from respondent's opinion on water pollution and causes of water pollution are collected and some observations also recorded. During field work, some water sample from the Hakaluki haor also collected and tested in laboratory to determine of dissolved oxygen and salinity of water. The water of the Hakaluki Haor is getting polluted. Most of the respondents (about 74.7%) gave their opinion that water pollution is happening but rest of the respondents (about 25.3%) replied that there is no water pollution in the haor area.

Different causes of water pollution in the haor are mentioned by the respondents of the study area. These causes are shown by the following figure-02.







According to the recorded data, it is seen that haor water is getting polluted by the throwing waste and use of pesticides in the agricultural field. About 1.8% respondents told about the open latrines and upper streams as the causes of water pollution. According to collected data, most of the pathway of latrines is towards the canal and haor.

Soil Pollution and its Responsible Causes

Soil is the life supporting elements both plants and animals on earth. But now a day it has been polluted by different natural and man-made activities. During the field survey, information of soil pollution, respondent's opinion and causes of soil pollution were collected from the respondents. According to analyzed data, 60% respondents of the haor area, soil of this area is being polluted but 40% told there is no soil pollution. Different causes of soil pollution are found from the answer of the respondents. These causes are shown by the figure-3.



Source: Field survey, 2014

Figure 03: Responsible causes of soil pollution in the Hakaluki haor area

About 30% respondents said that soil of the haor area is polluted by the use of fertilizers and pesticides. Only 1.2% respondents mentioned about the same crop cultivation in every year.

Arsenic Contamination in the Area

Respondents of the haor area collect their drinking water from various sources. From the surveyed data, it is observed that almost all respondents drink ground water through tube-well. A minor portions (only 0.6%) collect water from other sources i.e. pond, canal, rivers etc. But there is found the problem of arsenic in the ground water.



Source: Field survey, 2014.

Figure 04: Status of arsenic contamination in the ground water.

About 31.2% respondents agreed that there is arsenic contamination in the ground water but maximum peoples (54.1%) said there is no contamination in the ground water. Only 14.7% told that the tube wells are not yet tested.

Discussion

This study is helpful for finding the environmental characteristics of the Hakaluki Haor areas and to find out the relationship with pollutions and others problem. How environment is being changed by the pollution and effect on agriculture and fisheries sector are the discussion issues of this study.

Impact on Fish Production and Agricultural Sector in Hakaluki Haor

During FGD conduction it tried to receive about fish production. Most of the people say fish production is decreasing. Analyzing the data from

questionnaire survey it observed that about 93.5% respondents stressed on reduction of fish production. Out of 93.5% opinion, 42.9% and 50.6% respondents checked in on the questions button Decreased and Highly Decreased respectively.

Recently fish production in the Hakaluki haor is highly affected by many direct and indirect parameters. Some causes are identified according to the answer of the respondents of the haor area. These causes are shown by the following fig-4.0 (Table No: 29).



Source: Field survey, 2014.

Figure-05: Major causes of reduction of fish production

From the above figure, it is seen that maximum respondents (67.6%) mention about the use of illegal net and only 1.2% mention about water pollution. Inhabitants of the study area in the past could easily support their livelihoods by fishing around their villages in the wetter season (Mid June-mid October). But decrease of fish production created many problems for the local people. According to the respondents, decrease of fish productioning created the changes in occupation, reduce employment opportunity, increase unemployment rate and reduce income.

Due to occupational change, social status, environmental condition and lack of opportunities, the pattern of agricultural activities e.g. animal husbandry in Haor area is changed. But in the past, Haor regions had also been used as winter fattering area for cattle and provided animals fodder. Now changes take place and these changes or types of changes are collected during the field work. In haor area the pattern of animal husbandry has been changed and about 85.3% respondents told that cattle's bearing is decreased than before. Only 2.9% respondent's view is no change in the animal husbandry pattern.
Traditionally, they have been using the fallow areas and open spaces between rice paddies and beels for grazing animals. But it becomes difficult to the peoples to bear animals due to many problems or causes.

Table-03:	Causes	of	changes	in	Animal	husbandry	pattern	due	to
environmen	ntal chang	ges							

Causes of increase	Percent (%)	Causes of decrease	Percent
			(%)
NA(Not Applicable)	89.4	NA	17.1
Available Fodder During Dry Season	10.6	Shortage Fodder	65.3
Total	100.0	Increase Price of Cattle	8.8
		Modern Ploughing	8.8
		system	
		Total	100.0

Source: Field survey, 2014

According to the table, it is seen that 10.6% peoples mention getting fodder in dry season as the cause of increasing cattle bearing in the haor area. But maximum about 65.3% respondents said that animal husbandry pattern is decreased due to Shortage of fodder. Many other causes are also responsible for the decrease of cattle bearing in the haor area.

Concluding Remarks

This process of rapid degradation is also having devastating consequences on the many communities living in, around, and downstream of Hakaluki Haor who have for generations depended upon the vital functions, services, and benefits this wetland has provided. The environmental problems such as water and soil pollution effect adverse negative impact on the ecosystem of Hakaluki haor. People those who lead their livelihood depend on Hakaluki haor can be threaded for another social problems. Proper management can incur the system.

Acknowledgement

The article has received help from the report of fourth year named Haor Dependency and Disaster Management: A case study of Hakaluki Haor. At first, we would like to extent our honor to honorable teacher Dr. Md. Maksudur Rahman, Professor; Dept of Geography and Environmental Studies, Dhaka University and Md. Mahbub Murshed; Assistant professor, Dept. of Geography and Environmental Studies, University of Chittagong for their valuable Suggestions and co-operation and staff of the department of geography and environmental studies, university of Chittagong for their support. we also like to express my thanks to all of my friends who contributed a lot.

Reference

Nishat, A, Hussain, Z, Roy, MK and Karim, A 1993, *Freshwater Wetlands in Bangladesh: Issues and Approaches for Management*, IUCN-The World Conservation Union. Dhaka, Bangladesh., pp 55

Akonda, AW 1989, *Wetlands of Bangladesh*, In: Scott D A(ed). A Directory of Asian Wetlands.Worldwide Fund for nature, The Conservation Union, International Council for Bird preservation, International waterfowl and wetlands research Bureau.

Anon 1985, Haor Development Reconnaissance Study: Early Implementation projects, *Working Paper, Bangladesh Water Development Board*, Dhaka, p 55

Chowdhury, MI 1977, *Optimization of benefits from the Haors of Sylhet and Mymensingh, An analysis of LANDSAT Data, Dept. of Geography, Jahangirnagar University, Dhaka, p 66*

CNRS 2000, Biophysical and Socioeconomic Characterization of Hakaluki Haor: Step Towards Building Community Consensus on Sustainable Wetland Resource Management, Centre for Natural Resources Studies, Dhaka, Bangladesh

Hughes, R 1992, The Wetlands of the Haor Basins of Sylhet and Mymensingh and the potential impacts of the Second Agricultural Development project, *A Review Study, Asian Wetland Bureau*, pp.21.

Kabir, MH. and Amin, SMN 2007, *Tanguar Haor- A Diversified Freshwater Wetland*, Academic Press and Publishers Library, Dhaka, Bangladesh, pp 55 Banglapedia 2008, Haor Management of Bangladesh, Asiatic Society of Bangladesh, Dhaka, Bangladesh.

Challenges and further Improvement of Emergency Response System in Bangladesh: A Case Study on Ramu, Cox's Bazar Flood in 2015

G.M. Saiful Islam* and Md. Abdus Sabur **

Abstract

Bangladesh is likely to be among the countries that are the worst affected by climate change. Climate change refers to the changes in climatic elements behavior, due to natural variability and human activity. UNDP has identified Bangladesh to be the most vulnerable country in the world to tropical cyclones and the sixth most vulnerable country to floods. Continuous rainfall in the middle of the year 2015 inundated the maximum area of Ramu upazila under Cox's Bazar district, Bangladesh. Along with the sudden overflow of the water, the hasty water flow from the hilly region washed out numerous houses, cattle, people, crops, trees etc. At the same time the infrastructural damages and availability of adequate transport for evacuation during the incident period totally massacred the social and economic life of the population of both those region and it turned into a disaster. Study on emergency response in flood finds out the challenges during emergency response of a disaster. The study aims to identify the community level challenges during Ramu flood in 2015 and identify the social, economic and physical challenges during emergency response in Ramu flood in 2015. The findings represent a combination of the analysis of the primary data from the field level community group discussions, incorporation of available secondary data and official figures from the Government of Bangladesh Department of Disaster Management. Overall, this study intends to construct a future checklist for further improvement of the emergency response technique during flood and also to overcome the most faced challenges.

Key Words: Climate Change, Emergency Response System, Flood

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Introduction

According to the Third Assessment Report of IPCC, South Asia is the most vulnerable region of the world to climate change impacts (McCarthy et.al, 2001). The international community also recognizes that Bangladesh ranks high in the list of most vulnerable countries on earth. Bangladesh's high vulnerability to climate change is due to a number of hydro-geological and socio-economic factors that include: (a) its geographical location in South Asia; (b) its flat deltaic topography with very low elevation; (c) its extreme climate variability that is governed by monsoon and which results in acute water distribution over space and time; (d) its high population density and poverty incidence; and (e) its majority of population being dependent on crop agriculture which is highly influenced by climate variability and change. Bangladesh is situated in the south Asian sub-continent. Because of its unique geographical location and topography, it is one of the most floodprone countries in the world. Approximately 20 to 25% of Bangladesh's territory is inundated during the monsoon season. Such flooding provides fertile agricultural land and the floodplains in the country are densely populated and intensely utilized. On the other hand, at least 50 to 70% of the country's territory is exposed to intermittent extreme flooding that has farreaching negative impacts on the national economy.

Excessive rains from 23-30 June, 2015 caused flash floods in the southeastern region of Bangladesh. According to the Disaster Management Information Center of the Ministry of Disaster Management and Relief, the three districts, namely Cox's Bazar, Chittagong and Bandarban, are affected. In total, 131 unions experienced floods, directly affecting 276,250 families, with 25 percent of the houses fully damaged. A total of 371.5 kilometers of road were inundated and damaged due to flooding, while 5,310 acre of crops has been fully destroyed.

Continuous rainfall inundated the maximum area of Ramu upazila under Cox's Bazar district. During this time Bakkhali river was flowing over its danger level and the rainfall was also above from the general situation. Along with the sudden overflow of the water, the hasty water flow from the hilly region totally smashed the area. This event washed out numerous houses, cattle, people, crops, trees etc. at the same time the infrastructural damages and availability of adequate transport for evacuation during the incident period totally massacred the social and economic life of the population of both those region and it turned into a disaster.

Scope and time-frame of emergency response depends on the: magnitude and impact of the flood, capacities and resources of the affected population and the organizational structures in place, Issuance of and adherence to flood warning, existing emergency preparedness plans, coordination and integration of emergency response organizations. Heavy rainfall hit Bangladesh on 23 June 2015, causes flooding. The south-eastern districts of Cox's Bazar was worst affected by the flood. Government information identifies Ramu Upazila, as one of the 29 worst affected upazilas in the flood of June-July 2015.

The Objectives of Study were to identify the community level challenges during Ramu flood in 2015 and Identify the social, economic and physical challenges during emergency response in Ramu flood in 2015

Methodology

The report is designed to provide a picture of how people are impacted by the disaster and the challenges faced during emergency response by different GO and NGOs. To identify the overall picture of the affected community, a purposive sampling was conducted to three (3) selected communities in Ramu. In each community, one community group discussion was conducted at each site, with male and female participants. Informant Interview was made with respondents from NGOs, supported during the flood. While the government information provides the quantitative picture of the scope of the disaster including how many people are affected. The findings in this report represent a combination of the analysis of the primary data from the field level community group discussions, incorporation of available secondary data (both pre- and in- disaster sources) and official figures from the Government of Bangladesh Department of Disaster Management.

Impact of Ramu Flood

This flood was devastating which totally disrupted the socio-economic life of the population. It wiped out the acres of crop field, fish hatchery, damaged roads, culverts, houses, broke down the sanitation system and most importantly it created scarcity of fresh & pure drinking water. Seven people in Ramu died during this event.



Source: DMIC, CDMP, YEAR Map 01: Affected household by flood 2015

In Cox's Bazar district an estimated 60% to 90% residents have been affected, with Ramu the worst-affected upazilas. At least seven of the deaths occurred in Ramu. Seven out of 11 Unions were badly affected by the flood. The D form circulated on 30 June 2015 of Ramu upazila shows the amount of massive losses and damages.

Table : Damage and need assessment information from Ramu Upazila (D-form)

Name of Upazila	Total No of Union	Total areas	J Affected Population No. of Burle Is Dead		Burled/Burned	No. Of Injury	Affected Families				
1	2	3		4		5	6	7		8	
	Nos	(Sq. Km)	Extreme	Moderate	Partial	Nos	Nos	Nos	Extreme	Moderate	Partial
Chakaria	18 including 1 Pouroshova	411	125,000	150,000	156,763	6	6	120	25,000	30,000	31,352
Ramu	10	302	200,000	100,000	80,000	7	7	20,000	42,125	3,000	2,000

Name of Upazila	No. of Totally Damaged Houses	No of Partially Damaged Houses	Losses o	f Livestock	Lossess of Poultry		Lossess of Crop Land		Partially Damaged Cropland		Losses of Salt Farming		
	9	10		11	1	12	13			14		15	
	Nos	Nos	Nos	Tk	Nos	Tk	Acres	Acres	Acre	Tk		1	
Chakaria	10,500	34,540	100	3,000,000	2,730	660,500			709	11,500,000	•	•	
Ramu	7,000	20,000	27	95,000	66,500	2,890,500	657	56,000,000	150	12,785,000	5	300,000	

Name of	Losse F	s of Shrimp No. of Damaged arming Educational Institute			No. of partially d Educational in	antaged stitute	No. of Damaged Mosque/Temple	Damaged roads (Km)			
Upazila		16	17		18		19	20			
	Acres	TK	school/madrasha	college	school/madrasha	college	No.	Carpeted (Paka)	Tk	Kancha	
Chakaria	30,685	894,193,000	50		100	2	275	02 km	84,150,000	20 km	
Ramu	1,730	40,000,000	59	*	63		300	20 Km	not available	210 Km	

Name of Upazila	Partially o roa	ially damaged Damaged roads Embankment		Partially Damaged Embankment	Loss of Forestry	Loss of Loss of Forestry Electricity and accessories (TK) 24 25	Total Telecommunication means (tk)	Damaged Industries 27		Loss of Fish Hatchery		
	21		22		23		24					26
	Carpeted (Paka)	Kancha	Extremely	Slightly	Km	Thousands	Thousands	Thousands	Nos	Thousands	Nos	Tk (Thousand)
Chakaria	15 km	50 km	4.7 km	10 km	11.1 km		400,000				38	10,147,000
Ramu	70.Km	380 Km	150 Km	70 km	120 km	10,000,000	5,000,000	1,000,000			5	5,000,000

Name of Upazila	Dam	aged Tube v	Ponds/Water reservoir	boat	s/trawlers	Fis	hing net	D Loom	amaged s/handlooms	Others	Remarks	Source of information	
	29			30	31		32		33		34		
	Deep	Shallow	Hand Driven	Nos	Nos	Tk (Thousand)	Nos	Tk (Thousand)	Nos	Tk (Thousand)			D form of
Chakaria	100	3,000	991	6,809	200	500,000	100	2,000,000	2	(Q)	8		Upazila
Ramu	495	352		1,450	2	528	5,000	50,000	8		<u></u>	1 person is still missing	Officer

Source: Upazila Nirbahi Officer Ramu, July 2015

Response By The Government And Other Stakeholders

In disasters the stakeholders include the victims and affected groups, government, NGOs, donor organizations, UN organizations, surrounding communities, private sector companies and international donor governments. The first few hours of the disaster are the most crucial. It is important to recognize that the community provides the first response. Their natural coping mechanisms and capacities enable their survival. People are resilient and have the ability to support each other, drawing on relationship ties and any resources available.

Emergency response comes from a variety of sources and should not be only associated with emergency services and international organizations. The list below states some of the key players involved in emergency response.

- n Affected community
- n Surrounding communities
- n National volunteers from unaffected parts of the country
- n Community-based organizations
- n Local and national government
- n Civil and Military Defense (land, sea, air)
- n Outside NGOs (national or international) and UN agencies
- n Private sector companies
- n Local, national and international Red Cross and Red Crescent Societies

In response to this disaster (Ramu Flood, 2015), the district governments and other relevant stakeholders along with the disaster management committees in district and sub-district levels were being activated. Supporting the distribution of allocated resources, conducting local evacuations and providing damage information through the local governance structure was significantly visible during the emergency response.

- n The Government of Bangladesh has responded in many affected areas with distributions of rice and cash. The Gov's provided assistance was 510 metric ton rice and BDT 2.35 million in Cox's Bazar
- n WFP provided High Energy Biscuits to more than 150,000 people mostly affected by the floods in Cox's Bazar district, in coordination with Government of Bangladesh and in partnership with BDRCS
- n CARE, in partnership with national NGO SARPV, has supplied more than 5,400 households in Cox's Bazar district with wheat, yellow peas, edible oil and water purification tablets
- n Manusher Jonno Foundation, in partnership with SARPV, has supplied

- 160 households in Cox's Bazar district with rice, potato, lentils, oral saline, candles and matches
- n In late June local NGO MUKTI supplied 1,550 families who were living in cyclone shelters in affected areas of Cox's Bazar district with pressed rice and molasses
- n Muslim Aid distributed food item to 2,800 Households and IFRC/BDRCS supported 3800 households with food packages
- n IFRC/BDRCS provided cash grant to 1,000 households, Save the Children has made NFI kits available from its standing stock in country if required, as well as speed boats
- n The Directorate General of Health Services (DGHS) deployed 88 medical teams in the flood affected Upazilas. To complement services, medical teams of Army Medical Core and IOM also provided services with free medicines in the areas
- n WHO distributed a bulk amount of emergency drugs for managing flood related health problems. Water purification tablets, water treatment plants, and hygiene kits are being supplied by DPHE and UNICEF, while BDRCS gas provided around 10,000 people with search and rescue services, first aid, and food.
- n 1,000 flood affected families of Ramu in Cox's bazar got humanitarian relief response from YPSA during flood 2015. Each affected family received a package which includes cash BDT 2000, one aluminum and one plastics jar, two soaps and 10 oral saline packets

Challenges during the Emergency Response in Ramu Flood

Disaster Management is multi-sectoral in nature, which requires involvement and close cooperation of many organizations. Local level disaster management largely depends on certain local organizational response and their coordination mechanism. Especially during disaster, local coordination is recognized as a key component to disaster management. Strong institutional capacity and their coordination mechanism will then lead to a better, more effective disaster management system and ensure stronger community awareness and participation. The rainy weather and the damaged road made severe challenges for emergency response.

Challenges Faced by Community during Emergency

To identify the need assessment of the affected community, a purposive sampling was conducted to three communities in Ramu. In each community, one community group discussion was conducted at each site, with male and female participants. Key findings from the community group discussions include the following:

Nutrition and Food Security

- n Food and commodity shortages occurred because markets were closed during the height of the flooding, Concerns in feeding children less than 2 years was widely reported.
- n Households cannot afford food and basic commodities and they face challenges accessing markets.
- n Negative coping strategies are being reported including eating fewer meals per day, borrowing money at high interest and purchasing food on credit. New loans are also being taken out.

Health and WASH

- n Communities are concerned about health; diarrhea and other health problems such as skin-eye-ear infections and snake-bite are reported as the main concerns
- n Few of the community clinics were damaged or not functional at optimum level due to flood
- n Increase in unprotected water sources for drinking and cooking, open defecation is reported from all types of sites
- n Women report of having no toilet at all almost twice as many times as men. Women also expressed concern over privacy, gender segregation, lighting, security/safety, distance to go to the toilet

Shelter

n Many community groups report shelter as a problem for them. Displaced people cannot return home because houses are uninhabitable

Education

- n Large numbers of people in affected areas during the highest point of the flood experienced severe constraints in movement, and conditions restricted their access to school buildings
- n Significant damage to education materials is preventing children from attending school

Timing of the floods

n The flood occurred during Ramadan. This has resulted in Muslims having reduced access to food and potable water during the evenings where they would normally eat and drink after fasting during the day

Communication

n Due to cut off of the electric as well as the road transportation system, changes in the main source of information have been reported as a result of the flooding with people relying more on word of mouth and information from local leaders and less on television (which was reported as their main source of information before the floods)

Challenges Faced by the Respondents

Flooding disasters can be widespread or localized; therefore flood response operations need to be suited to the specific disaster conditions. Awareness, early warning and preparedness plans enable a more efficient response and should be encouraged for all communities at risk. Without emergency plans the response is prone to being ad hoc and disorganized. The aims of flood emergency response are to: Provide first response to the disaster through saving lives and preventing further losses, contain the disaster and prevent escalation, provide strong leadership and coordination to enable an effective response, ensure decisions taken will be a positive contribution to the recovery and rehabilitation process and link to long-term development planning. During the emergency of Ramu flood, respondents faced the following challenges:

Social Challenges Faced by The Respondents

Conduct Need Assessment

- n Setting out the priority intervention for the target community
- n Rapid need assessment within fragile communication in emergency situation

List Preparation

n Resources were not adequate for the affected population. Hence, the beneficiary list was endorsed from the respective Union Parishad?s chairman or member.

Site Selection for Distribution

- n Before distributing the commodities, it was difficult to identify an easy and accessible place to distribute the commodities having proper transportation facilities both from the respondents and the community.
- n Select the locations with the highest number of severely affected HH
- n Cue management was very crucial part of this distribution process.

Gender Sensitivity and Especial Arrangement for PwD/Lactating Mother

n Women, children and elderly people are always vulnerable during the emergency. It was quiet tough for the respondents to provide a favorable environment for the Person with Disabilities (PwDs), for lactating mothers, elderly people in each distribution point.

Institutional

- n Field level respondents have poor knowledge of emergency options and there were no arrangement for them to get help
- n Coordination between hardware and software delivery was poor due to the badly intervention of local level political leaders and administration.

Economic Challenges Faced by The Respondents

Fund Raising

- n Ensuring access to finance services and ensure financial inclusion
- n Advocacy for external resource mobilization to meet the immediate requirement

Alternative Livelihood

- n Chalk out alternative livelihood to alleviate immediate gap of poverty or insufficient money
- n Provide immediate livelihood support (cash or in kind) to the target community

Food Supply

- n To reach out the target community with sufficient food assistance was pretty challenging due to fragile communication system, limited supply than the required food
- n Lack of local warehouse/stock also delayed the response

- n Provide agricultural support (seeds, inputs or cash for seeds) for immediate cultivation as rehabilitation process was also challenging for the respondents
- n Provide nutritious food for the vulnerable community was challenging for the respondents in terms of different age and food intake behavior of the community people

Shelter

- n A combination of poor communication and lack of flood shelters in southern districts affected by the floods resulted in communities being unable to evacuate for safe shelter.
- n Rebuilt or repair the homestead or damage house right after the flood
- n Inundated people were suffering during the flood, their rescue was big challenge for the respondents

Physical Challenges Faced by The Respondents

Pattern of flood

n The flood occurred in four phases with three to seven days duration. Even the respondents were not prepared for the frequency of the flood. They cause hindrance to emergency response.

Communication

- n Road communication between Cox's Bazar town to Teknaf, Ramu, Edgha and Ramu-Naikhanchori was cut off by flooding.
- n Some locations reported no electricity and mobile network during a few days of flood.
- n Communication, transport infrastructure and flood embankments have been damaged; in some cases, both communication and physical access have been completely cut off by flash floods and debris from landslides
- n Rebuilt or repair the infrastructure (embankment, school, infrastructure) as soon as possible was the most challenging g part of the emergency response

Health

- n Proper management of dead body during the flood
- n Manage the water borne disease with sufficient medicine and oral saline

- n Provide sufficient first aid services for the injured
- n Avail support for the pregnant, lactating mothers and elderly or ill people

Safe Drinking Water and Sanitation

- n Keep the surface water safe from contaminated flood water and saline intrusion
- n Contamination of available water supplies as because the water was full of saline and contaminated as well
- n Fragile sanitation system was pretty challenging to face immediately, which causes water borne diseases.

Recommendations and Priority Interventions

- n Take assistance of the local administration to minimize the chaos, but beneficiary selection should be participatory to make the process clear and transparent
- n Distribution mechanisms should always prioritize the urgent need. People living in temporary conditions along road sides require urgent attention as these locations have poor conditions.
- n Centralized distribution hubs can reduce pressure on available human resources. They can also enhance the likelihood of systematic monitoring and information activities.
- n Women and girls of reproductive age must have access to appropriate materials for absorption and disposal of menstrual blood.
- n Hygiene promoters should advocate for providing private facilities for girls and women to wash themselves, wash and dry underwear and sanitary clothes, and properly dispose of women's sanitary napkins
- n In an emergency, rainwater should be treated in the same way as surface water because of the likelihood of contamination during harvesting
- n Use of plastic bottles as storage and drinking vessels from which water is directly consumed can reduce the risk of disease transmission
- n Bottled water is too expensive to permit supply for all water needs of users. It also entails huge logistical inputs and organization for effective distribution
- n Conventional pit latrines-that use traditional infiltration techniques are never flood proof; other technology options should be explored and used in flood prone areas.
- n Ensuring adequate community and stakeholder consultation within the

emergency planning process

- n Developing an understanding of communities to ensure plans reflect likely community behaviors during floods
- n Building capability within flood emergency planners to understand flood risk information and how to plan for flood emergency response strategies
- n Increased use of remote sensing and aerial technologies to collect realtime flood information to improve situational awareness

Conclusion

Much can be done by emergency managers to address the key challenges and trends assuming appropriate resources are available. Community engagement is required to ensure a stronger partnership is developed between emergency response agencies; and the community. These elements are the keys to building a strong culture of flood resilience in the future.

Since Bangladesh is a small part of a larger hydrodynamic system that comprises several countries in the region, mutual understanding and cooperation among the co-riparian countries will be necessary to formulate any long-term and permanent solutions to the flooding problems like Ramu.

Refrences And Web Links

Agrawala, ST, Ota, AU, Ahmed, J, Smith, A and Aalst, MV 2003, Development and Climate Change in Bangladesh: Focus on Coastal Flooding and the Sunderbans. *Organization for Economic Co-operation and Development (OECD)*, Paris, p 35.

Ahmad, QK and Ahmed, AU 2000, Social Sustainability, Indicators and Climate Change?, In: M. Munasinghe and R. Swart (Eds.), Climate Change and Its linkages with Development, Equity, and Sustainability, *LIFE*, *RIVM and World Bank for IPCC*, Geneva, pp. 95-108.

Ahmed, AU and Mirza, MMQ 2000, Review of Causes and Dimensions of Floods with Particular Reference to Flood ?98: National Perspectives?. In Q.K. Ahmad, A. K. A. Chowdhury, S.H. Imam, M. Sarker, (Eds.) *Perspectives on Flood 1998*, The University Press Limited, Dhaka, pp.142.

Carter, N 1991, *Disaster Management: A Disaster Manager Handbook*, Manila, Asian Development Bank, pp 44

Hofer, T 1998, Floods in Bangladesh: A Highland-Lowland Interaction?,

Institute of Geography, University of Berne, Switzerland, pp. 171.

Hossain, ANH, Akhtar, N 2011, *Bangladesh: Flood Management*, WMO/GWP Associated Programme on Flood Management, Bangladesh Water Development Board, pp 50

Huq, S, Ahmed, AU and Koudstaal, R 1996, Vulnerability of Bangladesh to Climate Change and Sea Level Rise", In: T.E. Downing (Ed.), *Climate Change and World Food Security*, NATO ASI Series, I 37, *Springer-Verlag, Berlin, Hiedelberg*, pp. 347-379.

McCarthy, JJ, Canziani, NA, Leary, DJ, Dokken, LK and White, KS 2001, Climate Change 2001: Impacts, Adaptation. and Vulnerability, *Inter-Governmental Panel on Climate Change (IPCC)*, Work Group II Input to the Third Assessment Report, Cambridge University Press, Cambridge, pp 235

http://www.thedailystar.net/city/unhcr-provides-aid-flood-victims-ramu-108127, retrieved on November 20, 2015

http://newagebd.net/136271/unhcr-provides-survival-assistance-to-ramu-flood- victims/, retrieved on November 20, 2015

http://www.daily-sun.com/arcprint/details/56835/UNHCR-gives-aid-to-Ramu-flood victims/2015-07-07, retrieved on November 20, 2015

http://ypsa.org/2015/09/ypsa-distributes-relief-items-at-ramu-in-coxs-bazar/, retrieved on November 20, 2015

http://reliefweb.int/sites/reliefweb.int/files/resources/SitRep-150628.pdf, retrieved on November 20, 2015

http://reliefweb.int/disaster/fl-2015-000068-bgd, retrieved on November 20, 2015 http://www.bvsde.paho.org/texcom/desastres/washrufl.pdf, retrieved on November 20, 2015

http://web.sbe.hw.ac.uk/frmrc/downloads/FRMRC%20Brochure.pdf, retrieved on November 20, 2015

https://www.oxfam.org/sites/www.oxfam.org/files/bn-pakistan-floodsemergency-16-02-12-en.pdf, retrieved on November 20, 2015

Advocacy for Green Banking

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Abstract

Green banking is a recent concept aimed at sustainable socio-economic development, It has been advocated by international monetary fund, this is to help the climate change affected areas to overcome any sort of fiscal overcome. In the generation of global climate fund the role of banking sector thinking in terms of sustainability based on sound economic growth has much to be reckoned with. It may be a timely prop for the climate victims struggling relentlessly for a bare survival. Of recent the International Monetary Fund (IMF) has stated that "negotiations toward a successor to the Kyoto Protocol are intensifying, and domestic climate policies being formed, ahead of a critical United Nations conference on climate change." The policymakers are very much in favour of sustainable growth to "recover from the deepest economic crisis for decades and, in many cases, also the means to cope with severe fiscal pressures exacerbated by the crisis. The crisis has had major effects on the global economy, but these detract little from the urgent need to combat global warming.

Background

Worst victims in Bangladesh are expected to get formal support from major players in the climate negotiations Bangladesh, which tops a Global Climate Risk Index published during the Copenhagen talks, strongly backs an extension of the Kyoto Protocol, as the only existing binding instrument on emission cuts, rather than creation of an entirely new climate deal. Bangladesh is also urging rich nations to contribute at least US\$100 billion for a global fund to help poor nations adapt to climate change. Britain, meanwhile, is the first country to contribute 75 million pounds for creation of Bangladesh's own multi-donor trust fund for climate change adaptation.

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As it has been observed by Bangladesh Bank Governor "climate change across the globe has already affected acres of arable and forest lands, and also water resources. For protecting the earth where we live, the people across the globe have been united. In this context, the idea of green banking has been initiated."

At times our think tanks have by now placed special emphasis on green banking as the way out to fight climate change. 'This idea is in the nascentstage through the world. In Bangladesh, this concept starts its journey through circulation of policy guidelines by the Bangladesh Bank. Banks should set environmental standards for lending and disburse loans to environmental project at a lower interest rate compared to traditional banks.

Discussion

Now all commercial banks have been instructed to to set up solar power plants in all offices to meet increasing demand for power. Step has been taken to distribute loans for building bio-gas plant in Gazipur, Savar, Manikganj, Tangail, Rajshahi, Natore and Sirajganj. The Bangladesh Bank now thinks to of wide ranging initiatives to introduce paperless banking facilities considering negative impacts of climate change. As a part of it 'online reporting , e-banking, e-commerce, , online CIB, automatic clearing house, mobile banking, national payment switch, e-tendering, and erecruiting have been initiated at all commercial banks of the country.'

The experts think that all banks in Bangladesh, public, private and specialized banks (agricultural bank for example), should come forward to take the initiative for a number of social responsibility services like tree plantation campaign, park development, pollution check up camps and so on. We must feel it obligatory to conduct campaign for green banking to ensure sustainable economic development. All banks and financial institutions may well be advised to encourage investment on green activities intended to minimize the danger of green house effects.

We also think in terms of 'financial and technological assistance to the developing countries for climate change mitigation and adaptation.' The thing to be done on urgent basis is financing 'mitigation projects in both the developed and developing countries.' Besides there will be a volley of prescriptive measures such as' cap and- trade, clean development

mechanism, and harmonized domestic carbon taxes'. 'A proportion of the proceeds from their fossil fuel trade should be used to pay for the damage caused by global warming. Carbon emissions generated by fossil fuels contribute to 76 per cent of global warming. Such a tax would be an incentive for the suppliers to invest more and be more innovative in clean energy

In general, conventional banks are based on security and profitability, and as such they are reluctant to broaden the scope of their external ethical policies. Now the theme has changed because of international propaganda on green banking activities. Especially the Islamic banks and financial institutions introduced and rendered green banking system and CSR activities in a big way. Green banks must abide by ethical obligations which require an objective way to determine ethical values by exploring their responsibilities towards mankind. Banks should change their behaviour in line with socioeconomic situations, improving environmental conditions in their own arena.

Some important features of green banking operations are as follows:

- * Banks can help environment through automation and online banking.
- * Green banking focuses on social safety and security through changing the negative impacts of the society
- * In financing, it always gives priority to investments /loans which consider risk factors regarding environmental conditions.
- * It always cares for sustainable and green growth in industrialisation and for social purposes.
- * It creates a congenial atmosphere inside and outside the bank.
- * It considers the clients as its family members, and as such, guide and supervise the projects to reduce pollution and thus implement scientific methods in the real sense by implementing environmental due diligence (EDD) checklist.
- * It reduces cost and energy, thus saving money and increasing GDP of a country.
- * It changes the mental faculties of the officials and customers, in line with green sensibilities.
- * It helps institutions, men and the nation in general live with dignity.

The bank will ensure prevention of carbon footprint, environmental pollution and global adversities within its jurisdiction.

- v Banks may play a pivotal role by reducing and prohibiting credit risk against unethical activities by unruly industrialist of the country.
- v By creating a congenial atmosphere, it helps acceptance of the international area in the socio-economic one.
- v It helps green plantation and reduces pollution throughout the country.
- v Due to IT support in all respects, it significantly reduces mass gathering, energy and cost-related adversities.
- v Since extraordinary cost is reduced, it offers less cost fund to its customers, the effects of which include least income-generating profile.
- v It increases the credibility of the employees and thus improves the environmental situation with more hopes and aspirations.
- v It enhances productivity within the office and invested projects due to check and balance.
- v Owing to its activities, many people may enjoy better life due to ecofriendly equipment and environment.
- v It creates mass awareness regarding healthcare, environment and pollution.

Scopes of the Green Banking

- All the branches of the banks may prepare a list of their goods, furniture fixture etc. to arrange or keep the important commodities and reject the unnecessary goods / things and thus clean up the branch with better setup and get-up.
- Power, gas and water use and all other day-to-day activities ought to be cautiously carried out.
- v Banks may introduce all sorts of IT-based online services to its customers to reduce hazards and huge rush inside their premises.
- v Banks may offer higher rates of profit to the depositors if they opt to conduct their banking activities only through online services.
- Green banks think about environment, especially climate changes, natural calamities and pollution. As such many scopes to establish eco-friendly industries and pro- environment projects are created.
- All the industrial units under their command should be advised to complete BMRE if required, and establishment/ installation of Effluent Treatment Plants (ETPs) at their industrial units.
- Implementation of the solar energy programme is a must. It will help the banks in the projects of electrification of schools, houses, hospitals and other places.

* Banks may help the organisations dealing with environment in establishing special projects or resisting the anti-environment elements and conserving the resources.

An expert commented:' Green banking considers social factors with environmental aspects. It has already started working well in the developed countries. Fundamentally, green banking keeps away from as much paper work as possible and relies on electronic transactions for processing. Green banks adopt and implement environmental standards for lending. The interest of loan of green banks is comparatively less with those from normal banks. Natural resources conservation is an underlying principle here in assessing capital and operating loans to extracting and industrial business sector. In other words, green banking refers to the attempt of the banking sector to consider social, ecological and environmental factors with an aim to protect the environment. In Bangladesh Bank's Recent Reform Initiatives, it has been written that green banking products are those that help create a favourable impact on environment. From green banking operations four key stakeholders namely customers, management, employees and shareholders can be benefited'

For the implementation of green banking in Bangladesh 'scheduled banks must follow the policy guideline issued by the Bangladesh Bank. Specific deadline should be followed mentioned in the policy guidelines for implementing green banking projects/sub-projects.

References

Mashreque MS, 2013. Green banking to combat climate change , The Daily New Nation, 12th February, 2013

আশাবাদের প্যারিস চুক্তি এবং আমাদের করণীয়

মিজানুর রহমান বিজয় *

ভূমিক ঃ

গত ডিসেম্বর প্যারিস চুক্তির খসড়ায় বিশ্বের ১৯৫টি দেশ একমত হওয়ার পরে গত ২২ এপ্রিল ২০১৬. তারিখটি বিশ্ব জলবায় আলোচনার ইতিহাসে নি:সন্দেহে গুরুত্বপূর্ণ হিসেবে বিবেচিত হবে। বিশ্ব ধরিত্রী দিবসের এই দিনে নিউইয়র্ক এ জাতিসঞ্জের সদর দপ্তরে আয়োজিত এক আড়ম্বরপূর্ণ অনুষ্ঠানে 'প্যারিস চুক্তি'র আনুষ্ঠানিক স্বাক্ষর দান অনুষ্ঠান সম্পন্ন হয়। জাতিসজ্ঞের মহাসচিব বান কি মুনের উপস্থিতিতে প্রথম দিনেই বিশ্বের ১৭৪টি দেশ এবং ইউরোপীয় ইউনিয়ন এর প্রতিনিধিরা এই চুক্তিতে আনুষ্ঠানিকভাবে স্বাক্ষর দান করেছেন। প্যারিস চুক্তির ২০ নং অনুচ্ছেদের ১ নং প্যারা অনুযায়ী এই স্বাক্ষরদান কার্যক্রম আগামী ২০১৭ এর ২১ এপ্রিল পর্যন্ত উন্মুক্ত থাকবে। তালিকায় প্রথম স্বাক্ষর করেন প্যারিস সম্মেলনের আয়োজক ফ্রান্স এর রাষ্ট্রপতি ফ্রাসোঁয়া ওলাদ। বর্তমান বিশ্বে কার্বন নির্গমনে এক নম্বর অবস্থানে থাকা চিন এর পক্ষে সে দেশের ডেপুটি প্রাইম মিনিস্টার জ্যাং গাওলি (Zhang Gaoli), কার্বন নির্গমনে দুই নম্বর অবস্থানে থাকা মার্কিন যুক্তরাষ্ট্রের পক্ষে পররাষ্ট্রমন্ত্রী জন কেরি এবং তিন নম্বর অবস্থানে থাকা ভারতের পক্ষে চুক্তিতে স্বাক্ষর করেছেন পরিবেশ, বন ও জলবায়ু বিষয়কমন্ত্রী প্রকাশ যভদেকার। বাংলাদেশের পক্ষে পরিবেশ ও বনমন্ত্রী জনাব আনোয়ার হোসেন মঞ্জ এই চুক্তিতে স্বাক্ষর করেছেন। এই চুক্তিতে ৩১টি দেশের রাষ্ট্রপ্রধান, ২৪ জন সরকারপ্রধান এবং ২৯ জন পররাষ্ট্রমন্ত্রী পর্যায়ের স্বাক্ষরদাতা স্ব-স্ব দেশের পক্ষে স্বাক্ষর করেছেন। তবে এখন রাষ্ট্রগুলোকে নিজ নিজ জাতীয় আইন অনুযায়ী চুক্তিটিকে 'অনুমোদন' (ratify) করার উদ্যোগ নিতে হবে। প্যারিস চুক্তির ২১ নং অনুচ্ছেদের ১ নং প্যারা অনুযায়ী চুক্তিটিকে কার্যকর করতে দুটি সমান্তরাল শর্ত পূরণ করতে হবে। প্রথমত চুক্তিতে কমপক্ষে ৫৫টি দেশ কর্তৃক অনুমোদিত হবে এবং দ্বিতীয়ত অনুমোদনকারী দেশগুলোর সম্মিলিত নির্গমনের পরিমান বিশ্বের মোট নির্গমনের কমপক্ষে ৫৫ শতাংশের বেশি হতে হবে। এই দুটি শর্তপুরণের ৩০তম দিন থেকে প্যারিস চুক্তি আন্তর্জাতিক আইন হিসেবে গণ্য হবে। আর ২০২০ সাল থেকে তা কার্যকরী (entry into force) হবে বলে আশাকরা হচ্ছে। অবশ্য এখন পর্যন্ত (২৯ এপ্রিল ২০১৬) যে ১৬টি দেশ প্যারিস চুক্তিকে 'অনুমোদন' করেছে তাদের সম্মিলিত নির্গমন ব্রাসের পরিমাণ খুবই নগন্য (মাত্র ০.০৩%)।^[১]

[১] কোঅর্ডিনেটর- নেটওয়ার্ক অন ক্লাইমেট চেঞ্জ,বাংলাদেশ (এনসিসি'বি) ট্রাস্ট, Email:bijoyrahmanbd@gmail.com

http://unfccc.int/paris_agreement/items/9444.php

এ কারণে এই চুক্তিকে আইনে পরিণত করতে প্রধান কার্বন নিগর্মনকারী কমপক্ষে ৩টি দেশকে প্যারিস চুক্তি নিজ নিজ দেশের আইনী প্রক্রিয়ায় অনুমোদন করতে হবে।

উল্লেখ্য যে, বিশ্বের এই ছয়টি দেশ চিন (৩০%), মার্কিন যুক্তরাষ্ট্র (১৫%), ইউরোপীয় ইউনিয়ন (৯.৬%), ভারত (৬.৬%), রাশিয়ান ফেডারেশন (৫%) এবং জাপান (৩.৬%) বিশ্বের মোট কার্বন নির্গমনের প্রায় ৭০ শতাংশ করে থাকে।^[২] অবশ্য প্রধান নির্গমনকারী চিন আগামী সেপ্টেম্বর মাসের মধ্যেই এই চুক্তিকে অনুমোদন দেবে বলে ঘোষনা দিয়েছে। ^[৩] মার্কিন যুক্তরাষ্ট্রের অবস্থাটা একটু অনিশ্চিত। কংগ্রেসকে পাশ কাটিয়ে প্রেসিডেন্ট বারাক ওবামা এই চুক্তিকে কিভাবে নির্বাহী ক্ষমতা বলে অনুমোদন করেন তা এখন দেখার বিষয়। তবে আশাকরা যায় যে, চুক্তির পক্ষে বিশ্বব্যাপী সমর্থন বৃদ্ধি পেতে থাকলে মার্কিন জনমতেও তার প্রভাবে পড়বে এবং প্যারিস চুক্তি হয়তো কিয়োটোর ভাগ্যবরণ করবে না।

দীর্ঘ প্রত্যাশার প্যারিস চুক্তি

বহু চরাই-উৎরাই পেরিয়ে গত ১২ ডিসেম্বর ২০১৫ ফ্রান্সের রাজধানী প্যারিসে বিশ্ব জলবায়ু আলোচনার বহু প্রতিক্ষিত 'প্যারিস চুক্তি' প্রণীত হয়। ১৯৯২ সালের 'জাতিসঙ্ঘের জলবায়ু বিষয়ক কনভেনশন' (UNFCCC)^[8] গৃহীত হওয়ার পরে এই প্রথম বিশ্বের সকল দেশ একটি ন্যূনতম ঐক্যমত্যে পৌঁছেছে। তবে ১৯৯৭ সালে প্রণীত 'কিয়োটো প্রটোকলে'র সঙ্গে 'প্যারিস চুক্তি'র বেশকিছু পার্থক্য থাকায় তা বিতর্কের সূত্রপাত করেছে।

উলে- খ্য যে, কিয়োটো প্রটোকলের ২০০৮-১২ সালের প্রথম পর্যায়ে বৈশ্বিক মোট কার্বন নির্গমনের ৫.২ শতাংশ হ্রাস করার একটি বৈশ্বিক টার্গেট নির্ধারণ করা হয়েছিল; যা আবার ৩৭টি রাষ্ট্রপক্ষের মাঝে 'টপ-ডাউন' পদ্ধতিতে ভাগ করে দেওয়া হয়েছিল। আর এবার 'বটম-আপ' পন্থা অনুসরণ করে প্যারিস সম্মেলনের আগেই রাষ্ট্রপক্ষকে নিজ নিজ প্রশমন টার্গেট ঘোষণার জন্যে সময় বেঁধে দেওয়া হয়েছিল। সব রাষ্ট্রপক্ষকে একটি আন্তর্জাতিক চুক্তিতে আবদ্ধ করতে এই চুক্তির ভিত্তি হিসেবে রাষ্ট্রপক্ষের স্বেচ্ছা-সম্মতিরভিত্তিতে প্রনীত 'INDC' (Intended nationay Determine Contribution)^[৫]

[[]x] http://edgar.jrc.ec.europa.eu/news_docs/jrc-2015-trends-in-global-co2-emissions-2015-report-98184.pdf

[[]৩] http://article.wn.com/view/2016/04/22/China to_ratify Paris_Agreement_before_September/ [8] ইউনাইটেড নেশনস্ ফ্রেমওয়ার্ক অন ক্লাইমেট চেঞ্জ (ইউএনএফসিসি) হচ্ছে ১৯৯২ সালে রিও ডি জেনিরোতে অনুষ্ঠিত 'ধরিত্রী সম্মেলন' (Earth Summit) এ স্বাক্ষরিত আন্তর্জাতিক পরিবেশ চুক্তি, যা ১৯৯৪ সালের ২১ মার্চ থেকে কার্যকরী হয়েছে (https://www. google.com.bd/#q=unfccc)।

[[]৫] INDC: Intended Nationally Determined Contributions হচ্ছে ২০২০ সাল পরবর্তী প্রত্যেক রাষ্ট্রের স্ব-স্ব প্রশমন ও অভিযোজন অঙ্গীকার। বর্তমানে এর নাম পাল্টে 'Nationally Determined Contributions (NDCs)' রাখা হয়েছে। এখানে শর্তহীন ও শর্তযুক্ত দুই ধরনের অঙ্গীকার রয়েছে। যেমন বাংলাদেশ শর্তহীনভাবে (unconditional) ২০৩০ সাল নাগাদ বিদ্যুৎ উৎপাদন, পরিবহন ও শিল্প-কারখানা খাত থেকে কমপক্ষে ৫ শতাংশ ঘিনহাউস গ্যাস প্রশমনের অঙ্গীকার করেছে। তবে আন্ডর্জাতিক ভাবে পর্যাপ্ত বিনিয়োগ, প্রযুক্তি উন্নয়ন ও প্রয়োজনীয় অন্যান্য সহায়তা পেলে বাংলাদেশ এই নির্গমন ব্রাস ১৫ শতংশ পর্যন্ত বৃদ্ধি করবে। সহায়তা প্রাপ্তির ওপর নির্ভর করে নির্ধারিত টার্গেটটি শর্তযুক্ত (conditional) অঙ্গীকার হিসেবে পরিচিত।

বা জলবায়ু পরিবর্তন মোকাবেলায় ২০২০ সাল পরবর্তী সময়ে স্ব-স্ব রাষ্ট্রপক্ষের নির্ধারিত অবদানকে মেনে নেওয়া হয়েছিল। এই 'আইএনডিসি'র প্রধান বিবেচ্য বিষয় কার্বন প্রশমন হলেও এখানে অভিযোজন পরিকল্পনা, জলবায়ু অর্থায়নের অঙ্গীকার, প্রযুক্তি উন্নয়ন ও হস্তান্তর ও সক্ষমতা উন্নয়নের মতো বিষয়গুলোও অন্তর্ভূক্ত রয়েছে। আর এই 'বটম-আপ' দলিলের সবচেয়ে গুরুত্বপূর্ণ বিষয় হচ্ছে যে, তা ১৯৯৭ সালের প্রণীত 'কিয়োটো চুক্তি' তে 'এনেক্স-বি'^[৬] (উন্নত দেশসমূহ) ও 'নন এনেক্স-এক' (উন্নয়নশীল দেশসমূহ)^{19]} এর দায়-দায়িত্ব পালনে যে পার্থক্য করা হয়েছিল এবার এই 'প্যারিস চুক্তি' সেই পার্থক্য মুছে দিয়েছে।

তবে সম্মেলন চলাকালে পুরোটা সময় জুড়ে ২০০৯ সালের কোপেনহেগেন সম্মেলনের ব্যর্থতার স্মৃতি বারবার উঁকি দিচ্ছিল। বিশেষ করে ১০ ডিসেম্বর নাগাদ সম্মেলন স্থল 'লা বুর্জে' হতাশার সূর ছড়িয়ে পড়েছিল। তারপরেও আয়োজক ফ্রান্সের কূটনৈতিক দক্ষতায় শেষ পর্যস্ড দুই প্রধান কার্বন নির্গমনকারী দেশ চিন এবং মার্কিন যুক্তরাষ্ট্রের মধ্যে আপোষরফা হয় এবং অন্যরা পুরোপুরি সন্তুষ্ট হতে না পারলেও শেষ পর্যন্ত চুক্তিতে সম্মতি প্রকাশ করে। এ ক্ষেত্রে তৎকালীন ফারাসি পররাষ্ট্র মন্ত্রী লরেঙ্গ ফেবিয়াস (যিনি ১৯৮৪-৮৬ সালে প্রায় ২০মাস ফ্রান্সের প্রধানমন্ত্রীও ছিলেন) এর কূটনৈতিক নৈপূণ্য বিশেষ ধন্যবাদের দাবী রাখে।

চুক্তির পক্ষে-বিপক্ষে অবস্থান নিয়ে গবেষক, বিশ্লেষক এবং নীতিনির্ধারণী মহলে যথেষ্ট বিতর্ক থাকলেও এই চুক্তি এই প্রথমবারের মতো পরস্পর বিপরীতমূখী স্বার্থ-সংশ্লিষ্ট ১৯৫টি পক্ষকে একটি ন্যূনতম সমঝোতায় আনতে পেরেছে, যা একটি বড় অর্জন।

চুক্তির ইতিবাচক দিকসমূহ

সকল মানবীয় অধিকারের স্বীকৃতি: জলবায়ূ পরিবর্তনকে মানবজাতির জন্য একটি সর্বজনীন উদ্বেগের বিষয় হিসেবে গণ্য করে প্যারিস চুক্তির মুখবন্ধে (preamble) মানব ইতিহাসের সর্বোত্তম অর্জন ও ধারণাগুলোকে মান্য করে জলবায়ু পরিবর্তন সংক্রান্ত কার্যক্রম গ্রহণের সময় পার্টিসমূহকে টেকসই উন্নয়ন ও দারিদ্র বিমোচনের ন্যায়সঙ্গত অভিগম্যতা;

[[]৬] 'এনেক্স-বি' দেশসমূহ কিয়োটো প্রটোকলে উলে- খিত টার্গেট অনুযায়ী নির্গমন ব্রাসে সম্মত হয়েছিল। জলবায়ু কনভেনশননের 'এনেক্স-এক' ভুক্ত দেশসমূহ (তুরস্ক এবং বেলোর^কশ বাদে) এই তালিকায় রয়েছে। অতিমাত্রায় যিনহাউস গ্যাস নির্গমন করে বৈশ্বিক তাপমাত্র বৃদ্ধির জন্যে দায়ী এই 'এনেক্স-এক' ভুক্ত দেশগুলোর মধ্যে শিল্পায়িত ও উন্নত দেশসমূহ সহ পূর্ব ইউরোপের দেশগুলো ছিল (source:https://www.ipcc.ch/pdf/glossary/ ar4-wg3.pdf)। ৭] 'ননএনেক্স-এক' দেশসমূহ হচ্ছে নক্ষইয়ের দশকের উন্নয়নশীল ও স্বল্লোরত দেশ, যারা কিয়োটো প্রটোকলের বাধ্যতামূলক প্রশন্ধন দেশগুলে ছিল (source:https://www.ipcc.ch/pdf/glossary/ ar4-wg3.pdf)। ৭] 'ননএনেক্স-এক' দেশসমূহ হচ্ছে নক্ষইয়ের দশকের উন্নয়নশীল ও স্বল্লোর দেশ, যারা কিয়োটো প্রটোকলের বাধ্যতামূলক প্রশমন দায়িত্ব থেকে রেহাই পেয়েছিল। এই তালিকায় জলবায়ু পরিবর্তনে সর্বাধিক বিপন্ন দেশগুলোর পাশাপাশি বেশ কিছু উন্নয়নশীল দেশ ছিল যারা জীবাশ্ম জ্বালানি উন্তোলন ও বাণিজ্যের ওপর খুবই নির্ভরশীল। এ কারণে এই তালিকায় বাংলাদেশ, টুভালু, মালম্বিপের মতো জলবায়ু বিপন্ন দেশগুলোর পাশাপাশি নৌদী আরব, সংযুক্ত আরব আমিরাত বা কাতার এর মতো তেল নির্ভর অর্থনীতির দেশগুলো সহ চিন, সাউথ আফ্রিকা, দক্ষি কেরিয়া, ব্রাজিল, ভারত, মেব্রিকো প্রভৃতি অগ্রসর উন্নয়নশীল দেশগুলোও ছিল (http://unfccc.int/parties_and_observers/items/ 2704.php)।

খাদ্য নিরাপত্তাকে সুরক্ষিত রাখা, ক্ষুধা নির্মূল এবং খাদ্য উৎপাদন ব্যবস্থার বিশেষ বিপদাপন্নতাকে অগ্রাধিকার দান; জনশক্তির ন্যায্য রূপান্দ্র, উপযুক্ত এবং মানসন্মত কাজের ব্যবস্থা; মানবাধিকার, সুস্বাস্থ্যের অধিকার, আদিবাসীদের (indigenous peoples) অধিকার, স্থানীয় জনগোষ্ঠী, অভিবাসী (migrants), শিশু, ঐতিবন্ধি, বিপদাপনু মানুষ এবং উন্নয়নের অধিকার এর সঙ্গে জেন্ডার সমতা ও নারীর ক্ষমতায়ন এবং আন্ত:প্রজন্মের সাম্যতা (intergenerational equity) প্রভৃতি বিষয় মান্য করা, এগিয়ে নিয়ে যাওয়া ও বিবেচনায় রাখা; ইকোসিস্টেম (ecosystems) সমন্বয়ের ওপর গুরুত্বারোপ; জীববৈচিত্র্য সংরক্ষণসহ 'মাদার আর্থ' (Mother Earth) কিছু 'কালচার' কে স্বীকৃতি দেওয়া এবং জলবায়ু ন্যয্যতার (climate justice) মতো ধারণাকে গুরুত্ব প্রদান; শিক্ষা প্রশিক্ষণ, জনসচেতনতা, জনঅংশগ্রহণ, তথ্যে জনগণের অধিগম্যতার গুরুত্বকে সুদৃঢ় করা; সরকারের সকল পর্যায়ের এবং বিভিন্ন অংশগ্রহণকারীর সংশি- ষ্টতার ওপর গুরুত্ব দেওয়ার পাশপাশি টেকসই জীবন-যাপন ব্যবস্থা (sustainable lifestyles) এবং টেকসই উৎপাদন এবং ভোগের ক্ষেত্রে উন্নত দেশগুলোর নেতৃত্ব গ্রহণ এবং সকল দেশের গুরুত্বপূর্ণ ভুমিকা পালনের ওপর গুরুত্বারোপ করছে। উল্লেখ্য যে, এবারই প্রথম আদিবাসীদের অধিকার, স্থানীয় জনগোষ্ঠী, মাইগ্রান্ট ও ইন্টারজেনারেশনাল ইক্যুইটির মতো বিষয়গুলো আনুষ্ঠানিকভাবে অন্তর্ভুক্ত হয়েছে।

সমঝোতা মূলক চুক্তি: জলবায়ু আলোচনার ১৯৫ টি রাষ্ট্রপক্ষের এই বিশাল সমাবেশকে নূন্যতম কয়েকটি ইস্যুতে একমত করা অত্যল্ড দূর⁻⁻হ একটি কাজ। কয়লা ও তেল ব্যবসায়ী লবির চাপে মার্কিন যুক্তরাষ্ট্র শেষপর্যল্ড কিয়োটো প্রটোকলে স্বাক্ষর করেনি এবং মার্কিন যুক্তরাষ্ট্র বিহীন কিয়োটো প্রটোকল খুব দূর্বল ভাবে বাস্ড্রায়িত হয়েছে। ২০০৯ এ কোপেনহেগেনে সব পক্ষকে একটি চুক্তিতে রাজি করানো সম্ভব হয়নি। আর প্যারিসে এই প্রথম বার অনেক কিছু ছাড় দিয়ে হলেও সকল পক্ষকে নূন্যতম কতগুলো বিষয়ে একমত করানো সম্ভব হয়েছে, যা একটি ঐতিহাসিক অর্জন হিসেবেই স্বীকৃতি পেয়েছে। তবে এই নূন্যতম ঐকমত্য প্রতিষ্ঠা করতে যেয়ে অনেক ইস্যুতে ছাড় দিতে হয়েছে। তবে এই নূন্যতম ঐকমত্য প্রতিষ্ঠা করতে যেয়ে অনেক ইস্যুতে ছাড় দিতে হয়েছে। উদাহরণ হিসেবে প্যারিস সম্মেলনে আলোচিত বিষয় 'লস এন্ড ড্যামেজ' নিয়ে যে নাটকীয়তা তৈরি হয়েছিল তা উলে- খ করা যেতে পারে। মার্কিন যুক্তরাষ্ট্র ও 'আমব্রেলা গ্র^{-্ল}প' ^[৮] এবং ক্ষুদ্র দ্বীপরাষ্ট্রগুলোর জোট (AOSIS) ^[৯]

[[]৮] আমব্রেলা গ্রুপ হচ্ছে ইউরোপিয়ান গ্রুপের বাইরে থাকা শিল্পায়িত দেশগুলোর একটি 'নমনীয়' জোট। সবসময় নির্দিষ্ট সংখ্যক দেশভিত্তিক না হয়েও এই জোটটি জাতিসজ্ঞের প্রতিটি ফোরামে সক্রিয়। এই জোটে অস্ট্রেলিয়া, কানাডা, যুক্তরাষ্ট্র, রাশিয়া, আইসল্যান্ড, জাপান, নিউজিল্যান্ড, নরওয়ে এবং ইউক্রেন রয়েছে।

[[]৯] AOSIS (Alliance of Small Island States) হচ্ছে একটি সাময়িক লবি গ্রুপ। এরা উন্নয়নশীল ক্ষুদ্র দ্বীপ রাষ্ট্রদের মুখপাত্র হিসেবে, বিশেষ করে তাদের জন্য প্রধান হুমকি সমুদ্রপৃষ্ঠের উচ্চতা বৃদ্ধির বিষয়ে সরব। গ্রুপের ৩৯টি সদস্য রাষ্ট্রের মধ্যে বেশিরভাগই গ্রুপ-৭৭ এবং চায়না জোট এবং স্বল্পোন্নত দেশ ভুক্ত।

ও এলডিসি ^[১০] 'র এর বিপরীতমূখী অবস্থান আলোচনাকে স্থবির করে তুলেছিল। শেষ পর্যন্ত সবপক্ষ কম-বেশি ছাড় দিয়ে 'Win-Win' ফর্মূলার ভিত্তিতে একটি সমঝোতায় উপনীত হতে পেরেছে। এ ক্ষেত্রে কোন কোন পক্ষের প্রাপ্তি কম বা বেশি মনে হলেও চুড়ান্ত বিচারে বৈশ্বিক উষ্ণায়ন ও জলবায়ু পরিবর্তন মোকাবেলায় মানুষের অঙ্গীকারের বিজয় হয়েছে।

কার্বন মুক্ত বিশ্বের ঘোষণা: প্যারিস চুক্তির সবচেয়ে বড় সাফল্য হচ্ছে ভবিষ্যত কার্বন মুক্ত বিশ্বের ঘোষণা। চুক্তির অনুচ্ছেদ-৪, প্যারা-১ এ বলা হয়েছে, এই চুক্তির অন্যতম লক্ষ্য হচ্ছে সমতার (equity) ভিত্তিতে এবং টেকসই উন্নয়ন ও দারিদ্র দূরীকরণের প্রচেষ্টাকে বিবেচনায় রেখে সম্ভাব্য দ্রুততার সঙ্গে গ্রিনহাউস গ্যাস নির্গমন ব্রাসে প্রদক্ষেপ গ্রহণ করে এই শতাব্দির দ্বিতীয় ভাগে গ্রিনহাউস গ্যাস নির্গমন ও অপসারণের মধ্যে একটি ভারসাম্য অর্জন করা যায়। এর মাধ্যমে বিশ্বনেতৃবৃন্দ সম্মিলিতভাবে ঘোষনা দিয়েছেন যে, ফসিল ফুয়েলের (fossile fuel) দিন শেষ, আগামী পৃথিবী আর কার্বন নির্ভর হবে না। ২০৫০ সালের পরের পৃথিবী 'নবায়ণযোগ্য ত্বালানি'র ভিত্তিতে চলবে। ফসিল ফুয়েল আগামী কয়েক দশকের মধ্যেই ইতিহাসের বিষয়ে পরিণত হবে। ফসিল ফুয়েলের ব্যবহার রাতারাতি বন্ধ না হলেও তার একছত্র আধিপত্য শেষ হওয়ার পথে। যারা তেল-কয়লার শক্তিতে বলীয়ান হয়ে বিশ্বকে হুমকির মুখে ফেলেছে, যে সব কোম্পানি তেল-গ্যাস-কয়লা অনুসন্ধানের জন্যে ট্রিলিয়ন ডলার বিনিয়োগ করেছে তাদের কাছে প্যারিস চুক্তি এই পত্র পরিবর্তনের সূচনা হয়ে থাকবে।

দুই পর্যায়ের নির্গমন ব্রাস টার্গেটি: প্যারিসে বিশ্বের রাজনৈতিক নেতৃবৃন্দ একমত হয়েছেন যে, জলবায়ু পরিবর্তনের প্রতিক্রিয়া মোকাবেলায় বিশ্বের তাপমাত্রা কোন ভাবেই শিল্পবিপ্লব পূর্ববর্তী সময়ের তুলনায় দুই ডিগ্রি সেলসিয়াস এর বেশি বৃদ্ধি পেতে দেওয়া হবে না, বরং এই বৃদ্ধিকে দেড় ডিগ্রির মধ্যে সীমাবদ্ধ রাখার চেষ্টা চলানো হবে। তবে জলবায়ু অভিযোজনের সামর্থ্য ও জলবায়ু রেজিলিয়াঙ্গ বৃদ্ধি এবং স্বল্প গ্রিনহাউস গ্যাস নির্গমনভিত্তিক উন্নয়নকে এমনভাবে ত্বরান্বিত করতে হবে যাতে তা খাদ্য উৎপাদনকে হুমকির মুখে না ফেলে [Article 2 (a) (b), The Paris Agreement]।

দীর্ঘ মেয়াদি টার্গেট: অনুচ্ছেদ-২ এ ঘোষিত তাপমাত্রা ব্রাসের দীর্ঘ-মেয়াদি লক্ষ্যমাত্রা (goal) অর্জনে পার্টিসমূহের লক্ষ্য (aim) হবে যতো গ্রিনহাউস গ্যাসসমূহের নির্গমনকে

[[]so] 'এলডিসি' হচ্ছে মোট জাতীয় আয়ের নিম্ন অবস্থা (GNI), দুর্বল মানব-সম্পদ ও উচ্চ অর্থনৈতিক ভস্থুরতা (high degree of economic vulnerability)-এই তিন নির্দেশকেরভিন্তিতে জাতিসজ্ঞ কর্তৃক নির্ধারিত 'List Developed Countries' বা 'স্বল্লোন্নত' দেশগুলোর গ্র[ে]প। ২০১৫ সালে এই তালিকায় বাংলাদেশ সহ মোট ৪৮টি দেশ ছিল। (http://unfccc.int/cooperation_and_ support/ldc/ items/ 3097. php)।

দ্রুত সম্ভব বৈশ্বিক সর্বোচ্চ মাত্রায় (global peaking of greenhouse gas) ^[53] পৌঁছানো। এ ক্ষেত্রে এই চুক্তিতে বলা হয়েছে যে, উন্নয়নশীল দেশগুলো গ্রিনহাউস গ্যাস নির্গমনের সর্বোচ্চ অবস্থানে (peaking) পৌঁছুতে বেশি সময় নেবে এবং তারপরে সবচেয়ে লভ্য বিজ্ঞানভিত্তিক উপায়ে দ্রুত গ্রিনহাউস গ্যাস নির্গমন হ্রাসে প্রদক্ষেপ গ্রহণ করবে। যা এই শতান্দির দ্বিতীয় ভাগে মানবসৃষ্ট নির্গমন এবং সিংকের (sinks) মাধ্যমে গ্রিনহাউস গ্যাসসমূহের অপসারণের মধ্যে একটি ভারসাম্য অর্জনে সহায়ক হবে [Article 4(1), The Paris Agreement]।

মধ্য ও স্বল্প মেয়াদি টার্গেটি: ২০১৫ সালে পার্টিদের পেশকৃত আইএনডিসি (INDC) সমূহে ২০২৫ ও ২০৩০ সালের পর্যায়ে যে পরিমাণ ঘিনহাউস গ্যাস নির্গমন হ্রাসের প্রস্তাবনা রয়েছে তা বিশ্বের তাপমাত্রাকে ন্যূনতম দুই ডিগ্রি সেলসিয়াসের মধ্যে সীমিত রাখতে সক্ষম হবে না। এ কারণে কনফারেঙ্গ অব দ্যা পার্টিস (COP) ^[১২] ভবিষ্যতে আইএনডিসি গুলো এমন ভাবে পেশ করতে আহ্বান জানিয়েছে যাতে তা বিশ্বের তাপমাত্রা দুই ডিগ্রি সেলসিয়াসর মধ্যে সীমিত রাখার উপযোগী হয়। অর্থাৎ ২০১৫ সালে রাষ্ট্রপক্ষরা যে আইএনডিসিগুলো জমা দিয়েছে তাকে আরও উচ্চকাক্ষীভাবে (ambitious) বৃদ্ধি করার আহ্বান জানানো হয়েছে। প্রথম পর্যায়ে ২০১৮ সালেই একটি 'সংশোধিত এনডিসি' পেশ করতে হবে। তারপর ২০২৩ সাল থেকে প্রতি পাঁচ বছর পরপর নতুন এনডিসি দাখিল করতে হবে এবং প্রতিটি পর্যায়েই রাষ্ট্রপক্ষকে পূর্ববর্তী টার্গেটের থেকে ক্রমবর্ধমান (progression) টার্গেট উপস্থাপন করতে হবে, যা রাষ্ট্রটির সর্বোচ্চ উচ্চাকাক্ষাকে তুলে ধরবে [Article 4 (3)]।

'লস এন্ড ড্যামেজ' অন্তর্ভূক্তকরণ: জলবায়ূ আলোচনায় গত কয়েক বছর ধরে 'লস এন্ড ড্যামেজ' ব্যাপকভাবে আলোচিত। জলবায়ু পরিবর্তনজনিত কারণে সৃষ্ট ক্ষয়ক্ষতি থেকে জীবন ও সম্পদ রক্ষা, ক্ষতিপূরণ দান বা এই ক্ষয়ক্ষতি কে কামানোর সম্ভাব্য উপায় নিয়ে এই 'লস এন্ড ড্যামেজ' আলোচনার সুত্রপাত। ১৯৯৭ সালের বহুল আলোচিত কিয়োটো প্রোটোকলে 'লস এন্ড ড্যামেজ' সংক্রান্তকোন কার্যক্রম ছিল না।

[[]১১] গ্রিনহাউস গ্যাস নির্গমন ক্রমাগত বৃদ্ধি পেয়ে নিকটবর্তী কোন এক বছরে সর্বোচ্চ মাত্রায় পৌঁছুবে এবং তারপর থেকে ক্রমাগত ব্রাস পেতে থাকবে। যেমন, চিনের পরিকল্পনা অনুযায়ী ২০৩০ সালে তাদের নির্গমন সর্বোচ্চ শিখরে উঠবে এবং তারপর থেকে ক্রমান্বয়ে কমতে থাকবে।

[[]১২] Conference of the Parties (COP) হচ্ছে জলবায়ু পরিবর্তন বিষয়ক জাতিসন্জের কাঠামোগত সনদ (ইউএনএফসিসিসি)'র সিদ্ধাম্ভগ্রহণ প্রক্রিয়ায় সর্বোচ্চ নীতি-নির্ধারণী সংস্থা। 'কপ' প্রতিবছর সন্দেলনে মিলিত হয়ে কনভেনশনের বান্তবায়ন অগ্রগতিপর্যালোচনা করে। 'কপ' নিয়মাতান্ত্রিকভাবে সিদ্ধাম্ড গ্রহণ এবং তা রিপোর্ট আকারে প্রকাশ করে থাকে। ধারাবাহিকভাবে সিদ্ধাম্ড গ্রহণের মাধ্যমে কপ জলবায়ু কনভেনশনের কার্যকরী ও বান্তবসন্দত বান্তবায়নের নিয়ম-নীতি প্রণয়ন করে থাকে। কনফারেঙ্গ অব দ্যা পার্টিস (COP)'র আওতাধীন দুটি সাবসিডিয়ারি বডি; সাবসিডিয়ারি বডি ফর সায়েঙ্গ এন্ড টেকনোলজিক্যাল অ্যাডভাইস (SBSTA) এবং সাবসিডিয়ারি বডি ফর ইমপি- মেন্টশন (SBI)'র মাধ্যমে কাজ করে থাকে (http://unfccc.int/documentation/ decisions / items /3597.php)

তারপরেও ২০১২ সাল থেকে এই ইস্যুতে জলবায়ু আলোচনা বারংবার উত্তপ্ত হয়েছে। দোহা সম্মেলনে (২০১২) একটি সমঝোতা হলেও ^[১৩] এবং ওয়ারশ সম্মেলনে (২০১৩) 'ওয়ারশ ইন্টারনাশনাল ম্যাকানিজম ফর লস এন্ড ড্যামেজ' ^[১৪] প্রতিষ্ঠিত হলেও পরবর্তী লিমায় (কপ-২০) ^[১৫] 'লস এন্ড ড্যামেজ' কে পৃথক অংশে না রেখে অভিযোজনের সঙ্গে যুক্ত করে দেওয়া হয়েছিল। তবে শেষ পর্যন্ত প্যারিস চুক্তিতে তা পৃথক অনুচ্ছেদে ফিরিয়ে আনা সম্ভব হয়েছে।

উল্লেখ্য যে, এবারই প্রথম জলবায়ু আলোচনার 'আনুষ্ঠানিক' চুক্তিতে 'লস এন্ড ড্যামেজ' অন্তর্ভূক্ত হল। যে কোন বিচারে একটি বিশাল প্রাপ্তি। আর এই অজর্নের পেছনে বিগত জলবায়ু আলোচনাগুলোর অগ্রগতি-ব্যর্থতা, অভিজ্ঞতা, জলবায়ু কূটনীতি সাহায্য করেছে। প্যারিস আলোচনার শুরু থেকেই জলবায়ু পরিবর্তনজনিত ক্ষয়-ক্ষতির দায়-দায়িত্ব গ্রহণে গ্রিনহাউস গ্যাস নির্গমনে ঐতিহাসিকভাবে দায়ী দেশগুলোর অসন্মতি (বিশেষ করে মার্কিন যুক্তরাষ্ট্রের) আলোচনাকে ব্যাপকভাবে বাধাগ্রস্ড করে আসছিল। আগে থেকেই মার্কিন যুক্তরাষ্ট্রের) আলোচনাকে ব্যাপকভাবে বাধাগ্রস্ড করে আসছিল। আগে থেকেই মার্কিন যুক্তরাষ্ট্রে দাবী করে আসছিল যে, 'লস এন্ড ড্যামেজ' ইস্যুটিকে অভিযোজন কার্যক্রমের আওতায় বিবেচনা করতে হবে। অন্যদিকে ক্ষুদ্র দ্বীপরাষ্ট্রগুলোর জোট (AOSIS) সহ এলডিসি এবং জি৭৭+চিন জোট ^[১৬] বিভিন্ন যুক্তি তুলে ধরে 'লস এন্ড ড্যামেজ'কে পৃথকভাবে বিবেচনার দাবী জানিয়ে আসছিল।

উল্লেখ্য যে, ০৯ ডিসেম্বর যে খসড়া প্রকাশিত হয়েছিল সেখানেও লস এন্ড ড্যামেজকে অভিযোজন বা অ্যাডপটেশনের আওতায় রাখার জোরালো প্রস্তাব ছিল। আবার ক্ষুদ্র দ্বীপরাষ্ট্রগুলোর প্রবল দাবীর মুখে উপরিউক্ত প্রস্তাবের বিকল্প হিসেবে 'লস এন্ড ড্যামেজ' কে অভিযোজন বা অ্যাডাপটেশন থেকে আলাদা রেখে উপস্থাপন করা হয়েছিল।

৯ ডিসেম্বরের খসড়ায় 'লস এন্ড ডামেজ' কে ০৫ নং অনুচ্ছেদে রাখা হয়েছিল। এই অনুচ্ছেদের (৩ এবং ৪ নং ধারায়) জলবায়ু বাস্তুচ্যত ইস্যুতে কার্যক্রম পরিচালনার জন্যে একটি 'আন্তর্জাতিক কোঅর্ডিনেশন ব্যবস্থা'র প্রস্তাবনা ছিল।

[১৩] কাতারের রাজধানী দোহায় ২০১২ সালের ২৬ নভেম্বর থেকে ৮ ডিসেম্বর' কনফারেঙ্গ অব দ্যা পার্টিস (কপ)-১৮ অনুষ্ঠিত হয় এবং 'Doha Climate Gateway' সিদ্ধাম্ণ্ড প্যাকেজে জলবায়ু পরিবর্তনজনিত ক্ষয়-ক্ষতি মোকাবেলায় একটি আম্র্র্জাতিক 'ম্যাকানিজম' গঠনের প্রস্তাব করা হয়েছিল।

[১৪] ২০১৩ সালে পোল্যান্ডের ওয়ারশ`তে অনুষ্ঠিত কপ-১৯ এ জলবায়ু পরিবর্তনজনিত কারণে সর্বাপেক্ষা বিপদাপন্ন দেশগুলোতে জলবায়ু পরিবর্তনজনিত সম্ভাব্য ক্ষয়-ক্ষতি মোকাবেলায় 'Warsaw International Mechanism for Loss and Damage- WIM' প্রতিষ্ঠা করা হয়।

[১৫] ২০১৪ সালে পেরুর রাজধানী লিমাতে অনুষ্ঠিত কনফারেঙ্গে 'Lima Call for Climate Action' গ্রহণ করা হয়, যা ২০১৫ সালের প্রত্যাশিত চুক্তির অবয়বকে দৃশ্যমান করে তুলতে সাহায্য করেছে। এখানে 'ওয়ারস্ মেকানিজম অন লস এন্ড ড্যামেজ' (WIM) কে কার্যকরী করতে ২০ সদস্যের একটি এক্সিকিউটিভ কমিটির কাঠামোকে চুড়ান্ত করা হয়েছিল (http://unfccc.int/resource/docs /2014/ cop20/eng/ 10a02. Pdf #page=2)।

[১৬] জলবায়ু আলোচনায় মোট ১৩৩টি উন্নয়নশীল দেশ এবং সহযোগী সদস্য চিনকে নিয়ে গঠিত এটি সবেচেয়ে বড় জোট। জলবায়ু পরিবর্তন আলোচনায় গ্রুপ ৭৭+চিন জোটের সদস্যরাষ্ট্রসমুহ ভিন্ন ভিন্ন অবস্থান গ্রহণ করতে পারে এবং নিজস্ব গ্রুপ তৈরি করতে পারে (যেমন: আফ্রিকান গ্রুপ বা এলডিসি গ্রুপ)। সেই সঙ্গে 'লস এন্ড ড্যামেজ' মোকাবেলার কৌশলগুলো খুঁজে বের করার দায়িত্বও 'ওয়ারশ্ ইন্টারন্যাশনাল ম্যাকানিজম ফর লস এন্ড ড্যামেজ'কে (২০১৩ সালে ওয়ারশ্ সম্মেলনে প্রতিষ্ঠিত) বা কনফারেঙ্গ অব দ্যা মেম্বার অব দ্যা এগ্রিমেন্ট (প্যারিস এগ্রিমেন্ট)- সিএমএ কে দেওয়ার প্রস্তাব রাখা হয়েছিল। ^[১৭]

কিন্তু ১২ ডিসেম্বরের চুড়ান্ত টেক্সট থেকে এই অংশটি শেষ পর্যন্ত বাদ পড়ে যায়। উন্নত শিল্পায়িত দেশগুলো 'লস এন্ড ড্যামেজ' কে অ্যাডপটেশনের আওতায় রাখতে, জলবায়ু বাস্তুচ্যুত ইস্যুকে অস্ড়র্ভূক্ত করতে এবং জলবায়ু পরিবর্তনের কারণে সৃষ্ট ক্ষয়-ক্ষতির আর্থিক দায়-দায়িত্ব 'আইনগতভাবে' স্বীকার করে নিতে অনমনীয় ছিল। ক্ষুদ্র দ্বীপরাষ্ট্রগুলো জলবায়ু বাস্তুচ্যুত ইস্যু ও আর্থিক দায়-দায়িত্বের জোর দাবী জানালেও তারা মুলত 'লস এন্ড ড্যামেজ' কে প্যারিস চুক্তির আওতায় ও অভিযোজনের বাইরে ভিন্ন অনুচ্ছেদে দেখতে মরিয়া ছিল।

যে কারণে শেষ দিনের আলোচনার ফল হিসেবে 'লস এন্ড ড্যামেজ' অভিযোজনের বাইরে ভিন্ন অনুচ্ছেদে (অুনচ্ছেদ-৮) গৃহীত হয়। এটি ছিল একটি চুড়ান্ত আপোষ রফার উদাহরণ। 'লস এন্ড ড্যামেজ' কে প্যারিস চুক্তির আওতায় ও অভিযোজনের বাইরে ভিন্ন অনুচ্ছেদে রাখার বিষয়ে মার্কিন যুক্তরাষ্ট্রকে সম্মত করানোর বিনিময়ে জলবায়ু বাস্তু্যচ্যুত ইস্যু ও থ্রিনহাউস গ্যাস নিগর্মনে দায়ী দেশগুলোর ক্ষতিপূরণ বা আইনী দায় গ্রহণের বিষয়ে ছাড় দিতে হয়েছে।

যৌথ দায়, ভিন্ন ভিন্ন দায়িত্ব: এই চুক্তির মাধ্যমে ইতোপূর্বেকার (১৯৯২ সালের জলবায়ু কনভেনশন এবং ১৯৯৭ সালের কিয়োটো চুক্তির) কিছু বিরোধপূর্ণ বিষয়ের চুড়ান্ত নিম্পত্তিকরণ ঘটেছে। প্যারিস আলোচনার ১ম সগ্তাহে প্রধান আলোচ্য বিষয় ছিল 'লস এন্ড ড্যামেজ' বিষয়ে দায়-দায়িত্ব (Laiability) গ্রহণ আর ২য় সপ্তাহে সর্বাধিক আলোচিত বিষয় ছিল জলবায়ু পরিবর্তন মোকাবেলার দায়-দায়িত্বকে 'পৃথকীকরণ' (Differenciation) ইস্যুটি।

ঐতিহাসিকভাবে শিল্পায়িত দেশগুলো যেমন: মার্কিন যুক্তরাষ্ট্র, কানাডা, জাপান, ইউরোপীয় ইউনিয়ন এর দেশগুলো ব্যাপক পরিমানে কার্বন গ্যাস ছড়িয়ে আসলে গত দুই দশক এই অবস্থার ব্যাপক পরিবর্তন হয়েছে। চিন এখন বিশ্বের প্রধান কার্বন গ্যাস নির্গমনকারী দেশ এবং ভারতের অবস্থান এ ক্ষেত্রে তৃতীয়। অবশ্য কার্বন গ্যাসের নির্গমন ব্রাসে বিশ্বের পুরাতন শিল্পায়িত দেশগুলোর একটা ঐতিহাসিক দায়িত্ব রয়েছে। এ কারণে ইতিহাস খ্যাত 'কিয়োটো প্রটোকল' (১৯৯৭) এ ৩৭টি প্রধান শিল্পায়িত দেশগুলোকে কার্বন ব্রাসের টার্গেট বেঁধে দেওয়া হয়েছিল। সে সময় উন্নয়নশীল দেশের তালিকায় থাকা চিন, ভারত, ব্রাজিল, মেক্সিকো, দক্ষিণ আফ্রিকা, কাতার, সৌদী আরব প্রভৃতি দেশগুলোর ওপর কোন বাধ্যতামূলক টার্গেট বা দায়-দায়িত্ব দেওয়া হয়নি।

^[39] DRAFT TEXT on COP 21 agenda item 4 (b), decision 1/CP.17, Version 1 of 9 December 2015 at 15:00

এই কিন্তু সে সময় থেকেই যে প্রশ্নটি বারবার এসেছে তাহলো এই নতুন করে যারা কার্বন নির্গমন করছে তাদের ঐতিহাসিক দায়িত্ব কবে থেকে শুরু হবে এবং পুরনো যেসব শিল্পায়িত দেশগুলো (কিয়োটো চুক্তির এনেক্স-এক ভূক্ত দেশগুলো) ঐতিহাসিকভাবে কার্বন নির্গমন করে আসছে তাদের ঐতিহাসিক দায়িত্ব কবে শেষ হবে। নি:সন্দেহে তাদের দায়-দায়িত্র অনন্তকাল ধরে চলবে না। বস্তুত ঐতিহাসিকভাবে দায়-দায়িত্ব না থাকার অজুহাতে চিন ও অন্যান্য অগ্রসরমান দেশ যেমন ব্রাজিল, দক্ষিণ আন্দ্রিকা, ভারত একজোঁট হয়ে কার্বন নির্গমন ব্রাসে কোন বাধ্যতামূলক দায়ভার গ্রহণের ক্ষেত্রে বরাবরই বিরোধিতা করে আসছিলো। এর ফলে ২০০৯ সালের কোপেনহেগেন সম্মেলনে বহুল প্রত্যাশিত জলবায় চুক্তিতে কোন ধরনের ঐক্যমতে পৌঁছানো সম্ভব হয়নি। এ অবস্থায় বিশ্বের নাগরিক সমাজের আন্দোলন ও জলবায়ু বিজ্ঞানীদের জলবায়ু ঝুকিঁর আন্ড সর্তকতার প্রেক্ষিতে ২০১১ সালে ডারবান সম্মেলনে 'বেসিক'(BASIC) ^[১৮] দেশগুলিসহ বিশ্বের সকল দেশ কার্বন নির্গমন হ্রাসের দায় সম্মিলিতভাবে গ্রহণে সন্মত হয়েছিল। আর এবার প্যারিসে সেই 'ঐতিহাসিক দায়' কে সকলের অভিনু দায় এবং ভিন্ন ভিন্ন জাতীয় সক্ষমতারভিত্তিতে, কনভেনশনের উদ্দেশ্য এবং কনভেনশনের 'সমতার মূলনীতি'র ভিত্তিতে পালনের বিষয়ে চুড়ান্ত নিস্পত্তি হয়েছে [Article 2(2)]। তবে এ ক্ষেত্রেও মার্কিন যুক্তরাষ্ট্র এবং শিল্পায়িত দেশগুলোকে আপোষ করতে হয়েছে। উল্লেখ্য যে, প্যারিস আলোচনার শুরু থেকেই 'পৃথকীকরণ' (Differenciation)'র বিপক্ষে থাকলেও এবং মূলনীতির ক্ষেত্রে সুস্পষ্টভাবে 'পৃথকীকরণ' লিখিত না থাকলেও পূর্বেকার এনেক্স-১ ভুক্ত দেশগুলো কার্বন নির্গমন ব্রাস বাস্তবায়নের ক্ষেত্রে এই উন্নত-উন্নয়নশীল ও স্বল্পোন্নত দেশগুলোর কম দায়-দায়িত্বপালনে 'পৃথকীকরণ' এর নীতিকে মেনে নিয়েছে। চুক্তির আর্টিকেল-৪, প্যারা-৪ এ উল্লেখ করা হয়েছে যে, 'উন্নত দেশের পার্টিসমূহ অর্থনীতিভিত্তিক চূড়ান্ত নির্গমন হ্রাস লক্ষ্যমাত্রা (economy-wide absolute emission reduction targets) গ্রহণের মাধ্যমে নির্গমন হাসে নেতৃত্ব বহাল রাখবে। উন্নয়নশীল দেশের পার্টিসমূহ তাদের প্রশমন প্রচেষ্টাকে বৃদ্ধিতে উদ্যোগী থাকবে এবং অর্থনীতি-ভিত্তিক চূড়ান্ত নির্গমন ব্রাস লক্ষ্যমাত্রা (economy-wide absolute emission reduction targets) গ্রহণ করতে বা তাদেরকে পৃথক পথক জাতীয় অবস্থা অনুযায়ী নির্গমন ব্রাসের টার্গেট গ্রহণে এই চুক্তি উৎসাহীত করছে' [Article 4 (4), The Paris Agreement] |

অন্যদিকে আবার বলা হয়েছে, '(এই চুক্তির আওতাধীন টার্গেটসমূহ) বাস্ড্রায়নে উন্নতদেশগুলো উন্নয়নশীল দেশের পার্টিসমূহকে সহায়তা প্রদান করবে এবং উন্নয়নশীল দেশগুলোকে তাদের প্রশমন কার্যক্রমসমূহ আরও উচ্চাকাঙ্খী করতে (higher ambition in their actions) উন্নতদেশগুলো বর্ধিত সহায়তা প্রদান করবে।

[১৮] ব্রাজিল, দক্ষিণ আফ্রিকা, ভারত এবং চিনকে নিয়ে গঠিত এই গ্রুপটি কোপেনহেগেন সন্দেলনে (২০০৯) উন্নত দেশদের জন্য কিয়োটো প্রটোকলের দ্বিতীয় পর্যায়ের অঙ্গীকার এবং উন্নয়নশীল দেশের প্রশমন ও অভিযোজনের অর্থায়ন বৃদ্ধিতে অভিন্ন অবস্থান গ্রহণ করেছিল। তখন থেকেই গ্রুপটি নিয়মিতভাবে তৎপর রয়েছে। এই দেশগুলো ক্রমবর্ধমান অর্থনীতির দেশ এবং বড় কার্বন নির্গমনকারী হওয়ায় জলবায়ু আলোচনায় তারা এখন গুর⁻⁻তুপূর্ণ ভূমিকা পালন করছে (https://en.wikipedia. org/wiki/BASIC_countries)। (আর্টিকেল-৪, প্যারা-৫; প্যারিস এগ্রিমেন্ট) এবং 'স্বল্পোন্নত দেশসমূহ এবং উন্নয়নশীল ক্ষুদ্র দ্বীপরাষ্ট্রসমূহ তাদের বিশেষ পরিস্থিতির আলোকে স্বল্প গ্রিনহাউস গ্যাস নির্গমনভিত্তিক উন্নয়ন কৌশল, নীতিমালা এবং কার্যক্রম প্রণয়ন ও পেশ (prepare and communicate) করতে পারবে' [Article 4 (6), The Paris Agreement]।

এই সমঝোতার কারণে একদিকে যেমন 'কার্বন নির্গমন ব্রাসে' পূর্বতন এনেক্স-এক ভূক্ত দেশগুলোর একক দায়-দায়িত্বের অবসান ঘটেছে এবং উন্নয়নশীলদেশগুলোকে কার্বন নির্গমন ব্রাসে দায়বদ্ধ করেছে। অন্যদিকে এই কার্বন নির্গমন ব্রাসের নেতৃত্বে পালনের দায় কিয়োটো প্রটোকলের ^[১৯] পূর্বতন 'এনেক্স-এক' ভূক্ত দেশগুলোর কাঁধেই বর্তেছে। এখানে শব্দগত পরিবর্তন ঘটিয়ে পূর্বতন এনেক্স-এক ভূক্ত দেশগুলোর দায়কে প্রকারস্তে স্বীকার করে নেওয়া হয়েছে। আবার স্বল্পোন্নত দেশসমূহ এবং উন্নয়নশীল ক্ষুদ্র দ্বীপরাষ্ট্রসমূহ তাদের বিশেষ জাতীয় পরিস্থিতি বিবেচনায় 'স্বল্প গ্রিনহাউস গ্যাস নির্গমন ভত্তিক উন্নয়ন কৌশল' গ্রহণের কথা বলা হলেও এ ক্ষেত্রে তাদের নিজেদের সুবিধা অনুযায়ী টার্গেটি নির্ধারণের সুযোগ রাখা হয়েছে।

আর্থিক দায়-দায়িত্ব: ১৯৯২ সালের জলবায়ু কনভেনশনের ধারাবাহিকতা রক্ষা করে প্যারিস চুক্তিতেও জলবায়ু পরিবর্তন মোকাবেলার আর্থিক দায়-দায়িত্ব উন্নত দেশগুলোর (পূর্বেকার এনেক্স-১ ভূক্ত) ওপরেই বর্তেছে। চুক্তিতে স্বল্প গ্রিনহাউস গ্যাস নির্গমন এবং জলবায়ু স্থিতিস্থাপক উন্নয়নের গতিধারার সঙ্গে সঙ্গতিপূর্ণভাবে আর্থিক প্রবাহকে অব্যহত রাখার লক্ষ্য নির্ধারণ করা হয়েছে [Article 2 (C)]। তবে তা পৃথক পৃথক জাতীয় অবস্থানুযায়ী সাধারণ কিন্তু স্ব-স্ব সক্ষমতারভিত্তিতে ভিন্ন ভিন্ন দ্বায়িত্বশীলতার মূলনীতি দ্বারা পরিচালিত হবে এবং সেখানে 'ইক্যুইটি'র প্রতিফলন থাকবে [Article 2.2]।

চুক্তির ৯ নং অনুচ্ছেদের, ১ নং প্যারায় সুস্পষ্টভাবে উল্লেখ করা হয়েছে যে, উন্নত দেশগুলো উন্নয়নশীল দেশগুলোর অভিযোজন ও নির্গমন ব্রাস উভয় কার্যক্রমের ক্ষেত্রেই আর্থিক সহায়তা প্রদান করবে [Article 9 (1)] এবং অন্যান্য পার্টিসমূহকে স্বেচ্ছায় একই ধরনের সহায়তা প্রদান বা সহায়তা অব্যহত রাখতে উৎসাহীত করা হয়েছে [Article 9 (2), The Paris Agreement]।

অন্যদিকে আর্টিকেল-৯, প্যারা-৩ এ বলা হয়েছে, জলবায়ু পরিবর্তন মোকাবেলায় আর্থিক সহায়তা প্রদানের আন্তর্জাতিক এই উদ্যোগে উন্নতদেশগুলো আগের মতোই নেতৃত্ব প্রদান করবে এবং এ জন্য বিভিন্ন উৎস, কৌশল ব্যবহার করা যেতে পারে।

[[]১৯] ১৯৯৭ সালে জাপানের কিয়োটোতে 'কিয়োটো প্রটোকল' গৃহীত হয়, যা ২০০৮-২০১২ সময়ের মধ্যে গ্রিনহাউস গ্যস নির্গমন ব্রাসে 'এনেক্স-এক' ভুক্ত উন্নত রাষ্ট্রগুলোর জন্যে বাধ্যবাধকতামূলক লক্ষ্য নির্ধারণ করেছিল। এই প্রটোকলের আওতায় 'নির্গমন বাণিজ্যে' (Emissions Trading); 'কিন ডেভোলপমেন্ট ম্যাকানিজম' (Clean Development Mechanism-CDM) এবং 'জয়েন্ট ইমপি- মেন্টশন' (Joint Implementation) চালু হয়। মার্কিন যুক্তরাষ্ট্রকৈ বাদ রেখে ২০০৫ সালের ১৬ ফেব্র⁻⁻য়ারি থেকে কিয়োটো প্রটোকলের বাস্তবায়ন শুরু হয়।

তবে এই সহায়তা প্রদানের ক্ষেত্রে রাষ্ট্রীয় তহবিলসমূহ বা 'public funds' এর গুরুত্বপূর্ণ ভূমিকা থাকবে এবং এই আর্থিক সহায়তা পূর্ববর্তী আর্থিক সহায়তা থেকে প্রাগ্রসর বা ক্রমবৃদ্ধিমূলক (progression) হবে। একই সঙ্গে এই সহায়তা উন্নয়নশীল দেশগুলোর জাতীয় পরিকল্পনা ও এই দেশগুলোর বিশেষ প্রয়োজনের ভিত্তিতে দেওয়া হবে [Article 9 (3)]।

আবার ক্রমবর্ধমান আর্থিক সহায়তা প্রদানের ক্ষেত্রে অভিযোজন ও প্রশমনের মধ্যে ভারসাম্য; জাতীয়ভাবে নির্ধারিত কৌশলগুলো বিবেচনায় রাখা; এবং উন্নয়নশীল দেশগুলোর অগ্রাধিকার ও চাহিদাসমূহ বিশেষভাবে গুরুত্ব দিতে হবে। এই বিশেষ গুরুত্বপ্রাপ্ত দেশগুলোর তালিকায় স্বল্পোন্নত দেশ ও ক্ষুদ্র-দ্বীপরাষ্ট্রগুলো রয়েছে এবং এই প্যারায় [Article 9 (4), The Paris Agreement] অভিযোজন সহায়তার ক্ষেত্রে এ সব দেশগুলোর (LDCs & SIDS) রাষ্ট্রীয় বা পাবলিক ও অনুদানভিত্তিক (public and grant-based resources) সহায়তার প্রয়োজনীয়তার কথা উল্লেখ করা হয়েছে।

বেশ আগে থেকেই স্বল্পোন্নত দেশ এবং এনজিও'রা অভিযোজনের জন্যে ঋণের পরিবর্তে অনুদান ও মুনাফা কেন্দ্রিক বিনিয়োগের বিপরীতে রাষ্ট্রীয় সহায়তা নিশ্চিত করার দাবি জানিয়ে আসছিল। এ ছাড়াও আর্থিক সহায়তার ক্ষেত্রে অভিযোজন ও প্রশমনের জন্যে সমান (৫০:৫০) বরাদ্দ রাখা এবং জলবায়ু পরিবর্তনের মুখে সর্বাধিক বিপদাপন্ন দেশগুলোকে অগ্রাধিকার দানের বিষয়টি নিয়ে উচ্চসিত ছিল। প্যারিস চুক্তিতে এ দাবীগুলোকে মেনে নেওয়া হলেও বেশকিছু অষ্পষ্টতা রাখা হয়েছে। যেমন, ক্রমবর্ধমান আর্থিক সহায়তার সম্ভাব্য পরিমান এখানে উলে- খ করা হয়নি। আবার অভিযোজন ও প্রশমনের মধ্যে ভারসাম্য বজায় রাখার কথা বলা হলেও এই ভারসাম্য সকল ক্ষেত্রে ৫০:৫০ হবে কিনা তা স্পষ্ট করা হয়নি। অন্যদিকে অভিযোজনের জন্য এলডিসি ও সিডস্ দেশগুলোর (LDCs & SIDS) অনুদানভিন্তিক সহায়তার প্রয়োজনীয়তার কথা উলে- খ করে অভিযোজনের জন্যে ঋণ প্রদানকে নিরুৎসাহীত করা হলেও একেবারে বন্ধ করা হয়নি। আর চুক্তির এসব ধারা-উপধারার ভিন্ন ভিন্ন ব্যাখ্যা দেওয়া এবং তার ভিন্তিতে বিপরীতমুখী কার্যক্রম গ্রহণের সুযোগ রাখা হয়েছে। এ কারণে আগামী সম্মেলনগুলোতে আর্থিক সহায়তার বিভিন্ন বিষয়ের ব্যাখ্যা নিয়ে ব্যাপক বিতর্কের সম্ভাবনা রয়েছে।

কার্বন বাণিজ্যের সুযোগ: চুক্তির অনুচ্ছেদ-৬ এর ২,৩ এবং ৪ নং প্যারায় স্বেচ্ছামূলক (voluntary) কার্বন বাণিজ্যের ^[২০] সুযোগ রাখা হয়েছে।

[২০] কিয়োটো প্রটোকলের পার্টিদের জন্যে যে যেসব দেশের নির্গমন লক্ষ্যমাত্রা বেশি তাদের কাছে 'অব্যবহৃত নির্গমন ইউনিট' বিক্রির সুযোগ রয়েছে। এই নির্গমন হ''াস ক্রেডিট ক্রয়ের সুযোগ রেখে কিয়োটো প্রটোকল 'কার্বন' নামের একটি নতুন পণ্য বাজারজাত করেছিল। যা সাধারণ ভাবে 'কার্বন বাণিজ্য' হিসেবে পরিচিত এবং কার্বন এখন অন্যান্য পণ্যের মত খোলা বাজারে বিক্রয়যোগ্য পণ্য হওয়ায় এর বাজারকে 'কার্বন বাজার' বলা হয়ে থাকে (http://unfccc.int/kyoto_protocol/ mechanisms/emissions_trading/items/2731.php)।

206

বলা হয়েছে, পার্টিসমূহ স্বেচ্ছামূলক যৌথ সহযোগিতার সময় 'ন্যাশনালি ডিটারমাইন্ড কন্ট্রিবিউশন' এর লক্ষ্য অর্জনে, আন্তর্জাতিকভাবে স্থানান্তরিত মিটিগেশন ফলাফল (mitigation outcomes) ব্যবহারের সময় টেকসই উন্নয়ন, স্বচ্ছতাসহ সুশাসন (governance) ও পরিবেশগত বিবেচনাকে নিশ্চিত করবে...' [Article 6 (2)]। এ জন্য একটি 'স্বেচ্ছামূলক মেকানিজম' প্রতিষ্ঠার কথা বলা হয়েছে, যা 'কপ' দ্বারা প্রতিষ্ঠিত একটি 'সংস্থা' (body)'র তত্তাবধানে পরিচালিত হবে এবং যা: (ক) গ্রিনহাউস গ্যাস নির্গমন ব্রাসের পাশাপাশি টেকসই উন্নয়নকে তুরান্বিত করবে; (খ) গ্রিনহাউস গ্যাস নির্গমনে সরকারি এবং বেসরকারি প্রতিষ্ঠানসমূহের অংশগ্রহণ সহজতর করতে সহয়োগিতা করবে; (গ) উদ্যোক্তা পার্টিদের প্রশমন কার্যক্রমের মাধ্যমে ব্রাসকত কার্বনকে যাতে করে অন্য পার্টিরা তাদের জাতীয় ভাবে স্বনির্ধারিত নিজস্ব টার্গেট পুরুণে ব্যবহার করতে পারে তার ব্যবস্থা করবে এবং এটি বৈশ্বিক নির্গমন হ্রাসকে এগিয়ে নিয়ে যাবে [Article 6 (4)] । তবে এ ক্ষেত্রে উৎপাদক ও ক্রেতা এদের কোন একজনের প্রশমন হিসাবেই তা যোগ হবে, অথ্যৎি 'ডাবল কাউন্টিং' (double counting) করা যাবে না [Article 6 (5)] । সমন্বিত (integrated), সামগ্রিক (holistic) ও ভারসাম্যমূলক (balanced) নন মার্কেট এ্যাপ্রোচের প্রধান উদ্দেশ্য হচ্ছে জাতীয় ভাবে স্বনির্ধারিত অবদানসমূহ (এনডিসি) বাস্তবায়নের জন্য সরকারি এবং বেসরকারি অংশগ্রহণ বৃদ্ধি এবং প্রাসঙ্গিক প্রাতিষ্ঠানিক ব্যবস্থা গড়ে তোলা [Article 6 (8), The Paris Agreement]

সমন্বিত অভিযোজন পরিকল্পনা: প্যারিস চুক্তির অনুচ্ছেদ-৭ অভিযোজনকে একটি বৈশ্বিক চ্যালেঞ্জ হিসেবে বিবেচনায় নিয়ে এটিকে টেকসই উন্নয়ন লক্ষ্যমাত্রায় (Sustainable Development Goals-SDGs) ^[২১] অবদান রাখতে ও জলবায়ু পরিবর্তন মোকাবেলায় দীর্ঘমেয়াদি বৈশ্বিক সাড়া দানের একটি মূল উপাদান হিসেবে চিহ্নিত করেছে। এছাড়াও এই চুক্তি প্রশমন এবং অভিযোজনকে সমান গুরুত্ব দেওয়ার পাশাপাশি জলবায়ু পরিবর্তনের বিরুপ প্রতিক্রিয়ায় ঝুকিপূর্ণ উন্নয়নশীল দেশগুলোর জরুরী এবং আগু চাহিদাসমূহ বিবেচনায় নিয়ে অভিযোজন পরিকল্পনাকে দেশজ, জেন্ডার সংবেদনশীল, অংশগ্রহণমূলক ও স্বচ্ছতার ভিত্তিতে প্রণয়ন, বিপদাপন্ন গ্রুপ, কমিউনিটি এবং ইকোসিস্টেমকে বিবেচনায় রাখা এবং সর্বোত্তম বিজ্ঞানভিত্তিক জ্ঞানের সঙ্গে উপযুক্ত প্রচলিত জ্ঞান, স্থানীয় জনগণের জ্ঞান এবং স্থানীয় জ্ঞান পদ্ধতি দ্বারা পরিচালিত হওয়ার ওপর গুরুত্ব চুরিয়েছে।

[[]২১] ২০১৫ সালের ২৫ সেপ্টেম্বর জাতিসজ্ঞের Sustainable Development Summit গৃহীত 'The Sustainable Development Goals (SDGs)', যার মধ্যে ২০৩০ সাল নাগাদ বিশ্বকে টেকসই উন্নয়নে উন্নীত করতে দারিদ্রের সমাপ্তি, বৈষম্য এবং অন্যায্যতার বিরুদ্ধে সংগ্রাম, জলবায়ু পরিবর্তন মোকাবেলাসহ মোট ১৭টি লক্ষ্য (Goals) নির্ধারণ করা হয়েছে (http://www.undp.org/ content/undp /en /home/sdgoverview/post-2015-development-agenda.html)।

একই সঙ্গে অভিযোজনের বৈশ্বিক লক্ষ্য (global goal) হিসেবে অভিযোজন সক্ষমতা বৃদ্ধি, সহিষ্ণুতা বৃদ্ধি এবং বিপদাপন্নতা হ্রাসকে নির্ধারণ করা হয়েছে। আর এই লক্ষ্যসমূহ NDC'র অংশ হিসেবে স্বীকৃত হওয়ায় প্রতি পাঁচ বছর অন্তর অন্তর অভিযোজন সংক্রান্ত বৈশ্বিক স্টক টেকিং' (stocktake) অনুষ্ঠিত হবে এবং লক্ষ্য অর্জনে সামগ্রীক অগ্রগতি পর্যালোচনা করা হবে। এছাড়াও কানকুন এডাপটেশন ফ্রেমওয়ার্ককে ^[২২] বিবেচনায় নিয়ে: (ক) অভিযোজন কর্মকাণ্ড সম্পর্কিত তথ্য আদানপ্রদান, ভাল অনুশীলন, অভিজ্ঞতা ও শিক্ষণীয় বিষয়সমূহ বিনিময়; (খ) প্রাতিষ্ঠানিক আয়োজনকে শক্তিশালী করা; (গ) গবেষণা, জলবায়ু ব্যবস্থার পদ্ধতিগত পর্যবেক্ষণ, পূর্ব সতর্ক ব্যবস্থাসহ জলবায়ু পরিবর্তন বিষয়ক বৈজ্ঞানিক জ্ঞান শক্তিশালীকরণ; (ঘ) উন্নয়নশীল দেশের অভিযোজন চাহিদা, অগ্রাধিকার, কর্মকাণ্ড এবং প্রচেষ্টার জন্য প্রদন্ত এবং গৃহীত সহায়তার চ্যালেঞ্জ এবং ঘাটতিসমূহ চিহ্নিত করতে সহায়তা করা; (ঙ) অভিযোজন কর্মকান্ডের কার্যকারিতা এবং স্থায়িত্ব বৃদ্ধিতে সহায়তা দানে উৎসাহিত করা হয়েছে [Article 7 (1)]।

একই সঙ্গে এখানে সকল পার্টিকে (ক) উপযুক্ত পরিকল্পনা, নীতিমালা এবং উপযোগী অভিযোজন পরিকল্পনা বাস্তবায়ন; (খ) জাতীয় অভিযোজন পরিকল্পনা প্রণয়ন ও বাস্ড্রায়ন; (গ) বিপদাপন্ন জনগণ, এলাকা এবং ইকোসিস্টেমকে বিবেচনায় নিয়ে জাতীয়ভাবে নির্ধারিত অগ্রাধিকার কর্মকাণ্ডসমূহ প্রণয়ন; (ঘ) অভিযোজন পরিকল্পনাসমূহ, নীতিমালাসমূহ, কর্মসূচিসমূহ এবং কর্মকাণ্ডসমূহ থেকে শিক্ষা গ্রহণ; এবং (ঙ) অর্থনৈতিক বৈচিত্রতা এবং প্রাকৃতিক সম্পদের টেকসই ব্যবস্থাপনার মাধ্যমে আর্থসামাজিক এবং ইকোসিস্টেম ব্যবস্থায় 'রেজিলিয়াঙ্গ' বৃদ্ধির আহ্বান জানানো হয়েছে [Article 7 (9)] ।

টেকনোলজি দ্রেমওয়ার্ক: আর্টিকেল ১০ এ পার্টিসমূহ সম্পূর্ণ বোধগম্য প্রযুক্তির (fully realizing technology) উন্নয়ন এবং হস্তান্তরের ওপর গুরুত্বারোপ করে, জলবায়ু পরিবর্তন মোকাবেলায় সহিষ্ণুতা বৃদ্ধি এবং ঘিনহাউজ গ্যাসের নির্গমন ব্রাসের উদ্দেশ্যে একটি দীর্ঘ-মেয়াদি স্বপ্ন বা ভিশন (a long-term vision) তুলে ধরেছে [Article 10 (1)] এবং এই চুক্তির অধীনে প্রশমন এবং অভিযোজন কার্যক্রমসমূহ বাস্ড্রায়নে প্রযুক্তির গুর[ে]তু বিবেচনায় নিয়ে বিদ্যমান প্রযুক্তির উন্নয়ন এবং বিতরণের উদ্যোগ পার্টিসমূহের প্রযুক্তি উন্নয়ন এবং হস্তান্তরে সহযোগিমূলক কর্মকাণ্ডকে শক্তিশালী করবে [Article 10 (2)] এবং এই কনভেনশনের অধীনে গঠিত 'টেকনোলজি মেকানিজম'টি (Technology Mechanism) এই চুক্তি বান্তবায়নে সহায়ক হবে বলে আশা প্রকাশ করছে ।

[২২] ২০১০ সালে মেক্সিকোর কানকুন সন্দেলনে 'কানকুন অ্যাডপটেশন ফ্রেমওয়ার্ক' (CAF) এ অভিযোজনকে মিটিগেশনের সমান গুরুত্ব দেওয়া হয়েছে। এছাড়াও এই ফ্রেমওয়ার্কে জলবায়ু পরিবর্তনজনিত ক্ষয়-ক্ষতি মোকাবেলা ও জলবায়ু বাস্তচূতদের বিষয়টি অন্তর্ভুক্ত হয়েছিল এবং 'धিন কাইমেট ফান্ড'র প্রাথমিক কাঠামো নির্ধারিত হয়েছিল (যttp://unfccc.int/adaptation/ items/5852.php)। একই সঙ্গে এই চুক্তির অধীনে একটি প্রযুক্তি ফ্রেমওয়ার্ক (technology framework) গঠনের ঘোষণা দিয়েছে, যা এই চুক্তি বান্তবায়নের ক্ষেত্রে প্রযুক্তির উন্নয়ন ও হস্তান্তরকে সহায়তা দেবে এবং প্রযুক্তি প্রাপ্তিকে সহজতর করবে, যা এই চুক্তির এই অনুচ্ছেদের ১নং ধারায় উলি- খিত দীর্ঘ মেয়াদি ভিশনকে সফল করার সঙ্গে সঙ্গতি পূর্ণ হবে [Article 10 (4)]। জলবায়ু পরিবর্তনে বৈশ্বিক প্রতিক্রিয়ার মুখে একটি কার্যকর ও দীর্ঘ-মেয়াদি (an effective, long-term global response) সাড়া দান প্রক্রিয়া গড়ে তুলতে; অর্থনৈতিক প্রবৃদ্ধিকে তুরান্বিত এবং টেকসই উন্নয়নকে এগিয়ে নিয়ে যেতে গতিশীল, উদ্দীপনামূলক এবং গ্রহণযোগ্য উদ্ভাবন অত্যন্ত গুরুত্বপূর্ণ। সে জন্য এ ধরনের প্রচেষ্টাকে যথাযথভাবে 'টেকনোলজি মেকানিজম' (Technology Mechanism) এবং কনভেনশনের আর্থিক মেকানিজম এর সহায়তার মাধ্যমে ; যৌথ গবেষণা ও উন্নয়ন এবং প্রযুক্তি প্রাপ্তিতে সহযোগিতামূলক উদ্যোগকে ছড়িয়ে দিতে এবং উন্নয়নশীল দেশগুলোকে সহায়তা দান করা হবে [Article 10 (5)]। এছাড়াও প্রশমন এবং অভিযোজন সহায়তার মধ্যে ভারসাম্য অর্জনের লক্ষ্যে, প্রযুক্তি চক্রের বিভিন্ন ধাপে প্রযুক্তি উন্নয়ন এবং হস্তান্তরে সহযোগিতা বৃদ্ধি করা সহ চুক্তির ১০ নং অনুচ্ছেদটি বাস্তবায়নে উন্নয়নশীল দেশগুলোকে আর্থিকসহ অন্যান্য সহায়তা প্রদান করা হবে। এছাড়াও বৈশ্বিক স্টকটেক (stocktake) উন্নয়নশীল দেশগুলোতে প্রযুক্তি উন্নয়ন এবং হস্তান্তরে সহায়তা প্রদানের বিষয়টি বিবেচনা করবে [Article 10 (6)]।

ট্রান্সপারেন্সি ফ্রেমওয়ার্ক: প্যারিস চুক্তির আওতায় প্রশমন, অভিযোজন, আর্থিক সহায়তা প্রভৃতির জন্য গৃহীত ও পরিচালিত কার্যক্রমসমূহের স্বচ্ছতা সৃষ্টিতে পারস্পরিক বিশ্বাস ও আস্থার ভিত্তিতে একটি উন্নত 'ট্রান্সপারেন্সি ফ্রেমওয়ার্ক' গড়ে তোলার কথা বলা হয়েছে। এই ফ্রেমওয়ার্কটি একই সঙ্গে নমনীয় এবং পার্টিসমূহের বিভিন্নমূখী সক্ষমতা ও যৌথ অভিজ্ঞতার ভিত্তিতে গঠিত হবে [Article 13(1)]।

এই ফ্রেমওয়ার্কের অধীনে সকল পার্টি নিয়মিতভাবে (ক) গ্রিনহাউজ গ্যাস নির্গমনের একটি জাতীয় তালিকা (inventory); (খ) জাতীয়ভাবে নির্ধারিত অবদান বাস্ড্রায়ন এবং অর্গ্রাতি সংক্রান্ত প্রয়োজনীয় তথ্য সরবরাহ করবে [Article 13(7)]। এই ফ্রেমওয়ার্কের আওতায় উন্নত দেশের পার্টিসমূহ উন্নয়নশীল দেশের পার্টিসমূহকে আর্থিক, প্রযুক্তি হস্তান্তর এবং সক্ষমতা-বৃদ্ধিতে সহায়তার তথ্য প্রদান করবে।

জলবায়ু রাজনীতিতে পরিবর্তনের সূর: প্যারিসের আলোচনা শেষ পর্যন্ত সমঝোতায় উপনীত হওয়ার পেছনে জলবায়ু আলোচনার প্রধান প্রধান রাজনৈতিক শক্তিগুলোর গুরুত্বপূর্ণ ভূমিকা ছিল। গুরু থেকেই মার্কিন যুক্তরাষ্ট্র একটি নমনীয় চুক্তির পক্ষে সক্রিয় ছিল। যেখানে 'লস এন্ড ড্যামেজ' অ্যাডপটেশনের একটি অংশ হিসেবে থাকবে; জলবায়ু পরিবর্তনের কারণে 'লস এন্ড ড্যামেজ' এর জন্য আর্থিক দায়-দায়িত্ব আইনগতভাবে স্বীকৃতহবে না; মাইগ্রেশন বা জলবায়ু উদ্বাস্থদের বিষয়টি 'লস এন্ড ড্যামেজ' এর আওতায় আসবে না; প্রশমন ও অভিযোজন সংক্রান্ত আর্থিক সহায়তা দানের বিষয়টি এককভাবে উন্নতদেশগুলোর (পূর্বতন এনেক্স-১) ওপর বর্তাবে না, বরং এ ক্ষেত্রে আর্থিকভাবে স্বচ্ছল 'অগ্রগামী উন্নয়নশীল দেশ' গুলো (কাতার, সিঙ্গাপুর, চিন, দক্ষিণ কোরিয়া, ব্রাজিল প্রভৃতি) অংশগ্রহণ করবে।

প্যারিসে আলোচনায় চিনের ইতিবাচক ভূমিকা ছিল উল্লেখ করার মতো। অবশ্য গত তিন বছর ধরেই চিন সরকার জলবায়ু পরিবর্তন বিষয় একটি চুক্তিতে উপনীত হতে মার্কিন যুক্তরাষ্ট্রের সাথে এক যোগে কাজ করার এবং যথেষ্ট নমনীয় মনভাব প্রদর্শন করে আসছে। বিশ্বের প্রধান কার্বন নির্গমন কারী দেশ হিসেবে চিনের এই নমনীয় অবস্থান অনেক ক্ষেত্রেই চুক্তিটি উপনীত হওয়ার ক্ষেত্রে গুরুত্বপূর্ণ ভূমিকা পালন করেছিল। যদিও অনেকে মনে করে থাকেন যে নিজ দেশের ক্রমবর্ধমান জলবায়ু ঝুকির কারণেই চিন সরকার এই নমনীয় মনোভাব প্রদর্শন করেছে। তার পরেও এককথা সত্যি যে চিন গত ২০০৯ এ কোপেনহেগেন সম্মেলনের অবস্থান পরিবর্তন করার কারণেই এই জলবায়ু চুক্তি সাফল্যের সঙ্গে সম্পাদিত হতে পেরেছে। মার্কিন যুক্তরাষ্ট্রের সঙ্গে দ্বি-পাক্ষিক আলোচনায় জলবায়ু পরিবর্তন ইস্যুটি বারবার গুরুত্ব পেয়েছে। চিন ২০৩০ নাগাদ তার ঘিনহাউস গ্যাস ইমিশন এর পিকিং এর টার্গেটি এর কথা উল্লেখ করেছে এবং প্যারিসের আলোচনার শুরু থেকেই চুক্তিতে উপনীত হতে একটি নমনীয় মনোভাব প্রদর্শন করেছে। এমনকি আর্থিক সহায়তা দানের প্রশ্নেও চিন প্রায় ৩ বিলিয়ন ইউএস ডলারের সহায়তা দানের প্রস্তাব দিয়েছে।

কিন্তু প্যারিস জলবায়ূ আলোচনায় সবচাইতে বাগড়া দেওয়ার ভূমিকা পালন করেছিল ভারত, প্রথমত তারা ঐতিহাসিক দায় (Historical Responsibility) এর দাবীর আড়ালে অগ্রগামী উন্নয়নশীল দেশগুলোর কোন রকমের কার্বন প্রশমনের দায় গ্রহণ না করা এবং জলবায়ু পরিবর্তন মোকাবেলায় উন্নতদেশ গুলোর আর্থিক সহায়তা দানে কোন প্রকার 'টোকেন' অংশগ্রহণের প্রস্টুবকেও অস্বীকার করে এসেছে। জলবায়ু পরিবর্তন মোকাবেলায় প্রশমন ও আর্থিক সকল দায়-দায়িতৃ গুধু মাত্র এনেক্স-এক দেশ গুলোর বলে পাশ কাটিয়ে যেতে চেয়েছে। এমনকি প্রতি পাঁচ বছর পর পর 'এনডিসি'সমূহ রিভিউ এর প্রস্তাবেও ভারত বিরোধীতা করেছিল এবং ২০৩০ সালের আগে প্রশমন টার্গেটকে রিভিউ না করার কথা বলেছিল। ভারতের এই অবস্থান প্রত্যাশিত ছিল না এবং কারোর কাছেই গ্রহণযোগ্য ছিল না। মূলত প্যারিস আলোচনার সবচাইতে ভারত সবচেয়ে নেতিবাচক (spoiler) ভূমিকা পালন করেছে (Busby,2016)। যেখানে ভিয়েতনাম এবং ইন্দোনেশিয়ার মত দেশগুলো গ্রিন ক্লাইমেট ফান্ডে সহায়তার প্রতিশ্রুলি দিয়েছে সেখানে ভারত কোন প্রত্নির্ছাতি দেয়নি।

অন্যদিকে ইউরোপীয় ইউনিয়ন 'লস এন্ড ড্যামেজ' কে অ্যাডপটেশনের বাইরে একটি স্বতন্ত্র বিষয় হিসেবে রাখতে সম্মত থাকলেও এর জন্যে আর্থিক দায় গ্রহণকে আইনগতভাবে প্রযোজ্য করতে AOSIS 'র দাবীর সঙ্গে সহমত ছিল না। এছাড়াও 'লস এন্ড ড্যামেজ' মোকাবেলায় ইউরোপীয় ইউনিয়ন ভূক্ত দেশগুলো 'ইস্থুরেস' এর ওপর জোর দিলেও দরিদ্র জনগোষ্ঠীর জন্যে বেশি কার্যকর 'সামাজিক নিরাপত্তা বেষ্ঠনী' গড়ে তোলার বিষয়টি এড়িয়ে গিয়েছে। ইইউভূক্ত দেশগুলো অবশ্য শেষ দিনের
একটি সমঝোতায় পৌঁছুতে সহায়ক ভূমিকা পালন করেছে। বিশেষ করে ফ্রান্স ও চিনের প্রস্তাবিত INDC সমূহকে প্রতি পাঁচ বছর অন্তর অন্তর রিভিউ করার প্রস্তাবের সঙ্গে ২০১৮ সাল নাগাদ আইএনডিসি সমূহের একটি প্রাথমিক রিভিউ এর বিষয়টি অন্তর্ভূক্ত করার ক্ষেত্রে ইইউ'র কূটনৈতিক তৎপরতা সফল হয়েছে (Busby, 2016)।

জলবায়ু পরিবর্তনজনিত আলোচনা মূলত আঞ্চলিক গ্রুপ এবং নেগোশিয়েশন জোটের মধ্যে আবর্তীত হয় থাকে। আঞ্চলিক গ্রুপগুলোর গঠন জাতিসজ্যের অফিসিয়াল শ্রেণীবিন্যাস পদ্ধতির মাধ্যমে নির্ধারিত হয়েছে। অন্যদিকে নেগোশিয়েশন জোটগুলো একই স্বার্থসংশ্লিষ্ট বিষয় নিয়ে গঠিত একটি 'সাময়িক' কুটনৈতিক মৈত্রি। আলোচনা সভায় দেশসমূহ সাধারনত তাদের জোটের হয়ে কথা বলে। তবে প্যারিস আলোচনায় ক্ষুদ্র দ্বীপরাষ্ট্রসমূহের এ্যলায়েঙ্গ (AOSIS), স্বল্পোন্নত দেশসমূহ (LDCs), গ্রুপ ৭৭ এবং চিন, ইউরোপিয়ান ইউনিয়ন, আমব্রেলা গ্রুপ, বেসিক, সম-মনা দেশসমূহের জোট (Like Minded Group of States)^(২৩) দের ভূমিকা আলোচিত হয়েছে। তবে এবার প্যারিসে চমক ছিল নতুন আবির্ভূত 'হাই এম্বিশন কোয়ালিশন'(high ambition coalition)^(২৪) এর সফল তৎপরতা।

উল্লেখ্য যে, ২০০৯ এ কোপেনহেগেনে জলবায়ু আলোচনাকে ব্যর্থ করতে 'বেসিক' জোট কার্যকরী ভূমিকা রেখেছিল। আবার ২০১১ তে ডারবান আলোচনায় অগ্রগামী উন্নয়নশীল দেশগুলোকে যাতে করে বাধ্যতামূলক প্রশমন টার্গেট গ্রহণ করতে না হয় সে জন্যে সম-মনা দেশসমূহের জোট ব্যাপক তৎপরতা চালিয়ে ছিল। কিন্তু প্যারিসের চিত্রটা ছিল ভিন্ন। সম-মনা দেশসমূহের জোটের তৎপরতা থাকলেও চিন আলোচনায় নমনীয় মনোভাব প্রদর্শন করায় 'বেসিক' জোটের প্রভাব কমে যায়।

অন্যদিকে ভারতসহ কয়েকটি দেশের নেতিবাচক কূটনীতির পাল্টা হিসেবে মার্কিন যুক্তরাষ্ট্র ও ইউরোপীয় ইউনিয়নের সমর্থনে প্রায় ছয় মাসের গোপন তৎপরতায় গড়ে ওঠা 'হাই এম্বিশন কোয়ালিশন' সমঝোতায় পৌঁছুতে গুরুত্বপূর্ণ ভূমিকা পালন করেছে।

[[]২৩] লাইক মাইন্ডডেট গ্রুপ অব স্টেট বা সম-মনা দেশসমূহের জোটটি ২০১২ সালের গঠিত হয়েছে। সৌদী আরবসহ কয়েকটি আরবদেশ, ভারত, ফিলিপাইন, মালয়েশিয়া, চিনসহ কিছু এশীয় দেশ এবং দক্ষিণ আমেরিকার ভেনিজুয়েলা, বলিভিয়া এবং কিউবাকে নিয়ে এই জোট গঠিত হয়েছে। এটি জলবায়ু আলোচনায় উন্নয়নশীল দেশসমূহের অভিন্ন স্বার্থ সংশি- ষ্ট ইস্যুতে সংঘবদ্ধ। অনেকে এই গ্রুপটিকে 'বেসিক' দেশগুলির অনুগামী বলে মনে করেন। বাংলাদেশ এই জোটে নেই।

[[]২৪] মার্কিন যুক্তরাষ্ট্র ও ইউরোপীয় ইউনিয়নের সহায়তায় গঠিত প্রায় ১০০টি দেশের নতুন কোয়লিশন, যেখানে ৭৯টি আফ্রিকান, প্রশান্ত মহাসাগরীয় ক্ষুদ্র দ্বীপরাষ্ট্র ও ক্যারিবিয়ান দেশগুলো রয়েছে। ছয় মাসের গোপন আলাপ-আলোচনার পরে গত ০৮ ডিসেম্বর প্যারিসের সম্মেলন স্থলে এই জোটের আত্মপ্রকাশের ঘোষণা দেওয়া হয়। এই কোয়ালিশনের মূখপাত্র মার্শাল আইল্যান্ডের ক্লাইমেট এম্যাসেডর ও প্রাক্তন পররাষ্ট্র মন্ত্রী টনি ডি ব্রুম (Tony De Brum) এই গ্রুপের লক্ষ্য হিসেবে কিছু গুরুত্বপূর্ণ ইস্যু যেমন তাপমাত্রা ব্রাসের টার্গেট ১.৫ ডিয়িতে বেঁধে রাখা, প্রতি পাঁচ বছর পর পর NDA কে রিভিউ করার প্রস্তাবের পক্ষে, মিটিগেশন টার্গেট নির্ধারণ এবং ২০২০ সাল নাগাদ প্রতিবছর প্রতিশ্রুন্ত ১০০ বিলিয়ন সহায়তা নিশ্চিত করাকে তুলে ধরেছেন (http://www.bbc.com/news/science-environment-35057282)। কানাডা, অস্ট্রেলিয়া, ব্রাজিল কোয়ালিশনে যোগ দিলেও বাংলাদেশ বা ভারত এখনো এই কোয়ালিশনে যোগ দেয়নি।

Social Change (ISSN: 1997-938X)

ইউএনএফসিসি প্রক্রিয়ায় এখনো আনুষ্ঠানিক স্বীকৃতি না পেলেও আফ্রিকান ও প্রশান্ত মহাসাগরীয় ক্ষুদ্র প্রায় ১০০টির বেশি দেশের সমন্বয়ে গঠিত এই কোয়ালিশন আলোচনার শেষ দিনগুলোতে গুরুত্বপূর্ণ হয়ে উঠেছিল। মূলত প্যারিস সমঝোতার বিরোধীতাকারীদের পরাস্ড করতে ইইউ এবং যুক্তরাষ্ট্র অত্যন্ত সাফল্যের সঙ্গে 'হাই এম্বিশন কোয়ালিশন'কে ব্যবহার করতে সক্ষম হয়েছে। এটি ছিল তাদের 'মাস্টার প্রান' এর অংশ ও শেষ কার্ডগুলোর অন্যতম, যা প্যারিস চুন্ডির স্বপক্ষে জনমত তৈরিতে সহায়তা করেছে এবং ব্রাজিল এই কোয়লিশনে যোগ দেওয়ায় 'বেসিক' গ্রুপ দূর্বল হয়ে পড়ে। ফলে ভারত বা চুন্ডির বিপক্ষে অবস্থান গ্রহণকারীরা আর কার্যকর বিরোধীতা গড়ে তুলতে পারেনি, যা একটি সর্বসম্মত সমঝোতায় উপনীত হতে সহায়ক হয়েছে।

একইভাবে চিনা প্রেসিডেন্ট শি জিনপিং (Xi Jinping)'র সঙ্গে মার্কিন পররাষ্ট্র মন্ত্রী জন কেরি এবং ফ''াঙ্গের তৎকালীন পররাষ্ট্র মন্ত্রী ও সম্মেলনের সভাপতি লরেঙ্গ ফেবিয়াস এর মধ্যে সরাসরি যোগাযোগ কাটছাট করে শেষ দিনে একটি সমঝোতায় উপনীত হতে অত্যন্ত গুরুত্বপূর্ণ ভূমিকা রেখেছে বলে অনেকে ধারনা করেছেন।

এনজিও, স্থানীয় সরকার ও কর্পোরেটদের ভূমিকা: প্যারিস কনফারেস জলবায়ু পরিবর্তন মোকাবেলায় নগর সরকার, কর্পোরেশন এবং এনজিওদের কার্যক্রমকে প্রদর্শনের সুযোগ করে দেওয়ার পাশাপাশি এসব উদ্যোগকে বিভিন্ন পর্যায়ে ও স্তরভিত্তিক কোঅর্ডিনেট করার সুযোগও সৃষ্টি করেছে। এই চুক্তির সফলতা ও আর উচ্চকাজ্যি জলবায়ু কার্যক্রমের জন্যে রাষ্ট্রপক্ষদের বাইরে আঞ্চলিক ও আন্তর্জাতিক পর্যায়ে বেসরকারি স্টেকহোল্ডারদের (non-Party stakeholders), যাির মধ্যে সিভিল সোসাইটি, প্রাইভেট সেক্টর, আর্থিক প্রতিষ্ঠান, নগর কর্তৃপক্ষ ও অন্যান্য উপ-আঞ্চলিক কর্তৃপক্ষ (subnational authorities), স্থানীয় জনগোষ্ঠী, ক্ষুদ্র নৃ-তান্তিক জনগোষ্ঠীদের (indigenous peoples)] গুরুত্বপূর্ণ ভূমিকার কথা স্বীকার করা হয়েছে এবং তা আরো বৃদ্ধির প্রস্তাব রাখা হয়েছে (COP decision,FCCC/CP/2015/L.9/ Rev.1)।

কপ-২১ এর সিদ্ধান্তে কার্বন প্রশমন, জলবায়ু সহিষ্ণুতা (resilience) বৃদ্ধি এবং বিপদাপন্নতা কমাতে কার্যক্রম পরিচালনায় সিভিল সোসাইটি, প্রাইভেট সেক্টর, আর্থিক প্রতিষ্ঠান, মহানগর ও অন্যান্য সাব-ন্যাশনাল কর্তৃপক্ষসহ সকল নন-পার্টি স্টেকহোন্ডারদের আহ্বান জানিয়েছে এবং এই কার্যক্রমকে নন-স্টেট এ্যাক্টর জোন ফর ক্লাইমেট এ্যকশন প্লাটফর্ম^(২৫)

[[]২৫] ২০১৪ সালে পেরুর রাজধানী লিমাতে অনুষ্ঠিত 'কপ' এর ২০তম অধিবেশনে 'Non-State Actor Zone for Climate Action (NAZCA)' কার্যক্রমের উদ্বোধন করা হয়। এখানে প্রাইডেট কোম্পানি, মহানগর ও আঞ্চলিক কর্তৃপক্ষ এবং বিনিয়োগকারীদের জলবায়ু পরিবর্তন মোকাবেলার কার্যক্রম ও প্রতিশ্রুতিসমূহ রেজিস্ট্রি করা হয় (তথ্যসূত্র: Error! Hyperlink reference not valid.)

এ রেজিস্ট্রেশন করার আহ্বান জানিয়েছে [COP decision,117, 118]। এই কার্যক্রমের আওতায় নবায়নযোগ্য জ্বালানি, এনার্জি প্রাপ্তি ও ব্যবহার, ট্রান্সপোর্ট, রেজিলিয়ান্স এবং প্রশমন ব্রাস সংক্রান্ত মোট ১১,৬১৯টি প্রতিশ্রুতি মিলেছে ^[২৬]। এছাড়াও চুক্তির ৬ নং অনুচ্ছেদের ৮(বি) প্যারায় নন মার্কেট এ্যাপ্রোচের মাধ্যমে

এখাড়াও চ্রাঙ্গর ও নং অনুচ্ছেদের চা(ব) স্যায়ার নন নাফেট এ্যারোচের নাব্যনে 'এনডিসি' বাস্ড্রায়নের জন্য সরকারি-বেসরকারি অংশ্গ্রহণ বৃদ্ধি এবং প্রয়োজনীয় প্রাতিষ্ঠানিক ব্যবস্থা গড়ে তোলার ওপর গুর[্]তু দেওয়া হয়েছে [Article 6 (8), The Paris Agreement]।

প্যারিস সম্মেলনে Ikea, Coca-Cola, Walmart, Kellogg এবং Dell এর মতো বড় কর্পোরেশন গুলোসহ ১১৪টি কোম্পানি (যারা মিলিতভাবে বছরে কমপক্ষে ৪৭৬ মেট্রিক টন কার্বন গ্যাস নির্গমন করে থাকে) বৈশ্বিক তাপমাত্রাকে দুই ডিগ্রি সেঃ এর মধ্যে সীমিত রাখতে তাদের কার্যক্রম পরিচালনার অঙ্গীকার করেছে ^[২৭]। অবশ্য প্যারিস চুক্তির আগে থেকেই বিনিয়োগকারী, ব্যাংকার ও ইন্যুরেঙ্গ কোম্পানিরা জলবায়ু পরিবর্তন মোকাবেলায় তাদের টার্গেট ও প্রতিশ্রুতি ঘোষণা করে আসছেন।

প্যারিস আলোচনার শুরুতেই মাইক্রোসফটের প্রতিষ্ঠাতা বিল গেটস ও ফেসবুকের সহ-প্রতিষ্ঠাতা মার্ক জুকারবার্গ এর নেতৃত্বে বিশ্বের ১০টি দেশের ২৫টি বিনিয়োগকারী কর্পোরেশনের সমস্বয়ে' ব্রেক্থ্রু এনার্জি কোয়ালিশন' গঠনের ঘোষণা দিয়েছেন। ^[২৮]

অন্যদিকে বিশ্বের বিভিন্ন দেশের বিনিয়োগকারীদের নিয়ে ২০১৩ সালে গঠিত 'We Means Business' নামক কোয়ালিশন জলবায়ু কার্যক্রমকে এগিয়ে নিয়ে যেতে বিনিয়োগের পরিকল্পনা রেখেছেন। এই কোয়ালিশনে বর্তমানে বিশ্বের ১৮৩ জন বিনিয়োগকারী, ৪০৪টি কোম্পানি রয়েছে, যাদের মোট রাজস্বের পরিমাণ ৮ বিলিয়ন ডলারের বেশি ^(২৯)।

আন্তর্জাতিক পর্যায়ে 'C40 Cities Climate Leadership Group' স্থানীয় সরকার ও নগর সরকার গুলোকে মিটিগেশন কার্যক্রম বৃদ্ধির বড় ধরনের সুযোগ তৈরি করে দিয়েছে।

২০০৫ সালে প্রতিষ্ঠিত এই জোটে ৮০টি মেগাসিটি রয়েছে, যাদের সম্মিলিত জনসংখ্যা প্রায় ৬০ কোটি এবং বৈশ্বিক জিডিপিতে যাদের ২৫ শতাংশ অবদান রয়েছে। জোটটি প্যারিস চুক্তির '১.৫ ডিগ্রি সেঃ টার্গেট'কে প্রবলভাবে সমর্থন করেছে এবং এই টার্গেট পূরণে তাদের অবদান হিসেবে ২০৩০ সাল নাগাদ নিগর্মন কমপক্ষে ৩ গিগাটন কার্বন ডাই অক্সাইড সমতূল্য ব্রাসের লক্ষ্যমাত্রা নিয়েছে ^[৩০]।

[[]२७] Error! Hyperlink reference not valid.

[[]२9] Error! Hyperlink reference not valid. ।

^[%] http://www. theguardian.com/ environment /2015 /nov/ 30/

[[]عه] http://www.wemeanbusinesscoalition.org/ ۱

[[]vo] http://www.c40.org/about |

এই বেসরকারি উদ্যোগসমূহ প্যারিস চুক্তি বাস্তবায়নের ক্ষেত্রে বড় ভরসা হিসেবে বিবেচিত হচ্ছে।

প্যারিস চুক্তির দূর্বল দিক

প্যারিস চুক্তি নিয়ে গবেষক, কূটনৈতিক, এনজিও ও নাগরিক সমাজের মধ্যে বিভিন্নমূখী প্রতিক্রিয়া সৃষ্টি হয়েছে। বাংলাদেশে একদল প্যারিস চুক্তিকে একটি ঐতিহাসিক চুক্তি হিসেবে আখ্যা দিয়ে জোরালোভাবে সমর্থন করেছেন; আবার অন্য এক অংশ প্যারিস চুক্তিকে স্বল্পোন্নত দেশগুলোর সঙ্গে ঐতিহাসিক প্রতারণা হিসেবে অবিহিত করেছেন (ইক্যুইটি বিডি ^[02]; সিএসআরএল ^[02])। তবে বিশেষজ্ঞ এবং নাগরিক সমাজের বড় অংশটি এই চুক্তিতে ইতিবাচক এবং 'গ্রহণযোগ্য' (acceptable) চুক্তি হিসেবে দেখতে আগ্রহী। এই 'মডারেট' পন্থীরা প্যারিস চুক্তির দূর্বলতা ও অসম্পূর্ণতাগুলোকে স্বীকার করে নিয়েও একটি জলবায়ু সহিষ্ণু ও কার্বন মুক্ত আগামী বিশ্ব গড়তে এই চুক্তির ভূমিকা থাকবে বলে মনে করেন [যেমন: এনসিসি'বি, সিডিপি, সিপিআরডি ^[00], সেন্টার ফর পলিসি ডায়ালগ ^[08]। এই প্রেক্ষিতে প্যারিস চুক্তির বিরোধীতাকারীদের যুক্তি ও স্বপক্ষের যুক্তিগুলোকে সংক্ষেপে তুলে ধরা হল।

চুক্তির বিরোধীতাকারী ড. হ্যারিস গি- কম্যান ^{৩৫।} প্যারিস চুক্তির লক্ষ্য ও বাস্তবতার মধ্যেকার সুগভীর দূরত্ব সম্পর্কে প্রশ্ন তুলেছেন। তাদের মতে প্যারিসের অব্যহতি পূর্বে রাষ্ট্রপক্ষের জমা দেওয়া আইএনডিসি (INDC) সমূহ পূর্ণাঙ্গ ভাবে বাস্তবায়িত হলেও তা বিশ্বের তাপমাত্রা বৃদ্ধিকে এই শতাব্দীর শেষ নাগাদ ২ ডিগ্রি সেলসিয়াসের মধ্যে সীমিত রাখতে সক্ষম হবে না।

[[]৩১] পরিবেশ মন্ত্রীর পদত্যাগের দাবীতে ইক্যুইটি বিডি'র ১৪/১২/১৫ তারিখের সংবাদ সম্মেলনঃ(সূত্র:http://www.theindependentbd.com/printversion/details/ 26835)।

[[]৩২] 'প্যারিস চুক্তি বিশ্ববাসীর সঙ্গে বেইমানি' শীরোনামে' সিএসআরএলসহ অন্যান্যদের ২৬/১২/২০১৫ তারিখের সংবাদ সন্মেলন;

⁽भूब: http://www.prothom-alo.com/bangladesh/article/722707) ।

[[]৩৩] 'প্যারিস চুক্তির সুফল পেতে দ্র⁻⁻ত পদক্ষেপ গ্রহণের দাবী' শীর্ষক এনসিসি'বি, সিপিআরডি ও সিডিপি'র ১৯/১২/২০১৫ তারিখের যৌথ সংবাদ সম্মেলন (সূত্র: www.kalerkantho.com/printedition/news/2015/12/20/303803)।

[[]৩৪] সেন্টার ফর পলিসি ডায়ালগ এর ২৩/১২/১৫ তারিখের সংবাদ সম্মেলন (www.hawker.com.bd/news_details.php?news_id=458294)]।

[[]৩৫] প্যারিস চুক্তির কঠোর সমালোচক যুক্তরাষ্ট্রের সেন্টার ফর গভর্নেঙ্গ এন্ড সাসটেইনেবিলিটি'র সিনিয়র ফেলো ড. হ্যারিস গি- কম্যান প্যারিস চুক্তির সমালোচনা করে সাতটি প্রশ্ন তুলে ধরেছিলেন (Seven questions about the 'successful' Paris COP; could be available at https:// www.linkedin.com/pulse/sevenquestions-successful-paris-cop-harrisgleckman?forceNoSplash=true) । চুক্তিবিরোধীদের মাঝে এই প্রশ্নগুলো জনপ্রিয়তা লাভ করেছে ।

উল্লেখ্য যে, ইউনাইটেড নেশনস্ এনভায়রনমেন্টাল প্রোগ্রাম (UNEP) এর হিসাব অনুযায়ী পার্টিদের পেশকৃত 'আইএনডিসি'গুলোর পুরোটা বাস্তবায়িত হলেও বিশ্বের তাপমাত্রা এ শতাব্দীর শেষ নাগাদ ৩ ডিগ্রি সেঃ পর্যন্ত বৃদ্ধি পাবে। আর কেবল 'শর্তহীন' অংশটি বাস্তবায়ন করলে তাপমাত্রা ৩.৫ ডিগ্রি সেঃ পর্যন্ত বৃদ্ধি পাবে (UNEP, 2015)।

পক্ষান্তরে চুক্তির সমর্থকরা মনে করেন, গ্রিনহাউস গ্যাস নির্গমন ব্রাসে কোন ধরনের আন্তর্জাতিক চুক্তি না থাকলে বিশ্বের তাপমাত্রা এই শতাব্দির শেষ নাগাদ ৪ ডিগ্রি থেকে ৬ ডিগ্রি পর্যন্ত বৃদ্ধি পাওয়ার আশঙ্কা রয়েছে। এ কারণে লাগামহীনভাবে গ্রিনহাউস গ্যাস নির্গমনকে ব্রাস করতে প্যারিস একটি 'সূচনা বিন্দু' (strating point) হিসেবে কাজ করবে।

উল্লেখ্য প্যারিস চুক্তিতে এবারই প্রথম বিশ্বের তাপমাত্রাকে দুই ডিগ্রি সেঃ বেঁধে রাখার একটি লক্ষ্যমাত্রা নির্ধারণ করা হয়েছে। যা আগের জলবায়ু কনভেনশনে (১৯৯২) বা কিয়োটো প্রটোকলে (১৯৯৭) অন্তর্ভুক্ত করা সম্ভব হয়নি। বহু বিতর্কের পর 'নমনীয়' দীর্ঘমেয়াদি লক্ষ্য নির্ধারণ করায় প্যারিস চুক্তিকে 'অকার্যকর' হিসেবে সমালোচনা করা হলেও একটি বৈশ্বিক টার্গেট নির্ধারণে এবং জলবায়ু আলোচনার কার্যকারীতা তুলে ধরতে সফল হয়েছে।

নির্গমন ব্রাস টার্গেট সম্পর্কে জলবায়ু পরিবর্তন সংক্রান্ত ইন্টার গর্তমেন্টাল প্যানেল অন ক্লাইমেট চেঞ্জ (আইপিসিসি) ^[৩৬] ২০১৪ সালে প্রকাশিত পঞ্চম সমীক্ষা রিপোর্টে (IPCC AR5) উলে- খ করেছে যে, ২০৩০ সাল নাগাদ গ্রিনহাউস গ্যাসগুলোর বার্ষিক নির্গমন ৫৫ গিগাটন কার্বন ডাই অক্সাইড সমতুল্য (GtCO2e) এর বেশি হলে দীর্ঘমেয়াদে বিশ্বের তাপমাত্রা বৃদ্ধিকে ২ ডিগ্রি সেঃ এ সীমিত রাখা বড় ধরনের চ্যালেঞ্জ হয়ে দাঁড়াবে। তবে ২০৩০ সাল নাগাদ এই নির্গমনকে ৫০ গিগাটনের নিচে ধরে রাখা সম্ভব হলে এই চ্যালেঞ্জ ব্রাস পাবে (Clarke, L., et al., 2014)। আর ২০২০ সালের পর স্বল্প ব্যয়ে ২ ডিগ্রি সেঃ এর টার্গেট এর লক্ষ্যে এগিয়ে যেতে বার্ষিক নির্গমনকে ৪২ গিগাটনে নামিয়ে আনতে হবে (UNEP, 2015)।

এ কারণে কপ' এর সিদ্ধান্দেড় এ বিষয়ে উদ্বেগ' প্রকাশ করা হয়েছে যে, পার্টিদের পেশকৃত আইএনডিসি (INDC) সমূহে ২০২৫ ও ২০৩০ সালের পর্যায়ে যে পরিমাণ গ্রিনহাউস গ্যাস নির্গমনের ব্রাসের প্রস্ট্রাব রয়েছে তা বিশ্বের তাপমাত্রাকে ন্যূনতম ২ ডিগ্রি সেলসিয়াসের মধ্যে সীমিত রাখার সঙ্গে সাদৃশ্যপূর্ণ নয়।

[[]৩৬] আইপিসিসি হচ্ছে জলবায়ু পরিবর্তনজনিত প্রতিক্রিয়া, ভবিষ্যতের ঝুঁকি, অভিযোজন ও প্রশমনের উপায়সমূহ এবং এ সংক্রাশড়বিজ্ঞানভিত্তিক তথ্য প্রমান যোগান দেওয়ার প্রধানতম আশ্ডর্জাতিক সংস্থা। ১৯৯০ সাল থেকে এটি প্রতি ৬ বছর পরপর এ্যাসেনমেন্ট রিপোর্ট প্রকাশ করে আসছে। ২০১৩-১৪ সালে আইপিসিসি'র '৫ম এ্যসেসমেন্ট রিপোর্ট' (AR5) প্রকাশিত হয়েছে (http://www.ipcc.ch/news_and_events/docs/factsheets/FS_ what_ipcc.pdf)।

বরং তা ২০৩০ সাল নাগাদ সম্ভাব্য বার্ষিক ৫৫ গিগাটন কার্বন ডাই অক্সাইড সমতূল্য (GtCO2e) নির্গমন ঘটাবে। অথচ তাপমাত্রাকে শিল্প-বিপ- ব পূর্ব যুগের তুলনায় দুই ডিগ্রি সেলসিয়াসের মধ্যে সীমিত রাখতে (স্বল্প ব্যয়ে) বার্ষিক নির্গমন ৪০ গিগাটনে নামিয়ে আনা প্রয়োজন (COP Decision-17)। আর তাপমাত্রাকে ১.৫ ডিগ্রিতে সেলসিয়াসের মধ্যে বেঁধে রাখতে হলে এই লক্ষ্যকে আরও বৃদ্ধি করতে হবে, যা ২০১৮ সালে প্রকাশিতব্য আইপিসিসি'র স্পেশাল রিপোটের মাধ্যমে নির্ধারিত হবে [COP decision-21]।

বিরোধীদের দ্বিতীয় আপত্তি হচ্ছে যে, এই চুক্তিতে 'নিগর্মনকারী দেশগুলোকে অবাধ সুযোগ দান' করা হয়েছে। যেখানে আইএনডিসি (INDC) ছাড়া অন্য কোন ভবিষ্যত অঙ্গীকার নেই সেখানে কোন একটি রাষ্ট্র তার নিকটবর্তী অর্থনৈতিক ও রাজনৈতিক স্বার্থকে ক্ষতিগ্রস্ণ্ড করে কোন যুক্তিতে নিগর্মন ব্রাসের উদ্যোগ গ্রহণ করবে? কথা ঠিক যে, স্বল্পমেয়াদি অর্থনৈতিক ও রাজনৈতিক স্বার্থ বিবেচনায় আনলে অগ্রবর্তী উন্নয়নশীল দেশগুলোর জন্যে (যেমন: ভারত, ফিলিপাইন, দক্ষিণ আফ্রিকা) এটি গ্রহণযোগ্য হবে না। তবে একই সঙ্গে দূরবর্তী উন্নয়ন গতিধারা এবং জলবায়ু পরিবর্তন মোকাবেলার জন্যে ন্যায্যতার ভিত্তিতে 'যৌথ দায়, কিন্তু ভিন্ন ভিন্ন দায়িত্ব' পালনের নীতিমালার প্রতি আস্তাশীল হলেই কেবল এই চুক্তি সাফল্যমন্ডিত হবে, অন্যথায় নয়। তবে তার জন্যে উন্নয়নশীল ও স্বল্পোন্নত দেশগুলোতে উন্নত দেশগুলোর ক্রমবর্ধমান আর্থিক সহায়তার প্রয়োজন হবে। তবে কেবল রাষ্ট্রপক্ষের ওপর নির্ভর করে থাকা যাবে না। বরং বিভিন্ন কর্পোরেট সেক্টর, ইন্দ্রাষ্ট্রি, তেল কয়লা ও গ্যাস উৎপাদনকারী দেশগুলি ও কোম্পানি, আল্র্র্জাতিক ও জাতীয় এনজিও, স্থানীয় সরকার, নগর কৃর্তপক্ষ সবাইকে সম্মিলিতভাবে প্রশমনে উদ্যোগী হতে হবে। আইনের কঠোরতার পরিবর্তে প্যারিসে মানুষের জাতীয় রাষ্ট্রগুলোর স্বপরিকল্পিত এবং স্বপ্রণোদিত মিটিগেশনের উপরে গুরুতু দিয়েছে এবং তার সঙ্গে সাযুজ্য রেখে স্থানীয় বা সাবন্যাশনাল পর্যায়ের লক্ষ্য নির্ধারণের তাগিদ দিয়েছে।

গি- কম্যান ও অন্যান্যরা প্রতি পাঁচ বছর অস্দ্রে রাষ্ট্রপক্ষগুলো যে টার্গেট বৃদ্ধি করবে তার কোন নিশ্চয়তা আছে কি না সে বিষয়ে প্রশ্ন তুলেছেন। ২০১৫ সালে রাষ্ট্রপক্ষের পেশকৃত আইএনডিসি (INDC) গুলোকে প্রতি পাঁচ বছর অস্দ্র সংশোধিত এবং অবশ্যই আরও উচ্চতর টার্গেট গ্রহণের বিষয়ে প্যারিস চুক্তির সুস্পষ্ট নির্দেশনা রয়েছে [আর্টিকেল-৪ (৩)]।

আবার ২০১৫ সালে পেশকৃত মিটিগেশন টার্গেট যথেষ্ট নয় এ কারণে কপ-২১ এর সিদ্ধাস্ড অনুযায়ী (FCCC/CP/2015/10/Add.1) ২০১৮ সাল নাগাদ চুক্তির ৪ নং অনুচ্ছেদের ১ নং প্যারায় উলে- খিত 'দীর্ঘ মেয়াদি লক্ষ্য' (long-term goal) পূরণে সংশোধিত এনডিসি (NDC) বা বর্ধিত লক্ষ্যমাত্রা পেশ করবে।

একই সময়ে তাপমাত্রা বৃদ্ধি ১.৫ ডিগ্রিতে সীমিত রাখতে কি কি ধরনের উদ্যোগ গ্রহণ

করতে হবে তা বিস্তারিত ভাবে জানাতে ইন্টারগভার্মেন্টাল প্যানেল অন ক্লাইমেট চেঞ্জ (IPCCC) কে একটি 'স্পেশাল রিপোর্ট' প্রণয়নের দায়িত্ব দেওয়া হয়েছে। কাজেই আশাকরা যায় যে, রাষ্ট্রপক্ষসমূহ নতুন বৈজ্ঞানিক জ্ঞানের ভিত্তিতে ২০১৮ সাল নাগাদ তাদের প্রশমন আকাজ্ঞা বৃদ্ধি করবে যা বিশ্বের তাপমাত্রা বৃদ্ধিকে ২ ডিগ্রি বা ১.৫ ডিগ্রির মধ্যে সীমিত রাখতে যথেষ্ট হবে। আবার ২০২৩ সালে পাঁচ বছর মেয়াদি 'স্টক টেকিং' এর প্রথম পর্ব অনুষ্ঠিত হবে, যেখানে রাষ্ট্রপক্ষগুলো দীর্ঘ মেয়াদি লক্ষ্যপূরণে তাদের সম্পাদিত কার্যক্রমসমূহ পর্যালোচনা করবে এবং টার্গেট বৃদ্ধি করার সুযোগ পাবে।

বিরোধীতাকারীরা প্যারিস চুক্তিকে একটি 'চমৎকার অ-কার্যকরী ব্যবস্থা' হিসেবে উল্লেখ করেছেন। উল্লেখ্য যে, ওজোন গ্যাস নিয়ন্ত্রণে প্রনীত ১৯৮৭ সালে প্রনীত 'মন্ট্রিল প্রোটোকল' (Montreal Protocol) ^[৩৭] এর 'বটম-আপ' পন্থায় প্যারিস চুক্তির কার্যকরের পরিকল্পা করা হয়েছে। এ কারণে এই চুক্তির সবচেয়ে দুর্বল এবং একই সঙ্গে সবচেয়ে সবল দিক হচ্ছে এটি একটি আস্থাভিত্তিক চুক্তি, যা আন্দ্র্জাতিক ও জাতীয় 'গভর্নেঙ্গ' এর পরিধিকে বিশ্মৃত করেছে। এই চুক্তি বাস্তবায়ন বা পালনের কম-বেশি ৮০ শতাংশ দায়-দায়িত্ব রাষ্ট্রীয় কর্তৃপক্ষের উপরে ন্যাস্ত করা হয়েছে। এ ক্ষেত্রে আন্তর্জাতিক বাধ্যবাধকতা বা আন্তর্জাতিক মনিটরিং এ ভূমিকাকে সুস্পষ্ট, সুনির্দিষ্ট ও বাধ্যবাধকতামূলক করা হয়নি। এ ক্ষেত্রে আস্থা রাখা হয়েছে যে, রাষ্ট্রপক্ষগুলো সততার সঙ্গে সব প্রতিবেদন দাখিল করবে এবং এ ক্ষেত্রে কোন জোরালো আন্তর্জাতিক মনিটরিং না থাকলেও সমস্যা হবে না।

আন্তর্জাতিক চুক্তির সাধারণ নীতিমালার ভিত্তিতে এই চুক্তিতে রাষ্ট্রপক্ষকে একজন ব্যাক্তি বা প্রতিষ্ঠান হিসেবে সৎ ও নিরপেক্ষ হিসেবে ধরে নেওয়া হয়েছে। কাজেই 'ন্যাশনালি ডিটারমাইন্ড কন্ট্রিবিউশন' বা এনডিসি (পূর্বেকার আইএনডিসি) তে রাষ্ট্রপক্ষসমূহ যে সব টার্গেট নিজেরাই স্বেচ্ছায় নির্ধারণ করেছে সেই লক্ষ্যপূরণে সততার সঙ্গে সর্বেচ্চি উদ্যোগ গ্রহণ করবে এবং এ সংক্রান্ত যে প্রতিবেদন জমা দিবে সেগুলোও স্বচ্ছ হবে। অবশ্য এই চুক্তির সর্বোচ্চ প্রয়োগ নিশ্চিত করার ক্ষেত্রে এটি একটি দূর্বল জায়গা। যেখানে সার্বভৌম জাতীয় রাষ্ট্রসমূহকে ঘোষিত চুক্তি বাস্তবায়নের ক্ষেত্রে আন্তর্জাতিক নিয়ন্ত্রণের পরিবর্তে সততার সঙ্গে স্ব-উদ্যোগী হিসেবে ধরে নেওয়া হয়েছে। এই সমঝোতা ব্যাধ্যবাধকতা মূলকভাবে কার্বন নিঃসরণ কমাতে চাপ প্রয়োগ না করে বরং দেশগুলির স্বপ্রণোদিত ইচ্ছের ওপর ছেড়ে দেওয়া হয়েছে। তাই রাষ্ট্রপক্ষের বাইরে অবস্থান করা সিভিল সোসাইটি, প্রাইভেট সেক্টর, আর্থিক প্রতিষ্ঠান, নগর কর্তৃপক্ষ ও অন্যান্য স্থানীয় সরকারের ক্রমবর্ধমান নেতৃত্বদানকারী ভূমিকাকে বিবেচনায় নিলে এ টার্গেটি 'অসম্ভব' হিসেবে চিহ্নিত হয় না, বরং স্বেচ্ছামূলক কর্মকাণ্ডের সফলতার নতুন নজির হিসেবে প্রতিভাত হয়।

[[]৩৭] মন্ট্রিল প্রোটোকল ওজন স্তর ক্ষয়কারী গ্যাস নিয়ন্ত্রণে অন্যতম সফল এক আম্র্র্জাতিক চুক্তি। ওজন স্তর রক্ষায় ভিয়েনা কনভেনশনের আওতায় ১৯৮৭ সালের ১৭ সেপ্টেম্বর চুক্তিটি প্রণীত হয় এবং ১৯৮৯ সালের ১ জানুযারি থেকে কার্যকরী হয়েছে (https://en.wikipedia.org/wiki/Montreal Protocol)।

প্যারিসে সম্পাদিত চুক্তির আর্থিক সহায়তার ব্যবস্থাকে গি- কম্যানসহ বিরোধীরা কঠোর সমালোচনা করে মন্তব্য করেছেন যে, এ ক্ষেত্রে প্যারিস চুক্তি কোপেনহেগেনের চাইতে অগ্রবর্তী হয়নি। এ কথা ঠিক যে, প্যারিসে আর্থিক সহায়তা বৃদ্ধির বিষয়ে বড় ধরনের কোন অগ্রগতি হয়নি।

উন্নত দেশসমূহ 'গ্রিন ক্লাইমেট ফান্ডে' ^(৩৮) প্রাথমিকভাবে ১০.১ বিলিয়ন ডলার প্রদান করেছেন(http://newsroom.unfccc.int/financial-flows/list-of-recentclimate-funding-announcements/) এবং ২০০৯ সালে কোপেনহেগেন সম্মেলনে প্রস্ণ্ডবিত প্রতি বছর ১০০ বিলিয়ন ডলার করে সহায়তার ঘোষণাকে ২০২০ সাল থেকে ২০২৫ সাল পর্যন্ত অব্যহত রাখতে এবং পরবর্তী সময়ে ১০০ বিলিয়ন ডলার থেকে বৃদ্ধি করতে সম্মত হয়েছে [COP decision 53 FCCC/CP/2015 /L.9/ Rev.1] ।

এছাড়াও ১১টি সদস্য দেশের একটি গ্রুপ 'Least Developed Countries Fund' ^[39] এ ২৪৮ মিলিয়ন ইউএস ডলার এবং জার্মানি, সুইডেন, ইতালি ও বেলজিয়াম 'Adaptation Fund' ^[80] এ ৭৫ মিলিয়ন ডলার সহায়তা দিয়েছে (http://newsroom.unfccc.int/financial-flows/list-of-recentclimate-funding-announcements)।

তবে প্যারিস আলোচনার শুরু থেকেই আমব্রেলা গ্রুপ ও ইউরোপীয় ইউনিয়নের ইচ্ছে ছিল কাতার বা সিঙ্গাপুরের মতো অধুনা-সমৃদ্ধ দেশগুলোর কাছ থেকে জলবায়ু অর্থায়নের জন্যে প্রতিশ্রু তি আদায় করা। আর্থিক সহায়তা বৃদ্ধির ক্ষেত্রে চিন, দক্ষিণ কোরিয়ার মতো দেশগুলো এমনকি পেরু, মঙ্গোলিয়া, ইন্দোনেশিয়া বা ভিয়েতনামের মতো অপেক্ষাকৃত দূর্বল দেশগুলো এগিয়ে আসলেও ভারত বা মালয়েশিয়ার মতো দেশগুলো এ আহ্বানে সাড়া দেয়নি। এ দেশগুলোর যুক্তি ছিল জলবায়ু পরিবর্তন মোকাবেলার আর্থিক দায়ের পুরোটাই গ্রিনহাউস গ্যাস নির্গমনের জন্যে ঐতিহাসিকভাবে দায়ী দেশগুলোর (পূর্বতন এনেক্স-১), এ ক্ষেত্রে অন্যদের অংশগ্রহণের প্রয়োজন নেই।

[[]৩৮] Green Climate Fund : বিশ্বের স্বল্পোনত দেশগুলিতে জলবায়ু পরিবর্তনের অভিঘাত মোকাবেলায় অভিযোজন ও প্রশমন কার্যক্রমকে এগিয়ে নিয়ে যাওয়ার জন্যে বিপন্ন দেশগুলোকে আর্থিক সহায়তা দিতে ইউএনএফসিসি'র আওতায় ২০১০ সালে কানকুন সম্মেলনের মাধ্যমে এই 'গ্রিন ক্লাইমেট ফান্ড'টি গঠিত এবং ইউএনএফসিসি'র আর্থিক সহায়তা কার্যক্রমের একটি অন্যতম অঙ্গ হিসেবে স্বীকৃত হয়েছে। আগামী দিনগুলিতে স্বল্পোনত দেশগুলিকে জলবায়ু পরিবর্তন সংক্রান্ত আর্থিক সহায়তা দানে এই এই ফান্ড প্রধান উৎস হবে বলে ধারনা করা হচ্ছে।

[[]৩৯] Least Development Countries Fund (LDCF): ইউএনএফসিসিসি'র অধীনে স্বল্পোন্নত দেশগুলিকে সহায়তার জন্য এই তহবিলটি গঠিত হয়েছে। জাতীয় অভিযোজন কর্মপরিকল্পনা (NAPA) তৈরি ও বাস্তবায়নে ৪৮টি স্বল্পোন্নত দেশকে সহায়তা করাই ছিল এই তহবিলের প্রধান উদ্দেশ্য। স্বেচ্ছা অনুদানের মাধ্যমে এই তহবিলের জন্য অর্থ সংগ্রহ করায় নাপা'য় (NAPAs) গৃহীত অগ্রাধিকারধারী প্রকল্পসমূহের পুর্ণাঙ্গ বাস্তবায়নের জন্য প্রয়োজনীয় অর্থ পাওয়া যায়নি।

^[80] Adaptation Fund : গুধুমাত্র অভিযোজন প্রকল্প ও কর্মসূচিসমূহ বাস্ড্রায়নের জন্য ইউএনএফসিসিসি'র অধীনে কিয়োটো প্রটোকলের আওতায় অভিযোজন তহবিল (Adaptation Fund) গঠিত হয়। তহবিলটিকে স্বাধীন ও আত্মনির্ভনীল করতে এর অর্থায়নের উৎস হিসেবে কিয়োটো প্রটোকলের আওতায় গঠিত ক্লিন ডেভেলপমেন্ট মেকানিজমের (CDM)'র বাণিজ্যিক লেনদেন থেকে সংগৃহীত করের উপর নির্ভর করা হয়েছিল। কিষ্তু এখনো পর্যন্ত তা সফল হয়নি।

এই প্রেক্ষিতে উন্নত দেশগুলো নতুন করে সহায়তা বৃদ্ধির ঘোষণা দানে বিরত থাকে এবং ২০০৯ সালে কোপেনহেগেনে দেওয়া ২০২০ সাল থেকে প্রতিবছর ১০০বিলিয়ন ডলারের সহায়তা প্রদানের বাড়তি কোন প্রতিশ্র[ে]তি দেয়নি। তবে এ ক্ষেত্রে বিনিয়োগে 'প্রাইভেট সেক্টর'র ক্রমবর্ধমান আগ্রহ পরিস্থিতি পাল্টে দিতে পারে।

প্যারিস চুক্তিতে অনুসৃত স্বেচ্ছামূলক ব্যবস্থাকে (Voluntarism) গি- কম্যানসহ অনেকে এই চুক্তির বড় দূর্বলতা বলে উলে- খ করেছেন। কিন্তু বাস্ড্রবাত হচ্ছে যে জাতিসচ্ছোর প্রচলিত পন্থায় এ ধরনের আম্র্রজাতিক চুক্তি বাস্ড্রায়নে রাষ্ট্রপক্ষকে খুব বেশি শক্ত বাধ্যবাধকতার আওতায় নিয়ে আসা সম্ভব নয়।

উদাহরণ হিসেবে ১৯৭৯ সালে প্রনীত 'Convention on the Elimination of All Forms of Discrimination Against Women' বা 'আল্ড্র্জাতিক নারী কনভেনশন' এর উদাহরণ উলে- খ করা যেতে পারে। এই কনভেনশনের ঘোষণার কোন বিশেষ ধারা বাস্ড্রায়ন করা বা তা মান্য করার স্বাধীনতা সংশি- ষ্ট রাষ্ট্রপক্ষের ওপর ন্যস্ড করা হয়েছিল। যেটি এই কনভেনশনের 'রিজার্ভেশন' হিসেবে পরিচিত। এই স্যোগের কারণে নারী উন্নয়নের জন্যে প্রয়োজনীয় পদক্ষেপ গ্রহণের ক্ষেত্রে রাষ্ট্রপক্ষ সমূহ নিজস্ব সংস্কৃতি, ধর্মীয় আইন প্রভৃতির দোহাই দিয়ে এই কনভেশনের পূর্ণ প্রয়োগ থেকৈ বিরত থেকৈছে। এর বিপরীতে প্যারিস চুক্তি 'Weak Enforcement Mechanisms' এর ব্যবস্থা রেখে স্ব-স্ব রাষ্ট্রের নিজস্ব উদ্যোগে উপস্থাপিত ছোট 'টার্গেট' পূরণ এবং এই টার্গেটসমূহকে আরও বৃদ্ধি করে চুক্তিতে নির্ধারিত 'অভিনু' টার্গেট পুরণের (বৈশ্বিক তাপমাত্রা ২ ডিগ্রি বা দেড় ডিগ্রিতে সীমিত রাখা) ওপর জোর দিয়েছে। কিন্তু কোন রাষ্ট্র যদি নিজ ঘোষিত টার্গেট পুরণে বা টার্গেট বর্ধিত করতে ব্যর্থ হয় তবে তার জন্যে কোন সুনির্দিষ্ট শাস্তির ব্যবস্থা রাখা হয়নি। উল্লেখ্য যে, জাতিসজ্ঞের আওতায় আইন প্রয়োগের জন্যে কোন পুলিশি শক্তি নেই। কিয়োটো প্রটোকলের 'কমপ্লায়েন্স ম্যাকানিজমের মতো কোনো ব্যবস্থা প্যারিস চুক্তিতে নেই। কিয়োটোর কমপ্লায়েন্স ম্যাকানিজম শক্তিশালী রাষ্ট্রগুলোকে কিয়োটো চুক্তি থেকে বের হয়ে যেতে কোন বড বাঁধা হয়ে দাঁডায় নি।

তবে এই চুক্তি একবার অনুমোদন করার পরে কমপক্ষে তিন বছর তা পালন করতে হবে এবং কোন দেশ নিজেকে প্রত্যাহার করে নিতে চাইলে কমপক্ষে এক বছর আগে 'নোটিশ' দিতে হবে [Article 28, The Paris Agreement]।

অবশ্য কোন দেশ চুক্তি পালনে গড়িমসি করলে, চুক্তির শর্ত পালনে অমান্য করলে বা চুক্তি থেকে নিজেকে প্রত্যাহার করে নিতে চাইলে সংশ্লিষ্ট দেশের সচেতন জনপ্রতিনিধি ও নাগরিক সমাজ তা প্রতিহত করতে পারে। এমনকি চুক্তি থেকে প্রত্যাহারকারী দেশে বিনিয়োগ বন্ধ বা কমিয়ে দিয়ে বিনিয়োগকারীরা সংশি- ষ্ট দেশের সরকারকে চাপে ফেলতে পারে। চুক্তি থেকে প্রত্যাহারের বির[⊆]দ্ধে কোন আইনী ব্যবস্থা এখানে না থাকলেও এর বিরুদ্ধ নৈতিক প্রতিরোধ (ঘৃণা প্রকাশ, সংশ্লিষ্ট দেশের পণ্য বর্জন) বা বাণিজ্য নিষেধাজ্ঞার মতো ব্যবস্থা গ্রহণের পথ খোলা রয়েছে।

বর্তমান বিশ্বের জাতীয়-আন্তর্জাতিক বাস্তবতাকে স্বীকার করে নিলে গ্রিনহাউস গ্যাস নির্গমনের টার্গেটি পূরণে ব্যর্থতা বা অবহেলার জন্যে কঠোর কোন শাস্তির বিধান রাখা হলেও তার প্রয়োগ কতোটা সম্ভব হবে তা নিয়ে যথেষ্ট সংশয় রয়েছে। উল্লেখ্য যে, জাতিসজ্যের অধীনে সরাসরি শক্তি প্রয়োগের কোন ব্যবস্থা (enforcement) না থাকায় কিয়োটো প্রটোকল থেকে বেরিয়ে যাওয়া আটকাতে কোন ব্যবস্থা গ্রহণ করা যায়নি।

অন্যদিকে এ ধরনের বিধান থাকার কারণে তা যথাযথভাবে পালন না করায় অপেক্ষাকৃত দূর্বল রাষ্ট্রপক্ষকে বড় ধরনের সংকট মোকাবেলা করতে হয়েছে। আর জলবায়ু আলোচনায় প্রধান দুই প্রতিপক্ষ মার্কিন যুক্তরাষ্ট্র এবং চিনের বিরুদ্ধে চুক্তি পালনে অনিয়মের কারণে কোন ধরনের কঠোর শাস্তিমূলক ব্যবস্থা গ্রহণের সম্ভাবনা বর্তমান প্রেক্ষাপটে বাস্তবসম্মত নয়। এখানে ২০১৪ সালের লিমা কনফারেন্সের (কপ-২০) এর অভিজ্ঞতাকেও স্মরণ করতে হবে। ঘিনহাউস গ্যাস নির্গমন ব্রাসে জাতীয় টার্গেট কতোটা পূরণ হলো বা হচ্ছে তা যাচাইয়ে সকল দেশের পেশ করা রিপোর্টের যর্থাথতা নির্নপনে পরিমাপ, রিপোটিং ও যথার্থতো নির্নপন (MRV) এর জন্যে একটি নিরপেক্ষ আন্তর্জাতিক প্রতিষ্ঠান গঠনের প্রস্তাব করলেও চিনের প্রবল বিরোধিতার কারণে তা বাতিল হয়েছিল। তাই প্যারিস চুক্তিতে 'এনফোর্সমেন্ট' ব্যবস্থাকে দূর্বল রেখে একদিকে প্রধান নিগর্মাকারী দেশগুলোকে ছাড় দেওয়া হয়েছে, অন্যদিকে অপেক্ষাকৃত দূর্বল দেশগুলো যাতে করে ভবিষ্যতে আইনের কঠোর প্রযোগের শিকার না হয় তার ব্যবস্থা করা হয়েছে। এক অর্থে এটি একই সঙ্গে চুক্তিরে দূর্বল দিক আবার অন্যদিকে তা সবল আর দূর্বল প্রতিপক্ষের মধ্যে এক ধরনের ভারসাম্য রেখেছে।

এই চুক্তি যে ধারনার ওপর ভর করেছে তা হচ্ছে জলবায়ু পরিবর্তন মোকাবেলা করা সবার সম্মিলিত প্রযোজন। এখানে এককভাবে কেউ জিতবে না, কিন্তু হারলে তা পুরোটা পৃথিবীর জন্যেই বড় ধরনের অকল্যাণ বয়ে আনবে। তাই একজন যদি চুক্তি অমান্য করে তাতে সবাই ক্ষতিগ্রস্থ হবে এবং এ কারণে সবাই সম্মিলিত লক্ষ্যে উপনীত হতে কোন আন্তর্জাতিক তদারকি বা শাস্তিমূলক বিধান ব্যতিরেকেই স্ব-নির্ধারিত টার্গেট পূরণে স্বচেষ্ট থাকবে বলে আস্থা বা বিশ্বাস রাখা হয়েছে।

প্যারিস চুক্তির চুক্তির বিরোধীরা প্রশমন ও অভিযোজনের ক্ষেত্রে রাষ্ট্রপক্ষের বাইরে অবস্থান করা সিভিল সোসাইটি, প্রাইভেট সেক্টর, আর্থিক প্রতিষ্ঠান, নগর কর্তৃপক্ষ ও অন্যান্য স্থানীয় সরকারের ক্রমবর্ধমান নেতৃত্বদানকারী ভূমিকা ও গুরুত্বের বিষয়টি বিবেচনায় আনেন নি। ফলে তারা এই চুক্তির পরিধিকে খর্ব করে দেখেছেন। এটি কেবল রাষ্ট্রপক্ষ বা পার্টিদের মধ্যেকার চুক্তি নয়, এই চুক্তির আওতায় সমগ্র বিশ্ব রয়েছে। আর এটি কোন হার-জিতের খেলা না। এখানে জিতলে সবাই জিতবে, হেরে গেলে মানবিকতার পরাজয় হবে। এ কারণে কম-পাওয়া বেশির পাওয়া উর্দ্ধে উঠে নিজ নিজ (রাষ্ট্র, সিভিল সোসাইটি, প্রাইভেট সেক্টর, আর্থিক প্রতিষ্ঠান, স্থানীয় সরকার সবাই) ভূমিকার পুরোটাই পালন করতে হবে, ছাড় দেওয়া চলবে না। আর কেবল তখনই এই চুক্তি এবং গত প্রায় তিন দশক ধরে চলমান জলবায়ু আলোচনার মূল লক্ষ্য, 'বিশ্বকে জলবায়ু পরিবর্তনের ঝুঁকি থেকে রক্ষা' করার সর্বোচ্চ আকাজ্থাটি বাস্তবায়নের পথে

মানব জাতি এগিয়ে যেতে পারবে।

বাংলাদেশের করণীয়: এই চুক্তিতে আমাদের মত সর্বাপেক্ষা বিপন্ন দেশগুলোর দাবীসমূহ যথাযথ গুরুত্ব আদায়ে ব্যর্থ হলেও এই চুক্তি বাংলাদেশের জন্য বেশ কিছু সম্ভাবনা এবং একই সঙ্গে নতুন চ্যালেঞ্জ সৃষ্টি করেছে। এই চুক্তির আওতায় বিশ্ব নেতৃবৃন্দ কার্বন-মুক্ত উন্নয়নের দিকে যাওয়ার অঙ্গীকার করেছেন। তাই আমাদের মতো দেশের কার্বন নির্ভর বিদ্যুৎ উৎপাদনে অধিক গুরুত্বারোপ কোন ভাবেই টেকসই হতে পারে না। বরং এখন সময় এসেছে কার্বন নির্ভর জ্বালানিকে ধারাবাহিকভাবে প্রত্যাখান করে নবায়নযোগ্য জ্বালানির ওপর বেশি গুরুত্ব দেওয়ার।

উল্লেখ্য যে, প্যারিস চুক্তিতে গুরুত্বপূর্ণ অনেক কিছু থাকলেও তা দুর্বলভাবে আছে। এমনকি অনেক কিছুকে একাধিকভাবে ব্যাখার সুযোগও রয়েছে। জলবায়ু পরিবর্তনের কারণে সৃষ্ট 'লস অ্যান্ড ড্যামেজ' বিষয়ে একটি আলাদা অধ্যায় রাখা হলেও জলবায়ু পরিবর্তনজনিত ক্ষয়-ক্ষতি মোকাবেলার ক্ষেত্রে উন্নত দেশগুলি কর্তৃপক্ষ দায় স্বীকার ও ক্ষতিপূরণ প্রদানের বিষয়টিকে বাদ দেওয়া হয়েছে। অর্থায়নের বিষয়টি থাকলেও তার উৎসের বিষয়টি স্পষ্ট নয়। এছাড়াও এই চুক্তিতে জলবায়ু অর্থায়নের জন্য ১০ হাজার কোটি ডলারের যে তহবিলের কথা হয়েছে, তা খুবই নগন্য। কেননা এই শতাব্দীর মধ্যে বিশ্বের তাপমাত্রা দুই ডিগ্রির নিচে রাখতে হলে প্রতিবছর রাষ্ট্রগুলোকে কমপক্ষে এক ট্রিলিয়ন ডলার ব্যয় করতে হবে (UNEP,2014)।

তবে বাস্ত্রচ্যুত এবং স্থানান্তরিত জনগোষ্ঠীর (Displaced and Migration) পূর্নবাসনের বিষয়টি যথাযথ গুরুত্ব পাবে বলে প্রত্যাশা ছিল। কিন্তু সেটা না হয়ে লস এন্ড ড্যামেজ মোকাবেলায় ইন্স্যুরেন্সকে বেশী গুরুত্ব দেওয়া হয়েছে। এ ক্ষেত্রে ইন্স্যুরেন্স এর পাশাপাশি দুর্যোগের হাত থেকে সর্বাধিক বিপন্ন মানুষদের জীবন ও সম্পদ রক্ষায় 'সামাজিক সুরক্ষা বেষ্ঠনি' গড়ে তোলার মাধ্যমে বাস্তুচ্যুতদের পূর্নবাসন এর ওপর গুরুত্ব দেওয়া দরকার।

অর্থায়নের বিষয়ে ১০০ বিলিয়ন ডলারের 'গ্রিন ক্লাইমেট ফান্ড' থেকে যে সহায়তার কথা বলা হচ্ছে সেই সহায়তা পেতে সরকার 'ন্যাশনাল ইমপি- মেন্টিং এজেন্সি' (এনআইএ)^[83]

^[85] ঘিন ক্লাইমেট চেঞ্জ ফান্ডের শর্তানুযায়ী গ্রহীতা দেশ এই তহবিল থেকে বরাদ্দ গ্রহণের জন্য একটি উপযুক্ত সংস্থা/ইউনিটকে মনোনয়ন দান করবে যার এই তহবিলে সরাসরি অধিগম্যতা থাকবে। এই মনোনীত সংস্থাটি জাতীয়, উপ-আঞ্চলিক বা আঞ্চলিক পর্যায়েরও হতে পারে। এই বিধান অনুযায়ী গ্রহীতা দেশকে তহবিলের বরাদ্দ পরিচালনার জন্য একটি জাতীয় দায়িত্ব প্রাপ্ত কর্তৃপক্ষ (National Designated Authority-NDA) বা ফোকাল পয়েন্টকে মনোনীত করবে এবং এটির অবস্থান, কাঠামো, কার্যক্রম ও পরিচালনা কাঠামো প্রণয়ন করবে। এই জাতীয় দায়িত্ব প্রাপ্ত কর্তৃপক্ষ বা ফোকাল পয়েন্ট আবার একটি জাতীয় বাস্ড্রায়নকারী কর্তৃপক্ষ (National Implementing Entity-NIE) কে মনোনায়ন দেবে। এই এনআইই সবুজ জলবায়ু তহবিল থেকে বরাদ্দ প্রত্যাশীদের মনোনয়ন দেবে এবং যোগাযোগ রক্ষা করবে। এনআইএ যতোদিন পর্যস্ড ব্যবস্থাপনার একটি মান বজায় রাখতে পারবে ততোদিন এনআই'র মাধ্যমে সরাসরি তহবিল যোগান দেওয়া হবে। অবশ্য জিসিএফ বোর্ডে কোন প্রস্তাবনা জমা দেওয়ার পূর্বে প্রস্তাবনাটি জাতীয় জলবায়ু কৌশল ও পরিকল্পনার সঙ্গে সঙ্গতি পূর্ণ কিনা তা খতিয়ে দেখতে এনডি'র সঙ্গে আলোচনা করতে হবে। এনডিএ পস্ত্রবনাটি সচ্গের্কে রোর্ডে ক্লানি করেনে করবে। সম্প্রতি বাংলাদেশের অর্থ মন্ত্রণালয়ে অর্থনৈতিক সম্পর্ক বিভাগ (ERD) ন্যাশনাল ডেজিগনেটেড অথরিটি (NDA) হিসেবে মনোনীত হলেও বাংলাদেশে এখনো পর্যন্ত ন্যাশনাল ইমপি- মেন্টিং এনটিটি (NIE) হিসেবে কোন সংস্থাকে মনোনায়ন দেরনি।

এখনও তৈরি করতে পারেনি, আর এ ক্ষেত্রে কোন মধ্যবর্তী আন্তর্জাতিক এজেন্টের মাধ্যমে এই ফান্ড থেকে বরান্দ পাওয়া আমাদের কাম্য নয়।

'গ্রিন ক্লাইমেট ফান্ড' থেকে অভিযোজনের জন্য সহায়তা পেতে সকল উন্নয়নশীল দেশকে 'National Adpaption Plan (NAP)'^[82] তৈরি করতে হবে, তাই বিষয়টি বাংলাদেশের জন্য অত্যন্ত জরুরি। আন্তর্জাতিক সহায়তায় এবং জোরাল রাজনৈতিক অঙ্গীকারের ভিত্তিতে ২০১৫ এর শুরুর দিকেই বাংলাদেশ দক্ষতার সঙ্গে 'ন্যাপ রোড ম্যাপ'^[80] চুড়ান্ত করেছে-তাই এই জাতীয় পরিকল্পনাকে একটি শক্তিশালী পরিকল্পনায় উন্নীত করতে অতিদ্রুত গণঅংশগ্রহণ ও স্বচ্ছতার ভিত্তিতে জাতীয় ভাবে 'ন্যাপ' প্রণয়নের উদ্যোগ গ্রহণ করা প্যারিস চুক্তির লক্ষ্য অর্জনে একটি বড় অগ্রগতি হবে।

অর্থায়নের ক্ষেত্রে স্বল্পোন্নত রাষ্ট্রগুলোকে পাবলিক মানি এবং গ্রান্ট দেওয়ার কথা বলা হলেও তা নতুন বা অতিরিক্ত হবে কি না তা স্পষ্ট করা হয়নি। এখন এই গ্রান্টভিত্তিক সহয়তা প্রাপ্তিকে কিভাবে নিশ্চিত করা যায় এবং এই সহায়তাকে কাজে লাগিয়ে কিভাবে জাতীয় অভিযোজন পরিকল্পনা ও এনডিসি'কে স্বার্থকভাবে বাস্তায়ন করা যায় তার উদ্যোগ নিতে হবে।

জলবায়ু আলোচনার অভিজ্ঞতা থেকে বাংলাদেশের উচিত হবে 'জি৭৭+ চিন' গ্রুপের পাশাপাশি 'ক্লাইমেট ভালনারেবল ফোরাম' $(CVF)^{[88]}$ কে আরও সক্রিয় করা এবং এই গ্রুপকে এগিয়ে নিয়ে যাওয়ার দিকনির্দেশনা প্রদান করা। এ ছাড়াও বৈশ্বিক জলবায়ু আলোচনাকে জাতীয় প্রেক্ষিতে বিবেচনা করে এই আলোচনায় সরকারি প্রতিনিধি দলের সঙ্গে নাগরিক সমাজের সক্রিয় ও দীর্ঘমেয়াদি অংশগ্রহণের ব্যবস্থা করতে হবে।

[8৩] জাতীয় অভিযোজন পরিকল্পনা প্রণয়নের প্রক্রিয়ার অংশ হিসেবে সহায়তায় ইউএনডিপি এবং নরওয়ে সরকারের আর্থিক ও কারিগরী সহায়তা নিয়ে একদল বিশেষজ্ঞ ও সরকারের মিলিত উদ্যোগে 'রোডম্যাপ টু ন্যাপ' পঞ্চত করা হয়েছে। ২০১৫ এর ফেব্রুয়ারি বাংলাদেশ সরকার একে অনুমোদন করেছে। ন্যাপ তৈরির রোডম্যাপ প্রণয়নের কাজটি জাতীয় অভিযোজন পরিকল্পনা প্রণয়নের একবোরেই প্রথম পর্যায়ের কাজ হলেও, এই ডকুমেন্টে জাতীয় পরিকল্পনা প্রণয়নের জন্য প্রতিটি সেক্টরের জন্যে প্রতিষ্ঠানিক আয়োজন প্রত্নিকল্পনা প্রণয়নের জন্য প্রতিটি সেক্টরের জন্যে প্রতিষ্ঠানিক আয়োজন প্রত্নিকল্পনা প্রণয়নের জন্য প্রতিটি সেক্টরের জন্যে প্রতিষ্ঠানিক আয়োজন প্রত্বিক্ল সার্বায়নের জন্য প্রতিটি সেক্টরের জন্যে প্রতিষ্ঠানিক আয়োজন প্রভৃতির সুনির্দিষ্ট গাইডলাইন তুলে ধরা হয়েছে। এই গাইডলাইনের ভিত্তিতে বন ও পরিবেশ মন্ত্রণালয় (MoEF) এখন জাতীয় অভিযোজন পরিকল্পনা প্রণয়নেও তা বাস্ড্রায়নের উদ্যোগ গ্রহণ করবেে (শামছুদ্দোহা এবং বিজয়, ২০১৫)।
[88] 'ক্লাইমেট ভালনারেবল ফোরাম' জলবায়ু পরিবর্তনজনিত কারণে সর্বাপেন্ধা বিপদাপন্ন দেশগুলোর পারস্পারিক সহয়োগিতা বৃদ্ধি লক্ষ্যে গঠিত একটি আন্তর্জাতিক ফোরাম। ৪৩টি রাষ্ট্র এই ফোরামের সদস্য। ২০০৯ সালে মান্দ্বিপ্রি এই ফোরামের প্রথম সভা অনুষ্ঠানের পর ২০১১ সালে বাংলাদেশে এবং ২০১৫ তে ফ্রাঙ্মের প্যারিসে অনুষ্ঠিত হয়েছে (http://www.thecvf.org/web/climate-vulnerable-forum/)। ২০১৫ সালের দের্দ্বের বির্দ্বেরের নাধ্যমে এই ফোরামের ২০টি দের করের নির্দেরে তির্দ্বের হেরেরে 'দির্দ্বার্ঘনের দির্বাল কের্দ্বার্ঘনে দের ক্রের্দ্বের কালের হের্দ্বার পের্দ্বের মাধ্যমে এই ফোরামের ২০টি দেশ আবার মিলিতভাবে 'দি ভারনারেবল স্বের্দ্বার্বা ক্রের্দ্বার্ঘার বির্দ্ধান্ত বর্দ্বার পরার্ঘ্বার হের্দ্বারারের হের্দ্ধান্ত বের্দ্বার কের মাধ্যমে এই ফোরামের ২০টি দের্দ্বার হের্দ্বার বের্দ্ধের নাধ্যমের কার্দ্বের হের্দ্বার বের্দ্ধের দেরের দের্দ্বার্দ্বে লেরামের ২০টি দের্দ্বান্দের হের্দ্বের নাধ্বেরের হের্দ্বান্বের হের্দ্বেরের নাধ্বেরের হার্দ্বার্দ্বান্বেরের হের্দ্বান্বের হের্দ্বান্য বের্দ্বার বের্দ্ধান্দের হের্দ্বের হের্দ্ধের হের্দ্বান্ধের হের্দ্বান্দের হের্দ্বান্দের হের্দ্বার বের্দ্বার বের্দ্বার্দ্বের কান্দের হের্দ্রান্দের হের্দ্বার্যান্য বর্দ্বান্ধের বর্দ্বার বের্দ্রের হার্দ্বার্দের হের্দ্বার

^{[8}২] জাতীয় অভিযোজন পরিকল্পনা (National Adaptation Plan- NAP) প্রক্রিয়াটি মূলত: কানকুন অ্যাডাপটেশন ফ্রেমওয়ার্কের আওতায় (কপ-১৬) সূচিত হয়েছে এবং প্যারিস চুক্তির অন্তর্ভুক্ত হয়েছে। মধ্য থেকে দীর্ঘমেয়াদি অভিযোজন চাহিদা চিহ্নিতকরণের পন্থা হিসেবে স্বল্পোন্নত ও উন্নয়নশীল রাষ্ট্রসমূহকে এই জাতীয় অভিযোজন পরিকল্পনা তৈরিতে উৎসাহিত করা হয়েছে। এটি একটি চলমান, গতিশীল ও পুনরাবৃত্তিমূলক প্রক্রিয়া, যা কিনা রাষ্ট্রীয় উদ্যোগে পরিচালিত এবং জেন্ডার সংবেদনশীলতা, অংশগ্রহণমূলক এবং স্বচ্ছতার মানকে বিবেচনায় নিয়ে প্রনীত হবে। এই 'ন্যাপ' হবে বহুল আলোচিত 'গ্রিন ক্লাইমেট ফান্ড' থেকে অর্থ প্রাপ্তির অন্যতম প্রধান উপায়।

২০' (V20) গঠন করেছে। এই 'ভি-২০' এর মূল উদ্দেশ্য হচ্ছে জলবায়ু পরিবর্তন মোকাবেলায় সরকারি বা বেসরকারি উৎস থেকে আর্থিক সহায়তা সংগ্রহ, জলবায়ু পরিবর্তন আর্থিক ব্যবস্থা সম্পর্কে পারস্পরিক সহায়তা, জলবায়ু অর্থায়নের নতুন সুযোগ সৃষ্টি এবং একত্রিতভাবে অ্যাডভোকেসি করা। আফগানিস্তান, বাংলাদেশ, বার্বাডোস, ভূটান, কোস্টারিকা, ইথিয়েপিয়া, ঘানা, কেনিয়া, কিরিবাতি, মাদাগাস্কার, মালদ্বীপ, নেপাল, ফিলিপাইন, রুয়ান্ডা, সেন্ট লুইস, তানজানিয়া, তিমুর- লেসথ, টুভালু, ভানুয়াতু এবং ভিয়েতনাম এই 'ভি-২০' তে রয়েছে (http://www.v-20.org/about/)।

Clarke, L., et al., Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press, 413-510. Could be available at:

http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/i pcc_wg3 _ar5_ chapter6. pdf.

Joshua, Busby. 2016: After Paris: Good Enough Climate Governance, Current History, January 2016.

শামছুদ্দোহা., এমর্ডি, এবং বিজয়., এম.আর. ২০১৫; স্থানীয় অভিযোজন পরিকল্পনা প্রণয়নের পদক্ষেপ: মংলা উপজেলার বিপদাপন্নতা নিরূপণেলর অভিজ্ঞতা (বাংলা), নেটওয়ার্ক অন ক্লাইমেট চেঞ্জ, বাংলাদেশ (এনসিসি'বি), ঢাকা ২০১২।

The Emissions Gap Report 2015: United Nations Environment Programme (UNEP), Nairobi, A digital copy of this report along with supporting appendices are available at http://www.unep.org/emissionsgapreport2015/

UNEP 2014: The Adaptation Gap Report 2014. United Nations Environment Programme (UNEP), Nairobi A digital copy of this report along with supporting appendices are available at Error! Hyperlink reference not valid.

Weberian Bureaucracy as a Classical Management Model

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Abstract

The study analyses bureaucratic management with theories relevant to it. Thing is that bureaucracy tends to operate with a ritualistic ring adhering to the rules and regulations. This is to ensure proper governance. True governance in a befitting manner occurs only in ideal settings in the strictest sense of the term as defined by Max Weber, Any marked deviation from it is sure to lead to dysfunctions in bureaucratic management. While delving into Weberian approach to management the study epitomizes other aspect of classical model like scientific management presented by FW Tailor. Public service managent may well be done efficiently if there is a quixotic adherence to rules of law. Nevertheless if officials and their subordinate become rigid to release file the clients as beneficiaries are not expected to get things done within the time frame. This phenomenon may be termed as redtapism or whitetapism unnecessarily making delay and procrastinations all to cliental dissatisfactions.

Introduction

There are many theories and models of Public administration developed during different times but are not considered as comprehensive and reliable. All theories, paradigms and models developed by distinguished scholars in different periods more or less fall short of accuracy and thus beset with criticisms focused on different angels with counter arguments. On the wake of immense drawbacks, all these theories and models advanced by different scholars have developed public administration and raised its status and position as a complete academic discipline.

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Therefore, in order to elucidate all these theories, models, and paradigms of the administrative organization, public administration as an organizational device have been divided into three types, such as: Classical, Neo- classical and Modern theories. Again Classical management theories are divided into three vital divisions, for example, scientific management, Administrative Management and Bureaucratic Management. This study underscores the significance of bureaucratic management.

Defining Classical Management

The search for greater efficiency and effectiveness has led to the development of the classical theory of organization. The classical approach considered the organization from a focused managerial standpoint, and recognized no clash between man and organization. Workers were regarded as motivated by economic regards. " It also maintains that the interests of the workers and management are the same; each is benefited by the other. For, example higher output leads to higher profits which in later lead to higher wages and greater worker satisfaction ..."(Chowdhury, 2000:17). The advocates of this theory are Luther Gulick; L. Urwick; James D. Mooney; Allien, C. Rally; Max Weber; Woodrow Wilson; Henri Fayol and F.W. Taylor. The Classical theory involves some salient aspects such as: Division of Labor, Hierarchy and Functional Process, Organizational Structure and, the Span of Control, etc.

Three branches of classical theory can be identified, such as:

(1) Scientific Management, (2) Administrative Management and(3) Bureaucratic Management.

The discussion of each branch has been mentioned with the works of pioneers who developed all these branches by dint of their seminal writings. Especially Frederick Winslow Taylor's Scientific Management; Max Weber's Classical bureaucracy or bureaucratic models and Henri Fayol's Administrative management, have been discussed.



Frederick Winslow Taylor, an American engineer, is regarded as the founder or father of scientific management. He introduced a new leaf in the landscape of Public Administration (PA) by dint of his seminal works on the movement of scientific management. The core philosophy of the scientific management is to discover the ways or means of designing job most efficiently and thus to obtain maximum output through investing minimum input or low labor costs. Higher outputs results in higher profits which eventually lead to higher wages and greater workers satisfaction. Taylor (1991, 36) points out that, "What the workmen want from their employers beyond anything else is high wages and what employers want from their workmen most of all is low labor cost of manufacture". In this connection he further maintains that,"...the existence or absence of these two elements from the best index to either good or bad management" (1991:36-37).

Taylor's Scientific Management

Frederick Winslow Taylor advocated a variety of changes a "complete mental revolution"; and a "great mental revolution" (Wrege and Greenwood, 1911: 191) in how a nation should organize its workplaces. He was worried about "the great loss which the whole country is suffering through inefficiency in almost all of our daily acts" at the same time he was also convinced that "the remedy for this inefficiency lies in systematic management, rather than in searching for some unusual or extraordinary man". The central ethos of Taylor's thinking was his belief that "in each element of each trade there is always one method and one implement which is quicker and better than any of the rest" (1911: 7, 25).

The inefficiency that Taylor identified was created by the "rule of thumb methods" and "traditional knowledge" that workers employed while they executed their job. However, this was not their fault. Rather, it resulted from "the old systems of management in common use" that gave each worker "the final responsibility for doing his job practically as he thinks best, with comparatively little help and advice from management". Taylor wanted management to carry out the task of designing the work. He wanted management, specifically; the planning department to determine scientifically how each component of work could be performed most efficiently, particularly by a "first class" worker who was scientifically suited for the task (1911: 16, 32, 25). Therefore, before analyzing the concept of scientific management, the idea of management should be clarified.

Administrative Management

Henri Fayol (1841-1925) advocated the principles of administration which eventually distinguish between management and public administration. "Although Fayol draws a distinction between government and administration, restricting the concept 'administration' to a narrow sense, he uses it much more broadly and identifies it with 'management'. He asserts: Management plays vital role in the government of undertakings; of all undertakings, large or small, industrial, commercial, religios, political, and others (Fayol, 1937). He further observes that administration is an activity common to all human undertakings require planning, organizing, commanding, coordinating and controlling, and in order that these function properly, "all must observe the same general principle"(1937). General principles can be utilized equally well to public and to private affairs (Bertram, 1964:131). Fayol (1937) further maintains that, "there is no one doctrine of administration for business and another for affairs of state; administrative doctrine is essential". He prefers to regard administrative structure as a 'body corporate' and thus compares the administrative function with the nervous system of an animal. The major task of organization is to develop the personnel so that they are able to carry out the essential functions of an enterprise (Quoted in Sapru, 2006:103).

Weber's Theory of Bureaucracy

According to Oxford Dictionary, bureaucracy is "[a] system of government in which most of the important decisions are taken by state officials rather than by elected representatives". Laski(1930:70) defined bureaucracy as " a system of goverenment the control of which is so completely in the hands of officials that their power jeopardizes the liberties of ordinary citizens; the characteristics of such a regime are a passion for routine in administration, the sacrifice of flexibility to rule, delay in the making of decisions, and a refusal to embark upon experiment ; in extreme cases resmbling a hereditary caste manipulating the government to its own advantage". In this definition Laski critically analyzed the features of bureaucracy.

Modern society could hardly progress without the widespread use of bureaucracy as an organizational device. Bureaucratic theory, introduced around 1900 by Max Weber, a German sociologist, has had a great influence in the United States after the Second World War. In his bureaucratic model, Weber (1947) stressed on achievement rather than ascription in almost all spheres of bureaucratic organization particularly in the recruitment and promotion system of public personnel management. In that sense, it differs from traditional civil service system where 'ascription' or 'patronage' was the sole criterion for recruitment and selection of candidates in the administrative apparatus. With the progression of time and the advancement of modernization, the state administration becomes difficult and thus requirement of coping with these complicated functions becomes necessary. In that sense Weber's 'ideal type' bureaucracy, premised on the structure of bureaucratic system of organization, became a single most conceptual framework in the study of administration.

At the outset of his theory, Weber clarified the concepts of 'rationalization' and 'domination'. Therefore, he elucidated both the ideas of 'legitimacy' and 'authority'. While discussing the term 'domination' based on authority, he also identified three types of authority: (1) Charismatic authority, (2) Traditional authority and, (3) Legal-rational Authority. All of these concepts have been discussed below.

Typology of Authority:

Weber's concept of authority is premised on the legitimization and not on power. Therefore, Max Weber (1946:328) identified three pure type of legitimate authority. The validity of their claims to legitimacy may be based on:

(1)"Rational grounds-resting on a belief in the legitimacy of patterns of

normative rules and the right of those elevated to authority under such rules to issue commands (legal authority)". (2) "Traditional grounds-resting on the established belief in the sanctity of immemorial traditions and the legitimacy of the status of those exercising authority under them (traditional authority)"; or finally, (3) "Charismatic grounds-resting on devotion to the specific and exceptional sanctity, heroism or exemplary character of an individual person, and of normative patterns or order revealed or ordained by him (charismatic)".

Charismatic Authority:

According to Weber (1946:358), charisma means the quality of an individual personality by dint of which he is set apart from ordinary men and treated as endowed with supernatural, superhuman, or at least specifically exceptional powers or qualities. Charismatic authority is a type of rule over people to which they submit because of their faith in the supernatural powers, revelations and heroism of the leader. For example, the the warrior chieftain , the prophet or political leader generally possesses this type of authority. In this type of charismatic authority the question of succession arises during or after the death of a leader. Even though the leader himself nominates his successor, he may not be accepted by all. In this situation, the only source of legitimacy is personal charisma, so long as it receives recognition (Sapru, 2006:68).

"There are a number of different approaches, or 'styles' to leadership and management that are based on different assumptions and theories. The style that individuals use will be based on a combination of their beliefs, values and preferences, as well as the organizational culture and norms which will encourage some styles and discourage others. Charismatic Leadership Participative Leadership Situational Leadership Transactional Leadership Transformational Leadership The Quiet Leader Servant Leadership Additional research The Managerial Grid: Blake and Mouton's people-task balance. Lewin's leadership styles: Three original styles. Likert's leadership styles: from autocratic to participative. Six Emotional Leadership Styles: from 'Mr. Emotional Intelligence', Daniel Goleman and friends. Negative styles There are some relatively common styles of management that are anything but models of good leadership. Post-hoc Management: A poor, but common style. Micromanagement: Controls every detail. Seagull Management: Flying in, pooping on you and flying off again. Mushroom Management: Drop them in the poo and keep them in the dark. Kipper management: Two-faced approach. Charismatic Leadership Disciplines> Leadership> Leadership Styles> Charismatic Leadership Assumptions | Style | Discussion | See also Assumptions Charm and grace are all that is needed to create followers.

Many politicians use a charismatic style, as they need to gather a large number of followers. If you want to increase your charisma, studying videos of their speeches and the way they interact with others is a great source of learning. Religious leaders, too, may well use charisma, as do cult leaders. Leading the team Charismatic Leaders who are building a group, whether it is a political party, a cult or a business team, will often focus strongly on making the group very clear and distinct, separating it from other groups. They will then build the image of the group, in particular in the minds of their followers, as being far superior to all others. The Charismatic Leader will typically attach themselves firmly to the identity of the group, such that to join the group is to become one with the leader. In doing so, they create an unchallengeable position for themselves. Alternative views The description above is purely based on charisma and takes into account varying moral positions. Other descriptions tend to assume a more benevolent approach. Conger & Kanungo (1998 cited in http://changingminds.org)

People are more committed to actions where they have involved in the relevant decision-making. People are less competitive and more collaborative when they are working on joint goals. When people make decisions together, the social commitment to one another is greater and thus increases their commitment to the decision. Several people deciding together make better decisions than one person alone. Style A Participative Leader, rather than taking autocratic decisions, seeks to involve other people in the process, possibly including subordinates, peers, superiors and other stakeholders. Often, however, as it is within the managers' whim to give or deny control to his or her subordinates, most participative activity is within the immediate team. (http://changingminds.org). Bangabandhu Sheikh Mujib was one of the best examples of charismatic leadership who led the Bangladesh movement and tried to change international politics as rising sun.

Traditional Authority: Weber (1946:340) maintained that, it is a type of imperative co-ordination which will be called 'traditional' if legitimacy is

claimed for it and believed in according to the sanctity of the order and the attendant powers of control as they have been handed down from the past, 'have always existed'. The person or persons exercising authority are designated in conformity with traditionally transmitted rules. The object of obedience is the personal authority of the individual which he enjoys as a result of his traditional status.

Legal -Rational Authority

As mentioned earlier, the legitimacy of legal rational authority is premised on "a belief in the legitimacy of patterns of normative rules and the right of those elevated to authority under such rules to issue commands" (Weber, 1947:69). Under this type of legitimacy obedience is toward the rules and laws of the sate or organizations. Weber named legal authority as legal rational authority. In administration, the legitimacy of legal rational authority is based on rules that are rationally established. It is legal in the sense that, authority is exercised by means of a system of rules, procedures, and norms through the office which an individual holds at a particular time.

Weber (1946) maintains that there are two major forms of domination based on authority; legal structure and bureaucratic administration. Weber maintains that law grows out from the usages and conventions found in all societies. Law is different from mere usage and convention. Therefore it is differentiated from the presence of a staff, which may use coercive power for its enforcement. Weber provides that not all legal orders are regarded as authoritative. Legal authority comes into existence only when the legal order is implemented and obeyed in the belief that it is legitimate. In this connection Weber provides that a modern organizational structure needs bureaucratic authority in order to be effective and efficient as an organization. Charismatic authority relations generally lack specialization or stability. On the other hand, traditional authority relations are typically found in a diffuse status structure, for instance, in an aristocracy. Thus, according to Weber (1946), bureaucracies are the social units most appropriate for modern organization.

Characteristics of Weber's Tdeal Type of Bureaucracy

Weber's second form of domination premised upon authority is 'bureaucracy'. Bureaucracy according to Weber is the most efficient and rational form of organization designed by man. Bureaucracy is rational in that it involves control based on knowledge and it operates in accordance with analyzable rules. As Weber (1947:339) observes that, Bureaucratic administration means extensively the exercise of control according to knowledge. Bureaucracy is superior in knowledge, containing both the knowledge of the concrete fact within its own sphere of interest on the one hand and technical knowledge on the other. In identifying its salient characters, Weber (1947:337) points out that, bureaucracy is:

"an administrative body of appointed officials" and "is, from a purely technical point of view, capable of attaining the highest degree of efficiency and is, in this sense, formally the most rational known means of carrying out imperative control over human being. It is superior to any other form in precision, in stability, in the stringency of its discipline, and in its reliability. It thus makes possible a particularly high degree of calculability of results for the heads of organization and for those acting in relation to it. It is finally superior both in intensive efficiency and in scope of its operations, and is formally capable of application to all kinds of administrative tasks".

Bureaucracy is efficient because of its precision, consistency, and speed, availability of records, continuity, and possibility of secrecy, unity, rigorous coordination, and minimization of interpersonal friction, personnel costs, and material costs (Rheinstein, 1960:295-96). The basic features of bureaucracy have been summarized (Weber, 1947:73) below:

1. Bound by Rules: A pure bureaucracy functions according to abstract rules. Though the bureaucrats may be immune from such rules in their personal affairs, there is systematic control over their official actions. A system of rules facilitates standardization and equality in the treatment of many cases. It also excludes the intervention of personal emotions and discretion.

2. A sphere of Competence: According to a Weber (1947:330), specific sphere of competence includes (a) sphere of obligations in order to perform functions which have been marked off as part of a systematic division of labor. (b) The provision of the incumbent with the necessary authority to execute these functions. (c) The necessary means of compulsion are clearly described and their use is subject to definite conditions.

3. Principle of Hierarchy: It is the most important feature of Weber's ideal type of bureaucracy. In the words of Weber (1947:331), the organization of offices follows the principle of hierarchy; that is, each lower office is subject to the control and supervision of a higher one. It means that in the administrative hierarchy all subordinate officers are accountable to their superiors for their actions or the services they had discharged. Weber (1947:331) further maintains, hierarchies vary in respect to whether and in what cases complaints can lead to a ruling from an authority at various points higher in the scale, and as to whether changes are imposed from higher up or the responsibility for such changes is left to the lower office, the conduct of which was the subject of complaint.

The incumbents working in the various ladders or positions in this hierarchy earn educational credentials, obtain an appointment, develop their expertise, and agree to carry out their duties in a loyal yet impersonal way. Weber (1947:82) further observes that, office management, at least all specialized office management, generally presupposes thorough and expert training. When holding a position in a bureaucracy, an incumbent continue a specific obligation of faithful management in return for a secure existence. This incumbent is not loyal to his boss as a person but to the position of boss; that is, "modern loyalty is devoted to impersonal and functional purposes" (Weber,1947: 82 83).

4. Need of Specialized Training: The rules which control the conduct of an office may be technical rules or norms. In both cases, if their application is to be fully rational, specialized training is necessary. In this connection Weber, provides that, knowledge and skill are the foundation of the authority of the bureaucrat. "...bureaucratic organizations, or the holders of power who make use of them , have the tendency to increase their power still further by the knowledge growing out of experience in the service" (Weber, 1947: 339).

5. Impersonal Detachment: Weber (1947:331) says, it is a matter of principle in the rational type that the members of administrative staff should be totally separated from ownership of the means of production. Officials, employees, and workers attached to the administrative staff do not themselves own the non-human means of production and administration.

6. Keeping Records: Another important feature of Weber's rational bureaucracy is that administrative decisions, acts, and rules are formulated

and recorded in writing, even in the grounds where oral discussion is the rule or is even mandatory. It is essential because, in oral discussion no document can be kept in record.

7. Career Service: In Weber's bureaucratic structure, (1) candidates are selected according to technical qualifications through examination. (2) They are remunerated by fixed salaries in money, for most part with a right to pension. "It constitutes a career. There is a system of 'promotion 'according to seniority or to achievement, or both. Promotion is dependent on the judgment of superiors," (Weber, 1947:334).

8. Official Discipline: Discipline is rigorously observed in Weber's rational type of bureaucracy. An officer "is subject to strict and systematic discipline and control in the conduct of the office".

9. The Non-bureaucratic Head: Organizations which Weber mentions as bureaucracies have non-bureaucratic heads. These non-bureaucrats create the rules to be followed, and decide which goals are to be served and observed by the administrative staff. Although, bureaucrats are appointed and recruited, the political or non-bureaucratic head - president, Prime Minister, the Chancellor, is often elected or inherits his position. This political and non bureaucratic head performs vital activities in assisting to maintain the emotional commitment to the rules of organization.

Critical Evaluation of Weberian Model

The evaluation of bureaucratic management we can cite many arguments provided by distinguished scholars who criticized bureaucratic management in different perspectives. For example Robert D. Behn (1998) and other scholars mentioned the following drawbacks of Weberian model of bureaucracy.

1) Weber's Fallacy: Bureaucracies are bureaucratic. "Is bureaucracy efficient? Today we think not. Indeed, today the word bureaucracy is, in the vernacular, synonymous to inefficiency. One of the characteristics of a bureaucracy is the specialization of tasks. And the rationale for this specialization is its efficiency. Because different individuals specialize in doing different tasks, each individual need master only his or her narrow assignment. People throughout the bureaucracy need not know how to perform all of its tasks; they need not even understand these individual tasks

or how they mesh together. Instead, each can concentrate on doing one task very well" (Behn, 1998).

2) "Unfortunately, dividing the work of a bureaucracy into distinct, specialized tasks creates a new problem: coordination. If everyone performs all the tasks, they can all coordinate these tasks in their own, separate brains; there is no coordination problem. But when the tasks are all divided up, coordination becomes a major burden. Indeed, it is often an impossible burden. And if the conduct of the different tasks is not coordinated, the organization can become very inefficient" (Behn, 1998).

Weber's bureaucratic form of organization has been severely criticized by some other scholars.

3) Peter M. Blau provides some criticisms of Weber's model of bureaucracy. He maintains that Weber's model explains the social structure only through the functions of its elements. It does not investigate into disturbances or 'dysfunctions' that various components of organizations produce in the structure of an organization. Blue indicates that, Weber could not recognize "... the same factor that enhances efficiency in one respect often threatens it in another; it may have both functional and dysfunctional consequences" (1962:33). He further provides that, in a fast changing environment, "the attainment of organizational objectives depends on perpetual change in the bureaucratic structure" (1962:33).

4) According to Weber, the two principles 'impersonal detachment' and 'esprit de corps' achieve administrative efficiency, are incompatible. Because if the relations between the administrative staff are dictated by impersonal detachment, it becomes complicated to see how an esprit de corps can emerge.

5) The rigid adherence to the principle of hierarchical relations between the superiors and subordinates creates a sort of mutual suspicion as the latter tends to conceal defects in their work and interfere with the upward flow of information. Moreover, in recent times market mechanism has been studied much for proper utilizing this concept as a standard in order to maximize economy and efficiency in various organizations. Therefore, "within organizations market mechanisms for managing personnel have replaced, or at least supplement, traditional hierarchy" (Peters, 2001:7).

6) There is a controversy centered round the system of promotion according to 'seniority' or according to 'merit'. This contradiction further aggravates in the hierarchically built relations of organization. This problem prevails in the organization that eventually creates contradictions among the civil servants or bureaucrats.

7) Argyris (1964) argues that bureaucracies restrict the psychological growth of the individual and bring about the feelings of failure, conflict and frustration. In order to solve this problem he suggests that the organizational environment should provide a significant degree of individual responsibility, self control, and an opportunity for individual to apply their full capacities and abilities.

8) Weber's bureaucratic form of organization premised strictly on formalistic structure has been criticized by Chester Barnard and Simon. In this regard Barnard (1938:123) argues that, "informal organizations are necessary to the operation of formal organizations". In support of this observation the statement of Blau (1962:36) can be cited that, "informal relations and unofficial practices often contribute to efficient operation."

As society became more complex, argued Max Weber, it required more complex institutions. Therefore to Weber, this meant a shift from personal, informal organizations to bureaucracy. Weber's bureaucracy was unique and was distinguished by a hierarchical organization staffed by personnel with credentials and expertise who had regular, official duties that they exercised as "trustees" by impersonally applying rational rules over a specific jurisdictional area. Weber argued that in government, this is called "bureaucratic authority" while in the private sector it is called "bureaucratic management" (Weber, 1947: 81).

Max Weber emphasized on hierarchical administrative structure which exists in large political party organization and private enterprise. It creates and facilitates the ground of chain of command and promotion prospects of employees. According to Weber, the principle of hierarchical office authority is also found in all bureaucratic structures from the small organization to a state of larger territory as well as in private enterprise and to large political party organizations. In a bureaucracy hierarchy is still the organizing principle which is monocratically is organized. Weber provides that "the principles of office hierarchy and of levels of graded authority mean a firmly ordered system of super and subordination in which there is a supervision of the lower offices by the higher ones" (1947: 81 82). He further praises bureaucratic organization in the words as :

"Experience tends universally to show that the purely bureaucratic type of administrative organization that is, the monocratic variety of bureaucracy is, from a purely technical point of view, capable of attaining the highest degree of efficiency and is in this sense formally the most rational known means of carrying out imperative control over human beings. It is superior to any other form in precision, in stability, in the stringency of its discipline, and in its reliability... It is finally superior both in intensive efficiency and in the scope of its operations, and is formally capable of application to all kinds of administrative tasks" (Weber, 1947:337).

Nevertheless, the interference of politics could undermine both a bureaucracy's efficiency and its fairness. Indeed, Weber recognized, political corruption could interfere with the work of expert appointees impersonally following the rules. Although Weber believed that effective bureaucracies would be a benefit to politicians when they sought reelection, he also recognized that this was not always the case:

"Where the demand for administration by trained experts is considerable and the party followings have to recognize an intellectually developed, educated, and freely moving 'public opinion,' the use of unqualified officials' falls back upon the party in power at the next election ... The demand for a trained administration now exists in the United States, but in the large cities, where immigrant votes are 'corralled,' there is, of course, no educated public opinion. Therefore, popular elections of the administrative chief and also of his subordinate officials usually endanger the expert qualification of the official as well as the precise functioning of the bureaucratic mechanism" (1947: 85).

Thus, to ensure both efficiency and fairness, Weber, like Wilson, sought to separate politics from administration.

Robert D. Behn (1998) and other scholars mentioned the drawbacks of Weberian model of bureaucracy. Indeed, today the word bureaucracy is, in the vernacular, synonymous to inefficiency. One of the traits of a bureaucracy is the specialization of tasks. Efficincy is the rationale for this specialization . Because different people specialize in doing different tasks, each people need master only his or her narrow assignment. "People throughout the bureaucracy need not know how to perform all of its tasks; they need not even understand these individual tasks or how they mesh together. Instead, each can concentrate on doing one task very well" (Behn, 1998). On the othere hand, there is a contradiction centered round the system of promotion according to 'seniority' or according to 'merit'. This controversy further aggravates and in the hierarchically built relations of organization. This problem prevails in the organization that eventually creates contradictions among the civil servants or bureaucrats.

Post-bureaucracy

The traditional bureaucracy became extensively unable to meet the challenges of time and the requirements of situation. As a result post bureaucratic model has been innovated as a reaction to the perceived weakness of the traditional bureaucratic model of public administration. It refers to inter-personal relationships by diminishing chain of command and formal relationships. It pays heed to the subordinate's decisions and preferences thereby keeping the spirit of innovation and entrepreneurship. The fundamental principles of post-bureaucracy are acting strategically by taking initiatives, reflecting an understanding which is trying to reduce the distance between itself and environment, and appreciating flexibility, open system, and more effective use of social capital. It is argued that the conventional view of bureaucracy has increasingly lost its traditional status. It is not compatible with the more recent and fluid images of society, market, and world of business. "This is not simply a matter of reform, or minor changes in the management style, but a change in the values of bureaucracy in the society and the relationship among various organs of government. Competition, entrepreneurial approach, digitalization, networking, focusing leadership, etc are the core features of post-bureaucratic organization. Additionally these organizations are customer-driven, quality-concerned, result oriented, and performance based" (kalimullah et al, 2015).

The post bureaucratic paradigm of public administration was successfully applied and extensively embedded in many countries especially at the end of the twentieth century. It highlights a management style that moves from bottom to top and provides a convincing and trusting way by minimizing the official communication method that rests on the chain of command. It checks those managers gain power and advantage by gathering the information to their monopoly via providing spreading of the information (Heckscher, 1994). In a post bureaucratic organization, every member holds a responsibility for the success of the whole organization (Kalimullah et al, 2015).

Bureaucracy in the Context of Bangladesh

Civil servants in Bangladesh give more emphasis on the power characteristics of his job than his job services obligation. A civil servant likes to see himself as an official rather than a public servant and thus he remains less responsive to the call of downtrodden. Bangladesh experiences a peculiar spoils system in the recruitment process. Patronage of recruitment and promotions is extensively applied here. Quota process in the recruitment system curtails the significance of merit principle. Though Max Weber emphasized on merit, yet it largely departs in the perspective of Bangladesh. The image of Bangladesh has been seriously damaged due to its frequented championship in the domain of corruption. This eventually humiliated the position of Bangladesh civil service. In the civil service of Bangladesh decision making process is still non transparent. Interested citizens can hardly avail of opportunity in either making or influencing decisions, even they don't learn about how particular decisions made and policies are formulated. Therefore, nontransparent decisions making system has made it difficult to hold civil servants accountable for their actions and decisions. Bureaucratic system of Bangladesh exhibit slow communication process because of intense stratification and thus it becomes very hard to transmit orders and ideas through this system. In maximum spheres bureaucracy poses serious threat to the smooth functioning of democracy due to the lack of transparency, accountability and responsiveness to the call of downtrodden.

In the context of good governance bureaucracy needs to be sensitive, responsive and development oriented. The officials must shun colonial orientation to the clients. Administrative reforms take place out of dire necessity to suit bureaucratic management to modern information age. Reform reports hardly change behavioral predisposition of public bureaucracy. The high ups in central bureaucracy feel that they continue to have a finger in the pie. They have an axe to grind to reflect the frontier of their interests

Distressingly administrative reforms or efforts at reorganization hardly achieved anything remarkable in fulfilling the aspiration of fast changing societies. The reason is perhaps that the reports of the reform commissions containing recommended palliatives for shaping things properly and sensitizing large bureaucracies did not obtain proper institutional nourishment by due course of follow-up action. They were only partially implemented or shelved as secret documents. There are allegations that the ruling administrative elites always attempted to twist or distort the content of the report to protect vested interests and shun those recommendations that might have brought about qualitative changes in the existing order with the possibility of slashing undue privileges enjoyed by them. As a corollary to this manipulative design the rising expectation has turned into rising frustration. The gap between expectation and achievement has been increasing appallingly.

Conclusion

The classical management theories are important for administrating the civil service organization from a lot of considerations. Weberian model of bureaucracy has been applied across the world successfully. It laid emphasis on the quality of people identifying the importance of ascription in the recruitment and promotion aspects of civil service positions. While other scholars like Henry Fayol and Winslow Taylor have also made epoch making contribution to the development of public administration that eventually enriched this discipline as an academic discipline. In course of time, NPM and post bureaucracy is fulfilling the gap that had been unable by traditional bureaucracy.

References

Robert DB 1998, The New Public Management Paradigm and the Search for Democratic Accountability, *International Public Management Journal*, Vol. 1, No 2, pp 131-164.

Wrege, CD, and Ronald, G, Frederick W. Taylor 1911, The Father of Scientific Management: Myth and Reality, Homewood, Ill.: Business One Irwin, p 65

Taylor, FW 1911, *The Principles of Scientific Management*, New York: Harper and Brothers Reprinted, 1967, W. W. Norton & Company, p 55

Weber, M 1946, *The Theory of Social and Economic Organization*, ed. Talcott Parsons, New York, Oxford University Press, p 66

Weber, M 1947, *The Theory of Social and Economic Organization*, Glencoe, III, Peter, M B and Ricard, S 1962, Formal Organization: A Comparative Approach, San Francisco, Chandler Publishing Company.

Bertram MG 1964, The Managing of Organizations, Vol.1, London

Henri, F 1937, The Administrative Theory in the State, In: L. Gulick and L. Urwick (Eds.) *Papers on the Science of Administration*, New York: Columbia University Press

Henri, F 1949, General and Industrial Management, translated by Constance Sterrs from the original paper in 1916 entitled *Administration Industrielle et Generale*, London, Sir Isaac Pitman.

Luther, G 1937, Notes on the Theory of Organization, in Gulick and Urwick, *Papers on the Science of Administration*, New York: Institute of Public administration, Columbia University Press.

Peters, BG 2001, *The Future of Governing: Studies in Government and public policy*, Second Edition.

Kalimullah, NA, Kabir MAA Ashaduzzaman, MMN 2015), Emergence and Principles of Post-Bureaucracy: A Review, *BUP Journal*, Volume I, Issue 3, pp 45-50

Pollitt, C 2001, Clarifying Convergence: Striking Similarities and Durable Differences in Public Management Reform, *Public Management Review*, Volume 3, No. 4, pp 22-27

Heckscher, C 1994, *Defining the post-bureaucratic type, In: Hecksher*, C. and Donnellon, A. (eds) The post-bureaucratic Organization: New Perspectives on Organizational Change, Sage, Thousand Oaks, CA.

Laski, HJ 1930, Bureaucracy", of Encyclopedia of the Social Sciences, NY: Macmillan. Vol.2, pp.70-73.

Social Violence in Bangladesh: the State of Gap in Governance

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Abstract

The poverty syndrome extremely limited access of the poor to community resources continued to be a menacing set back bedeviling otherwise peaceful community life. It gradually turned into a lingering impasse as an inevitable outcome of natural calamities and man- made crisis through triangular manipulation. There is a conventional concept that victims of violence are the children and women belonging to vulnerable section of the community. Because they live under the shadow of fear and restrictions. Not the both structural and non-structural violence leave damaging impacts on child's health. Structural violence includes unfair wages, usurious money lending, bonded labour, child labour, free services, untouchablity and dowry. Good governance for social reconstruction in a desired manner is distressingly missing in the manipulative design of the elite. The emerging comprador class with lumpen interest receiving patronage resources from governing elite is responsible for increasing poverty severity6 and economic stagnation. One of the critical view-point is that governing process has been of a bureaucratic character. The crisis has been compounded by bureaucratically manipulated allocative decisions. Trafficking of women and children across the country is the fast growing violence against the vulnerable groups. Most of missing women landed in neighboring countries like India and Pakistan. Some among them were taken to the oil rich gulf countries where they were forced work as camel jockeys

Introduction

Good governance for social reconstruction in a desired manner is distressingly missing in the manipulative design of the elite.

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The emerging comprador class with lumpen interest receivi

ng patronage resources from governing elite is responsible for increasing poverty severity and economic stagnation. The legitimacy of the ruling class is thus put to question. Another eventuality is the alleged repression of the minority and other deprived class. Discriminatory treatment meted out to religious and ethnic minorities and sects, women, and children by dominant layer trigger social mobilization on the part of these groups. 'Humanitarian crisis' is in fact man made that provides enough ground for perpetual tension and restlessness.

The hitherto existing base of destitution caused by man-made economic crisis and natural disasters like flood, draught and river erosion has been reinforced by phenomenal growth of terrorism under the protection of godfathers. Toll extortion, illegal occupation of family assets, managing tender for contracting or subcontracting by force, penetration of terrorists in trade, and commerce impair economic resilience are seriously affecting low and fixed income groups. Transitional society governance shortage in the implementation of public policies and enforcement of laws provide enough grounds for societal degeneration in absolute terms that jeopardizes human right---all to the disenchantment of the vast body of citizens. In the normative order of thing human relations based on understanding, amity and reciprocity foster a congenial social environment. However, polar antithesis to this desirable order of things with stable equilibrium is violence that points to the extreme level of societal degeneration and break down of normative order.

There is a conventional concept that victims of violence are the children and women belonging to vulnerable section of the community. Because they live under the shadow of fear and restrictions. Not the both structural and non-structural violence leave damaging impacts on child's health. Structural violence includes unfair wages, usurious money lending, bonded labour, child labour, free services, untouchablity and dowry. Non-structural violence includes unauthorized use of force by state agents to maintain law and order and unlawful violence by the rural poor in self-defense (Hartmann et.al 1983). It cuts across boundaries of culture, class, education, income, ethnicity and age (UNICEF 2001: 34).

Governance becomes meaningful when it is oriented to the protection of HR. The end result of human development must be the realization of every citizen's rights as enshrined in the universal declaration of human rights. Experts of course have conceptual understanding of HR standards. Nevertheless working knowledge about the application of such standards or principles is scanty. For right-base approach to be operationally meaningful it is necessary to devise a mechanism for protecting the weak sections of the society from violence.

Dimension of the Problematic

This problematic scenario continued to hold tenuously on predatory and soft state. The consequence was likely to be the generation of catastrophic conditions as well as humanitarian crisis. Massive corruption in Bangladesh degenerated the society putting severe strains on implementation of public policy. Corrupt practice continued to engulf all strategic institutions grossly undermining fairness in governance. High-ups in public administration at various levels not only grabbed as much resources as possible but also encouraged such behavior among petty officers, even peons. The environment around bureaucratic establishment, autonomous and parasitical bodies became inordinately vitiated to give way to corrupt practice.

Public policy on substantive areas of development contemplates some desirable changes. Nevertheless policy outcomes resulting from lack of governance in the implementation of the projected goals under a variety of policy sectors and sub-sectors do not favour the disadvantaged lots. The dominant interest groups in the community power structures concentrate benefits of development. They do it through subtle mechanism and manipulative design in a deceptive manner. By dominant interest groups we mean the coalition of interest among governing elites, fortune-seeking political entrepreneurs and upstart businessmen. It is seen that governing elite expands various opportunities for economic concentration including rent-seeking ones that ultimately aggravates 'humanitarian crisis' and threatens the legitimacy of regime and increases the probability of regime turn over'.

One of the critical view-point is that governing process has been of a bureaucratic character. The crisis has been compounded by bureaucratically manipulated allocative decisions. A plethora of associations based on similar configuration of interests are not effective instrument of articulating legitimate and genuine demands of the deprived social class as policy inputs. Trade unions like peasants' organization, weaver associations, and so forth have more or less become the 'ploys of intensive political hobnobbing.'

In certain circumstances, ethnic conflict is shaped by 'artificial or negative perception about the deprivation of a particular ethnic group. In Bangladesh, for illustration, social protest against development priorities in favour of the tribes in Chittagong Hill Tracts (CHT) echoes negative frame of mind.

It tends to impair homeostatic balance of power in tribal areas.

However, recent tribal scenario was the expression of perpetual tension. Slow or delayed implementation of CHT peace treaty aggravated such tension rather than alleviated it.

Structural tension is a common feature of complicated social life. It is expressed quite through conflict latent or manifest. Uneven development due to governance shortage affects stable equilibrium and thereby strengthens such tension. Heart burning and frustration among the disgruntled groups in electoral constituencies is a continuing process as the bottom end of distribution profile is caught up by deprivation trap.

The changing economic scenario appears to be detrimental to the interests of the toiling masses-we mean working forces. Politics of scarcity characterized by exorbitant rate of essential commodities, hoarding, black marketing, and artificial crisis of agriculture inputs characterizes the grave crisis of development. More low purchasing capacity of the proletariat class living below market level, the plight of primary producers having little access to market facilities, withdrawal of agricultural subsidy and the vulnerability of the marginalized class to the misfortunes of competition in an era of globalization add to the crisis of poverty upsetting macro-economic stability. The hitherto existing base of destitution caused by man-made economic crisis and natural disasters like flood, draught and river erosion has been reinforced by phenomenal growth of terrorism under the protection of godfathers. Toll extortion, illegal occupation of family assets, managing tender for contracting or subcontracting by force, penetration of terrorists in trade, and commerce impair economic resilience seriously affecting low and fixed income groups.

The weak section of the communities lives under the shadow of fear and restrictions. Cruelty to women, children, girl, and custom of dowry, forced

prostitution, and trafficking are some example of violence structural violence includes unfair wage, usurious money lending, tutelage, bonded labour, child labour, free services, untouchability and dowry. Non-structural violence includes authorized use of by state agents to maintain law and order, unlawful violence, used against rural poor and violence by the rural poor itself in self-defence.

Trafficking of women and children across the country is the fast growing violence against the vulnerable groups. Most of missing women landed in neighboring countries like India and Pakistan. Some among them were taken to the oil rich gulf countries where they were forced work as camel jockeys. Several manifestations of violence against women and children include: throwing inflammable, corrosive or poisoned substance, causing or attempting to cause death, causing impairment of eye sight/hearing or injuring face, breast or organ, impairment/disfigurement of other parts of body, kidnapping, detention for ransom, sexual harassment like touching sex organ of women or child violating women modesty or making obscene gesture, rape/gang rape, injury or death, attempting to cause death/injury by rape, attempted rape, rape of women in custody and torture of wife by/ on behalf of husband causing or attempting to cause death.

Alarmingly the swell of eve-teasing indicating the state of societal degeneration has increased our tension and apprehension. It was a talk of the town for some time with everyday media flash featuring the victims of eve teasing. . The Government and civil societies under the compelling situation are pondering over the matter with due seriousness to find way forward to eradicate this mischievous act. The state thinks to mull legal steps through new legislation like mobile court to punish the culprits. Many a civil society formed human chain to protest eve-teasing. Chittagong University Journalist Association arranged a human chain followed by a rally protesting eveteasing on 6th November, 2010 at the campus. The rally was brought out from Intellectual Square of the university at 1 pm with 200 students including some teachers parading in front of administration building. A rally on eve teasing prevention and assemble carrying banner and festoons was organized by district information office of kurigram. The participants were teachers and students of different education institutions and representatives of political and non-government organizations. Later on a discussion was held in Sadhinter Bijjoy Stambho. The participants emphasized movement from families against eve teasing.
Thing is that eve-teasing will not end as we are going through the stage of depersonalization. There happens to be a moral crunch spoiling and derailing the youth and the present generation. Moral lesson is the need of our with child's parents and teachers playing a vital role. The government ought to control all means of modern information and communication technology (ICT). Negative use of ICT gradually destroys all our good instincts. Mobile phone should be used only for information not for taking snaps, recording songs/music and enjoying music and uploading any obscene ultra-modern dance for publicity. Important thing is to reinforce action against drug trafficking and against trades on narcotics and any harmful tablets and drinks. Some satellite channels produce ugly programmes with reference to sex. Imposing ban on them is a must.

Confronted by such paradoxical situation good governance is still a distant dream in an apparently dysfunctional / failed state. Recently a question that has arisen is: whether Bangladesh is a failed state with poor governance. Some observers might have branded Bangladesh as a dysfunctional state and some castigated it branding it as a dysfunctional state. A plausible answer to this question needs a careful study and 'structural explanations'. Nevertheless, it is perhaps not wrong to comment that Bangladesh is a state based on fragile institutional foundation. Each successive regime has more or less failed to stamp out institutional and organizational dysfunctions and deep-rooted corruption Transparency International (TI) has identified Bangladesh as the most corrupt country (Noor, 2006). The antecedents like various manifestations of corruption, dysfunctional politics, confrontational politics, bureau--pathology, crisis of qualified personnel in public bureaucracy, scandalous politicization of administration, erratic political leadership and escalating violence account much for malfunctioning of institutional apparatus and resultant crisis of policy implementation.

Authority without power is another factor responsible for downslide in governance. Unnecessary intervention by 'party organs' dominant interest groups seriously disrupt normative implementation. Official functionaries in various implementing agencies enjoy authority without little or no power to properly dispense development functions. More, the advent of structureless authority with the backing of godfathers causes arbitrary intervention in policy intervention. Such intervention with /without managerial skill is no longer desirable. More often than not illegal structures in central as well as local administration usurp a disproportionate amount of power. The

dispensing authority, subservient to tremendous influences of unbridled power, fails to regulate allocation of resources, inputs, subsidies, and cannot properly address human problems at the implementation stage. "In other cases, the weakening of the judiciary and the atrophy of the parliament undermines the system of checks and balances within the governance system (Muhataba et. al. 1993:54).

So, Bangladesh State is not developed to the expected height of governance capacity. It remains confined to patronization of unproductiveness and plunder. If this trend continues, it may turn to be a case of limited failure or paralyzed state in the not too distant future (Siddiqui 2001:56). "The Bangladesh state is like the proverbial husband who is thoroughly incapable of providing his wife with rice, but is quite proficient in beating her up from time to time" (Anonymous cited in Siddiqui 2001:33).

Fight against poverty under the Millennium Development Goal (MDG) adds a new dimension to the challenge. But the existing nexus between growth and poverty is perpetuating inequities in the least developed countries (LDC). The regional experts attending the workshop in Dhaka convened jointly by the South Asian center for policy studies (SACEPS) and the center for Policy Dialogue (CPD) reiterated that growth itself will be inadequate in dealing with the multidimensional problems of poverty unless institutional constraints and rigid structures are duly addressed. (Dhaka Courier 2004). Decision-makers and planners ought to surmise 'policy gap'. Thing is that dichotomy between lofty policy objectives (Poverty alleviation rhetoric) and realities of the ground sustains such gap. Basic institutional constraints like land tenure, structural and non-structural violence, exploitative customs and age-old hearsay breeding superstitions should be removed to create congenial implementation environment.

The issue of GO-NGO interface cannot be side lined. Such an interface in Bangladesh has by now rendered dysfunctional constraining proper implementation of poverty alleviation projects. Needless to mention "NGOs are key players in implementation networks. They fill a service delivery void at the local level, often operating relatively independently (Dereck w. Brinkerhoff "Process perspectives on Policy change: Highlighting implementation" World Development vol. 24 no. 9 P.1399, 1996). Distressingly inhibitive relationship with NGO is a potent institutional constraint and NGO's political affiliation is no longer acceptable at the same time. Atmosphere of suspicion in dyadic contact between govt. and NGO destroys the spirit of partnership and the policy of dividing the NGO is self-defeating. On the other hand some NGOs act as "Pressure groups lobbying for services from government and going in for group mobilization in a quite political form" (Siddiqui, 1995: 55)

Somewhere in the world, children are being subjected to violence or abuse physically, psychologically, sexually or economically in each moment. The violence occurs in homes, in schools and institutions, at workplaces or on the streets. Violence against children and more specifically girl children continues to be a global epidemic and one of the most pervasive of child rights violations. No society can claim to be free of such violence. The only variation is in the patterns and trends that exist in countries and regions. Violence against mothers may be equated with violence against children injuiring/even killing mothers and under mining child survival. It creates health problem and behavioral disorder on the part of child. The rights of mothers are violated by the acts of both verbal and psychical aggression at home and out of home.

Domestic violence entrenches gender-inequality, denial as well as threat to health care as a basic human right. A veritable manifestation of gender inequality is 'assertive masculine prejudice'. In a patriarchal society everything is predominantly controlled and influenced by gender biased mind- set, which has been fueled by mass ignorance among woman folk (Rashid 2005: 45). Ignorance about health is profound. This is due largely to lack of information about access to health care, maternity service and reproductive health. What is badly needed is benignity of patri-virilocal authority to show full charity and sympathy to mother nourishing her baby. Powerlessness of mother caused by inequality tends to threaten babies. Each year almost eight million stillbirths and early neonatal deaths occur due to malnutrition of women during pregnancy, inadequate care during delivery and lack of care for the new born. More, the babies of physically and sexually weak mothers are more likely to be malnourished and less likely to be immunized or to receive oral re-hydration therapy for diarrhea (UNICEF 2001: 34).

One covenant- International covenant on Civil and Political Right was the capitalist covenant and the International Covenant by Economic, Social and Cultural Right represented the interests of Socialist block. Violation of

human right signals social tension, perpetual deprivation of the weaker section and political instability. It continued to roll on in Bangladesh as the whole country came under the sway of irrational elements. The scenario was one of utter confusion - a state of terrorism spreading far and wide to abuse the rights of the vulnerable sections. This inhuman, otherwise dysfunctional episode, projects a pessimistic picture of state-society interaction. This interaction is pattern less as well as meaningless. Fragility of the state altogether with dislocating society accounts much for low status of human right development.

Mass media play a significant role in mass people's lives, affecting family routines, and social interactions, cultural norms, and leisure activities. Those impact upon contemporary childhood. Generally children like to watch television. It is often observed that when a two or three years children cry out while having food, their mother makes them watch television for feeding them quietly. Most of times they forget to have food, study whilst watching television. It is a matter of great concern that in this way, most of children are becoming television maniac. Children tend to imitate heroes highlighted by mass media. They imagine whatever the heroes do and try to follow them exact as disciples. It is undeniable that when TV Serial CID is telecast on Sony Channel of India, our children cannot concentrate on their study. They cannot be bound in front of reading table. They must sit in front of television. Those are not finished here; children act among themselves in accordance with the characters of the most watched CID, because CID heroes are their icons. Having performed like the icons, sometimes children get injured also. On May 1st, 1994, an article under the title "Dozens of Children were Hurt in WWF Style Fights" appeared in the Israeli's major daily newspaper Yediot Acharonot: ... 'We were practicing and one of the boys broke his leg. I accidentally broke a girl's arms...It all starts as 'pretend' and 'for real'"

Conclusion

The crux of the problematic thus concerns the issue of governance. It is stressed over and again that governance is a key to policy implementation. Participants in international seminars, and conferences point at accusing finger at fuzzy governance in developing countries in general and Bangladesh in particular. "Structural rigidities ' and 'complexity of the socio economic environment and criminalisation of politics definitely perpetrates the crisis of governance in Bangladesh. Now development intervention based on aid for policy implementation is on slippery slope. The donor agency like USAID revealed disappointing state of governance characterized by lack of transparency, deteriorating law and order situation, and corruption. Corruption is termed 'a dreadful disease' (htt://www.dhakacourier.net, 2004:16).

The seemingly cynical and pessimistic view of state-society interaction holds true of developing South Asia in general and Bangladesh in particular. In terms of such interaction state plays the dominant role in public policy with political and bureaucratic actors having good intention. A meaningful statesociety interaction is woefully missing as the state is overdeveloped and civil society is 'weak and fragmented'. Over empowerment of the state, contrasted with disempowerment of the society results in a lack of 'reciprocal influence' in state-society interaction. Inevitability of state failure altogether with dislocating societies characterizes a realistic state of governance in developing countries.

International policy communities, human rights groups and several overseas organizations puzzle over escalating structural tension and violence in the country. The representatives of the development parternes noted with concern that lack of governance and security hindered development process in Bangladesh . Donor's concerns over government's stand on NGOs were expressed at the third working session of the Bangladesh development forum (BDF) meeting.

Some habits of mind treat such reports subjectively. Others may appreciate the authenticity of such reports pointing out minor omission or distortions. The government cannot officially accept the reports treating the same as a routine and stereotypical. This is quite natural. Contrarily the opposition welcomes and hails any reports of the violation of human rights and misgovernance that shattered the image of the government.

References

Ahmed, T 1991, Politics and Development at the Grassroots: A Study of Local leadership Bangladesh. Politics, *Administration and Change*, No. 16

Akanda, AM, 1986, Notes on international Symposium on BARD

Proceedings on International Symposium on BARD, BARD, Comilla

Habibullah, M 2005, Co-operative Marketing of Agricultural Produces: Lessons from the Comilla Experiment, Observer Magazine, February 18. 2005

Hunter, WW 1876, A Statistical Account of Bengal, Trubner and CO. London, Hye, HA 1996, *IRDP: Replication of an Experimental Project*, Vol.9, Quddus MA (ed.) Rural development in Bangladesh: strategies and Experiences, BARD, Comilla

Khan, AR and Hossain, M 1989, The Strategy of development in Bangladesh, MC Milan Press LTD, London

Mashreque MS 1995, Kinship and Power Structure in Rural Bangladesh: A Case study, Homeland Press and Publications, Chittagong.

Mashreque MS 2002, Politics, administration and Participation: An empirical Profile of Rural Bangladesh, Chittagong, p 65.

Mashreque MS 2005, Community Structure in Rural Bangladesh: Dimension of Development and Participation, *Human Face*, Vol. 4, p 48

Mashrequ, MS 2011, *Protecting rights of child domestic workers*, The Daily New Nation, Dhaka, Bangladesh,

Sex Workers in Chittagong City: Their Predicaments

Ms. Shamsun Nahar Chowdhury*

Abstract

The sex workers spend a considerable time living and working here and there as maverick. They feel they do not have any identification. So they suffer from identity crisis. The community looks at with hatred and negligence. In fact sex workers' children are illegitimate children. The abuse like bastard means the children of the pross or whore. Some people will argue that prostitution is a choice and one has no right to judge someone else for choosing to go back to their pimp or to continue that life. Yes, some women will answer this is a choice - but choice is relative and it is important to remember the types of situations that push a woman into this situation: extreme poverty, a history with sexual abuse, abusive relationships, forced drug addiction. While the sex workers have such a social condition to live with, the children of these female sex workers in Bangladesh are at high risk of many significant threats to their health and wellbeing. While some of these problems are shared with other children of similar social and economic circumstances in Bangladesh, children of sex workers experience a range of problems due to the social stigma and threats associated with their mother's sex work and the resulting discrimination.

Introduction:

The sex workers spend a considerable time living and working here and there as maverick. They feel they do not have any identification. So they suffer from identity crisis. The community looks at with hatred and negligence. In fact sex workers' children are illegitimate children. The abuse like bastard means the children of the pross or whore. The daughters of the streets are mostly from the clandestine association of the sex workers surviving in a grave situation. They cannot claim any rights. So they suffer violation of human rights.

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Living on the margins of the society relying entirely on their own efforts with no one caring for them sex workers' children remain as the most vulnerable children (MVC). As a matter of fact sex workers' children are a special group of children far apart from urban poor children. They are out of reckoning in the definition of the children most vulnerable, exploited facing the highest risks.

The suffer torture and harassment in the red light zone where they live and move with their mothers who are sex workers. The majority of victims have been victims of abuse or sexual assault previously in their lives; most sex workers have had an experience in foster care. Almost all are female, but there are some male and transgender victims. A large number are undocumented women, being promised a better life and tricked into fake marriages, abusive relationships or a guise to bring them to another country before stripping them of their documents and enslaving them. Many traffickers purposely impregnate the women and hold the child hostage in order to continue to coerce the mother.

Some people will argue that prostitution is a choice and one has no right to judge someone else for choosing to go back to their pimp or to continue that life. Yes, some women will answer this is a choice - but choice is relative and it is important to remember the types of situations that push a woman into this situation: extreme poverty, a history with sexual abuse, abusive relationships, forced drug addiction. The list goes on. Many sex workers will tell you themselves that she/he is doing this by choice. But months later, when something tips the scale, those same sex workers may reach out for help, and recognize that they were victims. Survivors consistently say that they convinced themselves this was their choice as a means of coping with the abuse. And the first time they were coerced, they weren't thinking about the beatings, or being made to feel like they were stripped of their humanity.

Today's children are the future of to-morrow. Since they create the world of to-morrow, they are at the heart of social development. The future depends on how children prepare themselves to enter into the world of work. Children who are healthy, well-fed and educated grow up to be productive, innovative workers and responsible adults. But to-day more than one billion children (First Call for Children, A UNICEF Quarterly, 1995 / No1) are condemned to poverty, without jobs, without basic necessities, without hope. According to IPEC, 1994, about 200-300 million children work through out

the world, work long hours in poor and dangerous conditions; the hazard that working children face are many and varied. These estimation may include the children of the sex-workers but very little attention been concentrated on the rights of these children.

Sex-workers in contemporary Bangladesh continue to suffer manifold harassments. Their basic rights are denied. They cannot dare claim right to be buried after death. Some communities require them to carry identity mark like burqus(black apron covering head to fee)t. They can move barefooted. It's found and mentioned in so many reports that the people verbally assault sex workers, threaten them with blades and acid, and spit at them. Police, mastaans (hoodlums), and customers physically and sexually abuse street-based sex workers-and extort money from them or deny them payment-with impunity. Sometimes shopkeepers charge them discriminatory, extortionate prices. Many street base female sex workers in Bangladesh get pregnant willingly or even unknowingly but face dire situation raising the child. Many girls involved in child labour, such as working in factories and as domestic workers are raped or sexually exploited, these girls are highly stigmatized and many of them flee to escape such abuse, but often they find that prostitution is the only option open to them for survival - once in prostitution they become even more marginalized. Most of these girls enter the profession before the age of 12.

While the sex workers have such a social condition to live with, the children of these female sex workers in Bangladesh are at high risk of many significant threats to their health and wellbeing. While some of these problems are shared with other children of similar social and economic circumstances in Bangladesh, children of sex workers experience a range of problems due to the social stigma and threats associated with their mother's sex work and the resulting discrimination. Even if a mother decides to raise her child, they are frequently kidnapped and abused by pimps and thugs. Furthermore, prostitutes and their children live a precarious existence, with many being evicted from brothels and suffering physical and emotional harassment from police and goons.

If we see the legal obligation regarding the sex-workers we found that the Bangladeshi High Court has ruled, in early 2000, that prostitution as a livelihood is not illegal. Lawyers argue the judgment is highly unusual because it makes Bangladesh one of the few Islamic countries which do not

ban prostitution. This judgment means that prostitutes in Bangladesh now have the legal authority to practice their trade.

Although the constitution of Bangladesh declares that the state should discourage prostitution, it is one of the few Muslim nations in the world that doesn't make it illegal. However campaign groups were disappointed in August when the Electoral Commission overturned its earlier decision to recognize prostitution as a profession. Many believed that it would reduce the levels of harassment faced by sex workers, and that it would make it easier for their children to become enrolled in schools.

Prostitution was legalised in Bangladesh in 2000 even though the Bangladesh constitution provides that the "State shall endeavor to prevent gambling and prostitution."

The Government is developing laws and policies with a view toward consistency with the UNCRC and Bangladesh's other human rights commitments. Still, however, many of the rights guaranteed in international conventions are not yet supported with legislation, and some laws and policies contradict them. When appropriate laws and policies are in place, they are often poorly implemented and enforced.

In such a situation, the children of the street based sex workers are the most vulnerable, deprived and marginalized part of the society where their mother are treated as garbage and not even treated as human being.

Such sordid lifestyles may have a profoundly negative effect on the child's development and well being - and the damage is further compounded if the mother decides to sell her own daughter into the sex trade, which happens frequently due to poverty and a lack of opportunities for education.

HIV Stands for Human Immunodeficiency Disorder. HIV tags on to certain cells and copy's itself. HIV causes slow but constant damage to the immune system. AIDS stands for Acquired Immune Deficiency Syndrome. AIDS is the condition diagnosed when there are a group of related symptoms that are caused by advanced HIV infection or when someone has less than 200 CD4 cells. AIDS makes the body vulnerable to life-threatening illnesses called opportunistic infections. To keep HIV from becoming AIDS There are certain Medicines and injections to slow down the affects and improve life

expectancy. Given this information there is still a strong chance (without treatment) that you will still acquire the AIDS Virus. The odds are approximately 50% with treatment 15%. Although these odds don't seem good most Scientists currently working in Africa believe due to recent tests that the AIDS virus is at its tipping point.

The HIV Virus is only attained by humans (hence Human in HIV). There are similar diseases for animals and other organisms but the HIV virus is only found in Humans. The Areas of people most affected by the virus are in areas of poverty; such as the poorest Areas in Africa, The "ghettos" of the United States. Essentially the virus can be found anywhere on the planet but is not transmittable in anyway besides blood and sex. The drugs used to keep the virus contained are very expensive and not available to most of the people containing the virus. The virus is not hereditary so it is not passed down through generations but can be given to a child if the mother is infected with the virus while giving birth. But this like many other cases is preventable. This is such a common disease throughout our world and research has been founded at such a high rate that even with the select amount of organisms with the disease modern scientists are able to research people and figure out all of the needed information.

Transmission of HIV/STD through Sex Workers

It is difficult to talk about sex workers as a single 'group', because those involved in the sex industry come from a diverse range of backgrounds and cultures. As a result, the levels of risk that they face in terms of HIV infection varies greatly depending on the country that they live in, whether they work from a brothel or 'on the street', and whether they have access to condoms, among other factors. 1 A wealthy sex worker supplying services to businessmen in London, for instance, may face a very different level of risk to that of an impoverished girl who is being forced to sell sex in a red-light district in Thailand.

Despite this diversity, sex workers often share several common factors in their lives, regardless of their background. Some of these factors can increase their exposure to HIV.

The reality, however, is that sex workers and their clients do not always use condoms. The 2010 UNAIDS global report found only a third of the 86 countries surveyed reported 90 percent of sex workers using a condom with their last client, while more than half reported condom use by 78 percent of

sex workers. 3 In 2012, 44 countries reported higher median condom use; 85 percent, up from 78 percent in 2009.

Conclusion

In some cases, sex workers have no access to condoms, or are not aware of their importance. In other cases, sex workers are simply powerless to negotiate safer sex. Clients may refuse to pay for sex if they have to use a condom, and use intimidation or violence to force unprotected sex. They may also offer more money for unprotected sex - a proposal that can be hard to refuse if the sex worker in question is in desperate need of an income.

References

UNICEF 2009, *Situation assessment and analysis of children and women in Bangladesh*, United Nations International Children Emergency Fund, pp 55.

CARE Bangladesh 2004, Needs Assessment Study on Knowledge, Attitudes and Practice (KAP) for Advocacy on Protection and Promotion of Human Rights of Sex Workers, Working Paper, Care Bangladesh, Dhaka.

FIDH, YPSA, and NGO Platform on Shipbreaking 2008, *Childbreaking Yards: Child Labour in the Ship Recycling Industry in Bangladesh*, pp 35.

BBS 2009, *Statistical Pocket Book of Bangladesh 2008*, Bangladesh Bureau of Statistics, pp 70.

BBS and UNICEF 2007, Child and Mother Nutrition Survey of Bangladesh 2005, Bangladesh Bureau of Statistics and United National for International Children Emergency Fund.

BBS and UNICEF 2007, *Multiple Indicator Cluster Survey (MICS) Bangladesh 2006*, Key Findings, Bangladesh Bureau of Statistics and United Nations for International Children Emergency Fund.

MoH and UNICEF 2008, *Bangladesh EPI Coverage Evaluation Survey* 2007, Ministry of Health and United Nations for International Children Emergency Fund.

Access to Justice through Village Courts: A Case Study in Khazra Union Parishad, Ashashuni Upazilla, Satkhira

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Abstract

Constitution of the People's Republic of Bangladesh ensures the access to justice for all citizens. The state is responsible to provide equitable access to justice for all especially to vulnerable group like poor peoples in Union Parishad (UP). The formal judicial system of Bangladesh is very expensive and follows a lengthy procedure. Poor people living in rural areas are rarely able to use this formal legal system to get justice. The costs of engaging a lawyer and different court fees, the time, the level of skill, education and expertise required to litigate acts as barriers in access to justice. Poor people therefore prefer or rather have no choice but to use the traditional justice mechanisms like Village Court (VC). This paper tries to indentify justice delivery system in Village Courts, procedure of filing cases or suits and also identifies the problems of village court with some suggestions to get rid of them.

Introduction

'Access to Justice' is recognized as one of the fundamental preconditions for development and Good governance. According to the article 1 of United Nations Universal Declaration of Human Rights (1948), "All human beings are born free and equal in dignity and rights." Therefore all human beings should have equal access to justice when their dignity or their rights are infringed upon. However, deficient or discriminatory justice systems can undermine the basic human rights principle.

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When such system cannot ensure equal access to justice, the vulnerable and marginalized, and their human dignity is placed at risk. Ensuring access to justice for the people is always a big challenge for Bangladesh because, about 80% of total population lives in villages and around 40% lives below the poverty line.

Article 31 of the constitution of the People's Republic of Bangladesh provides that, "To enjoy the protection of the law, and to be treated in accordance with law, and only in accordance with law, is the inalienable right of every citizen, wherever he may be, and of every other person for the time being within Bangladesh, and in particular no action detrimental to the life, liberty, body, reputation or property of any person shall be taken except in accordance with law". Again Article 35(3) states that, "Every person accused of a criminal offence shall have the right to a speedy and public trial by an independent and impartial court or tribunal established by law".

There are many obstacles to achieve the benefits of access to justice. Barriers may be actively or passively created or sustained and may be (a) legal, (b) institutional, (c) political or (d) social/cultural. Among the obstacles, the complexity of justice system is one of the major obstacles for poor people to access to justice and service provider to dispense justice. A large number of people of the country don't have financial and other logistic support to get the appropriate service from the judicial system. The access to the formal court is extremely limited for the rural poor people because 8 out of 10 Bangladeshis live in villages and most of the formal courts are situated in urban centers. As the lowest formal court is at the district level, the rural poor have to bear travel and logistics costs that pose additional burdens (Siddiqi, 2004). Therefore, large segments of the population who lack information or means to surmount the significant substantive and procedural barriers seek informal mechanisms of Village Court (VC) to redress their grievances. About two-thirds of the disputes do not enter into the formal court process; instead, they are either settle this at the local level through informal process by local leaders or a Village Court (Gram Adalat) or they remain unsettled. It is unfortunate and frustrating that though Village Courts ordinance was promulgated more than three decades ago, it has not yet achieved a considerable success till now.

The main objective of this study is to identify legal and practical scenario of Village Court in 8 No. Khazra Union Porishad (UP). In accordance with the

findings, the study will provide with rational, effective and practical recommendations to remove those constraints to make Village Court more capable and vibrant.

Materials and Methods

Area of the Study:

For the purpose of the present study one Union has been chosen from Ashashuni Upazilla under Satkhira District. The area of this Upazilla is 402.36 km. According to the 2001 Bangladesh population census, Ashashuni had a population of 249,244, consisting of 126,399 males and 122,845 females. The average population of each union, mouza and village was 22659, 1793 and 1030 respectively. The average literacy rate was 50% in 2011 and 40.30% in 2001.There are ten unions and 151 villages in this Upazilla. Among the 10 unions namely (Sriula, Ashashuni, Kadakathi, Kulla, Budhhata, Durgapur, Borodal, Kazra, Sovnali, Protapnagore, and Anulia), Khazra union is selected for the purpose of study. Khazra union is extremely rural and remote from the Upazilla Head Quarter. In this Union literacy rate is very low, people of this area are not aware, economically not so solvent and less conscious about village court.

Data have been collected from two kinds of sources

- 1. Primary sources, and
- 2. Secondary sources

Different methods have been used to collect primary data. They are: 1) Survey, 2) In-depth Interview and 3) Focus Group Discussion. The survey was conducted through administering questionnaires among chairman, 3 members, 3 members of the reserved seat, and the secretary (as the administrative officer) of 8. No Khazra Union Parashid (UP). Discussions were held with the Local leaders based on both structures and open-ended questionnaires. In-depth interviews and open discussions were conducted with local peoples in this UP.

A Brief Sketch of Village Court in Bangladesh

In 1976 the Government of Bangladesh promulgated the Local Government Ordinance. Through this Ordinance, the Union Porishad was entrusted with forty functions including limited judicial duties. The Village Court Ordinance provided each Union with basic authority to try cases by the village courts. Accordingly, the village courts were set to deal with petty cases. The objectives of establishing the village courts were to settle disputes, both criminal and civil, to which villagers are the parties.

Established by	The Village Court Act, 2006 (previously The Village Court Ordinance 1976)
Location of Village Court	Union Porishad Complex
Offence types	Both Civil and Criminal
Jurisdiction	Fine up to 25,000/Taka
Panel members of Village Court	UP Chairman, two UP members, two persons from both parties.
Appellate authority	Magistrate 1st class/ Assistant Judge.
This court is legally required to dispute settlement, meaning there Civil Procedure, Code of Crimi been barred. It has barred the decisions of these courts are as l	follow informal procedure of trial or by that the application of Code of nal Procedure and Evidence Act has appoin tment of lawyers. However, binding as those of any other formal

Table 01: Nature of Village Court

Constitution of the Village Court

The Court is constituted upon a written application to the Chairman of the Union Porishad against the crimes like: unlawful assembly is to commit an offence, crime against animal or cattle etc. mentioned in Part I or plaint against the offences against breach of contract, recovery of moveable property, damage to property etc. as mentioned in Part II of the schedule. The applicant has to pay Taka 2 for a criminal case and Taka 4 for a civil case as fee.



Figure : Village Court Flowchart

Functions of the Village Court

The VC (Village Court) has been functioning by Union Porishad. The case records and registers have been maintained in VC but in different ways. The preservation of the case records and registers is not satisfactory because there is many cases entry in the register but each and every case file is not found. Secretary (Md. Mujibur Rahman) of the UP maintained these, when I asked about the matters he replied that, every case is not recorded properly. They

maintained record only important and competitive cases.

Month	Number of	Nature of Case		Finally	Pending
	Cases	Civil	Criminal	Settle	
July'15	7	5	2	4	3
August'15	2	2	-	1	1
September'15	2	1	1	2	-
October'15	4	3	1	1	3
November'15	3	1	2	2	1
December'15	5	2	3	4	1
Total	23	14	9	14	9

Table 01: Numbers of Case logged in 8 No. Khazra Union, Ashashuni,Satkhira (2015)

Source: Khazra Union Porishad Register Book

As it is observed from the above table it is clear that UP Village court is not active. It has been shown that within 6 month 23 cases/suits has been filed but 14 cases has been solved by this VC and 9 (39%) of cases/suits are still pending. It is also found that Chairman of this UP solves a (Suicide) criminal case within this time which is beyond his jurisdiction and it is non-compromisable criminal offence. The case was held in the village of Fotickhali (4 No ward) of Khazra Union. The fact is following......

Diapakar is a farmer of this village; His wife was involving an extra marital relation with a guy in same village. After publishing such immoral activity in this local area Diapankar was humiliated extremely. However, by this way Dipankar and his wife made collusion in this regard and thereafter he beaten his wife heinously and provoke to drinking poison. As a result his wife drinking poison in mid night and death same night without any proper treatment. It was a criminal case but UP Chairman mediate this case with victim's father by providing him 100,000/= in cash. While attempt this study I made an interviewed with Up Chairman for this case. He told me that "as an representative of Khazra Union Porishad I always stand by my people in

his or her odd time. And I try by my heart and soul to help them to recover such risk". I asked him as a conscious man why are you solved this type of criminal case through illegal way? In this time he added that "I don't understand what is legal? And what is illegal? Only I know I have to stand beside my people whether it is wrong and right. Because I am elected representative of Khazra Union Porishad. Later on, he also added that "to solve this remarkable criminal case I gave 35,000/= taka as a bribery to Ashashuni police station for hiding this case" At present justice delivery system doesn't fulfill the local public demand by this Village Court.

Natures of the Disputes Logged in the VC

Respondents of the study area are reported to be experiencing various types of dispute, which can be broadly divided into civil disputes and criminal offences. Data relating to the types have been presented in Table below. It appears from the table that more than 65.21% disputes/offences are of civil in nature and rests of the offences are criminal in nature. Among the criminal offences, various types of offences were involved, such as fight/quarrel, family conflict, violence against women, physical assault etc. Among the civil matters, property-related disputes, mainly land occupation, demarcation and selling and purchasing etc. are frequently found.

Number of Cases	Percentage (%)
Criminal	34.79 %
Civil	65.21%

Major Findings and Observations of the Study

According to the Village Courts Act, 2006 Village courts were established with the objective of enabling rural people to resolve their disputes within a short span of time and with a minimum cost. The study was aimed to identify to what extent village court meet the public demand, barriers to the fare justice and justice delivery system (Biswas, 2009). The respondents of the study mentioned a number of factors which causes as a failure factor in dispensing justice through the Village Court. Major findings and observations of the study are as follows:

- 1. Lack of awareness of the mass people about village court is the major limitation of village court to work actively.
- 2. Most of disputes came to the VC are of civil in nature. Property disputes are the highest among the cases received by the VC. But VC faced problem to settle and took in consideration of all the land disputes due to lack of jurisdiction. It is also observed that criminal cases are settled without documentation which is a great procedural misconduct for a common law courts.
- 3. Though the VC is operated by UP but the studied court do not strictly follow the Village Courts Act, 2006. The study has found that in terms of all cases there is no formal nomination of representatives by the concerned parties.
- 4. It is found that the maintenance and preservation of case records and registers are not properly done which violates the village court rules.
- 5. From the study and observation it is clear that the UP Chairman, secretary and UP members have a significant level of education which is favorable for trying the litigations and providing justice. But the UP officials have a great lack of training regarding the management of office and its other machineries.
- 6. The socio-economic condition of justice seekers of VC are not up to the mark. The education level of all the respondents is below SSC, their monthly income is under 5000 taka and all are either farmers or house wives. It indicates that villagers who belong better socioeconomic condition they do not rely on the VC.
- 7. There is no fund allocation for the Village Court from Local Government Division or from Upazilla Porishad. It was also observed VC runs without a fulltime court assistant and the UP secretary usually performs these tasks who think that it is beyond their ordinary job descriptions. The members and Chairman of the Union Porishad serve in the Village Court as a part of their functions in the Union Porishad. But considering their overall responsibilities as Members and Chairman of the Union Porishad, their salary or honorarium is too poor.

8. There are two elite persons nominated to the village court by the two parties. When they are nominated to the village court they act as a representative of the government because they are nominated according to the Village Court Act but there is no provision or arrangement to give them honorarium. They are not elected like UP chairman and members. For the social courtesy respondents are to pay their communication cost.

Some Important Suggestions for Necessary Reformation of Village Court in Bangladesh

The Village Court Act implies almost all major aspects of an effective rural justice system in rural areas of Bangladesh. A proper implementation of the law could improve the state of 'access to justice' dramatically (GBSB, 2010). But that did not happen, because the mechanism of law is not working effectively. It is time for government to undertake an in-depth study to dig out the problems of the rural justice system and address those problems without delay. During my study I found some important matters which can make village courts more active and functional and government should consider these matters for making village courts more effective and implement these suggestions to fulfill the local public demand:

- To fix necessary standard and criteria to select and elect appropriate knowledgeable and experienced person as members in the Village Court
- 2. For making the village courts as strong and powerful institution proper logistic and administrative support should be rendered to it. In this case a court assistant is very essential.
- 3. The power of village courts should be increased with respect to both civil and criminal jurisdiction. These courts should be allowed to try the cases involving up to 1, 00,000/= (One lac) taka.
- 4. Awareness program should be taken into consideration for all the people about village courts. UP chairmen, UP members, secretaries and local elites who are very often nominated as a representative of the village courts, government should take in consideration training program for them about village court system, its nature and object.

- 5. Regular supervision and monitoring should be mandatory by the proper authority.
- 6. For each village courts a panel of representatives should be selected for a period of five years with the approval of the formal courts. Their selection has to be renewed each year depending on their judicial capacity along with the honesty and integrity or Government should appoint a retired government officials like; retired police/army personnel of the locality or a retired teacher as honorary magistrate in village courts and nominate few other members for three to five years with an honorable honorarium.
- 7. Once in a year legal and procedural training courses have to be arranged for the chairman, members of the village courts along with the secretaries of the union Porishad. The secretaries should be additionally trained up for the record management.
- 8. The government should take extensive promotional and advocacy programs in both print and electronic media for creating awareness among the people about the functions and procedures of the village courts.
- 9. The government should encourage and support the non-government organizations to take awareness and advocacy program for the village courts all over the country.
- 10. Monetary budget of Village Court should be adequate.

Conclusion

In the absence of access to justice, people are unable to have their voices heard, are unable to exercise their rights, to challenge discrimination or hold decision-makers accountable. When justice mechanisms are available and accessible to people, they can help spur and consolidate economic growth and can contribute to creating a safe, secure and reliable environment that positively impacts other developments. In Bangladesh the formal justice system is under tremendous pressure with huge caseloads and vastly overstretched human resources which mean that the backlog of cases at present stands at nearly half a million. After the independence of Bangladesh the government of Bangladesh introduced the Village court Ordinance 1976. Later, it was replaced by the Village Court Act, 2006 to save the rural people from the hazards of the lengthy judicial process of the formal courts. But the government has not given much importance and emphasis for further development and improvement of this justice system which deals with both petty civil and criminal disputes. This study has found that village courts are not performing an effective role in maintaining the social peace and tranquility which to some extent makes pressure on the formal courts.

References

Siddiqi, MD 2004, Shalish and the quest for gender justice: An assessment of strategic interventions in Bangladesh, Research Initiatives Bangladesh, pp 55

Village Court Act, 2006, Ministry of Law, Government of Bangladesh, pp 25 Biswas, ZI 2009, Access to justice through state-led rural justice system in Bangladesh: A study in Kansat Union Parishad, *Research Initiatives Bangladesh*, pp 55

Victimization of Vulnerable Children in Bangladesh: An Explorative Study

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Abstract

Child victimization is a serious social malady, at present it has become a crucial issue in Bangladesh. It is now recognized as a major problem and has been occurred in all racial, religious and ethnic groups in rural and urban communities. The paper intended to explore the effect of child victimization, how the child are being victimized, forms of assault, types of victimization and the present status of child victimization especially working class children in Bangladesh. The study found that, the child victimization effects in every sector of their life and endangered honor, security, culture of harassment and make them create stigmatized, poverty, familial breakdown, family conflict, lack of education, social inequality, lack of state responsibility and the natural disasters enhances the probability of child victimization in Bangladesh. On the other hand, primary, secondary and tertiary victimization are the common forms of child victimization in Bangladesh. Finally the study has given some recommendation and explanations for further research, policy reforms, the law enforcement agencies and the conscious people of Bangladesh to eradicate child victimization and ensure a heavenly environment for a with state responsibility in Bangladesh

Introduction

The vulnerability of child victimization is a serious threat for the society and the development sector of the country. Vulnerability is the condition of being determined by physical, social, economic and environmental factors, which

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increase or influence the weakness of a community to the impact of hazards (Gencer, 2013 and Guillaumont, 2011).

The prevalence of child labor has, in recent years, become a serious problem throughout the world and especially in many poor developing countries of Asia, Africa and Latin America. Being one of the most densely populated poverty-stricken countries of the world the problem of child labor has become one of the prime concerns for the government and people of Bangladesh (Kalam, 2007). The seriousness of child abuse and exploitation in the job sector was widespread in all over Bangladesh. The threat of physical assault towards male children is much higher among other persona and female child. Poverty, illiteracy, landless, familial status, and unskilled labor are associates with physical abuse and exploitation in the working field in Bangladesh (Islam, 2013).

In Bangladesh's 421,000 children were vulnerable situation whose engaged them in domestic workers, from them three-quarters are girls always faces particular problems because they work behind closed doors. The pressure from the owner house they were worked for seven days a week and 90 per cent sleep at their employer's home (ILO, 2006), meaning that they are completely dependent on their employers and often have restrictions on their mobility and freedom. About 60 per cent report some kind of abuse during their work, such as scolding or slapping. Levels of exploitation are also extremely high, as indicated by the fact that more than half receive no wage at all (they instead receive benefits such as accommodation, food and clothing further reinforcing dependency on their employer) (Unicef, 2010).

Of the total child population aged 5-17 years, 1.29 million or 3% are involved in hazardous child labor. Approximately 42.9% of those involved in hazardous child labor are in the age-range 5-14 years. Over 90.7% of the children involved in hazardous work are male (BBS, 2003). According to the International Labor Organization (ILO, 1998) the number of children under age 15 who engaged in different works are 100 to 200 million. UNICEF (1999) estimated that there were 80 million children aged 10.14 who undertook work so long or arduous that it interfered with their normal development.

Situation and Context of Bangladesh

Bangladesh is facing the threat of vulnerability of children victimization and breakdown the commitments of treaties and convention of national and

international acts relevancy with child labor. According to the National Child Labor Survey (NCLS) conducted by the Bangladesh Bureau of Statistics (BBS) in 2003, showed that among 42.39 million children aged 5-17 years 7.42 million are economically active, of which 3.18 million or 43 percent are considered child laborers who are belonging the threat for victimization in Bangladesh. The highest number of economically active children is 4.41 million at the age group of 10-14 years (Ahsan, 2011).

Trafficking of children has become a social problem and a crucial challenge to the way of development in Bangladesh. Every year about 7000 women and children are trafficked from this country to India, Pakistan and Middle-East where their ultimate fate is a life of sexual exploitation, abuse and other forms of bonded labor. A number of NGOs have formulated along with the programs for expanding awareness against this problem. NGOs like ATSEC, BNWLA, CWCS, INCIDIN, IOM and UDDIPON have launched a set of communication (Ali, 2006).

The victimization of vulnerable children focuses an attraction when the incident of trafficked in Bangladesh as a major concerning issues. In the period of 2001-02, 31 children were trafficked to the nearest countries that were belonging in vulnerable situation, in 2002-03, 36 children were trafficked and 2003-04, 38 children were trafficked to other countries (Farouk, 2005).

Children are engaged in diverse forms of economic activities in the developing countries like Bangladesh, of the 22.8 million work places that have been surveyed in 1995-96, 21.2 percent reported to have had employed children between the ages of 5-14 years (Khair, 2005). The corresponding percentage of employed children within all children of that age range was 19.1 percent (with 16.8 percent and 22.5 percent, respectively for the urban and rural areas). The number of working children in the same year was estimated at around 6.6 million. In Bangladesh, however, despite policies of compulsory primary education and the existence of large-scale stipend programs to support poor households in sending their children to school, there are 5 million children, around 12% of children aged up to 17, who are working and not going to school (BBS, 2003). The ILO (2002) estimates that, in the year of 2000, about 210 million children age ranges of 5 and 14 were working in different sectors, among them about half of children were working for full-time.

The numbers of trafficked children were increased day by day in the Bangladesh and in the labor children face a vulnerable threat for victimization. The economic vulnerability, inadequate legislative framework, lack of implementation of existing labor laws, institutional barriers, cultural and social inequities and an inaccessible, low-quality educational system, including inadequate provision of technical and vocational education and lack of inter-agency coordination make the situation worst that make the children into vulnerable situation (Ahsan, 2011).

In the recent period of time the ready-made garments have found who especially engaged them the child labor in their factories. The ready-made garments have started their journey after the liberation war and it has a great importance on the development sector of Bangladesh. The RMG industry has achieved more than 75 percent of export of money on the contrary of total amount in Bangladesh (Khan, Nuri and Banarjee, 2012).

Another study have been found the protecting child labor in Bangladesh in where several reasons have been comes out as the reason of children vulnerability in Bangladesh such as poverty, lack of awareness and embedded education, parents feeling of insecurity about their children, lack of education of the parents especially of mothers in Bangladesh endangered the children in vulnerable situation (Aktar and Abdulah, 2013).

The children who are engaged them in labor activities provoke or have probable reaction to being victimized. The result of study shows that most of the children, around 52.0 percent are working in garments related industries. Among them 26.0 percent involved in different types of garments related works at the outside of the industries while 11.0 percent are doing swing works, 13.0 percent are doing button stitching work and 2.0 percent doing knitting work. Around 14.0 and 17.0 percent of the total respondents are involved in paper collection (Tokay) form different places and packaging related works respectively (BLF, 2012).

It has been reported that there are about one million undocumented' Bangladesh women in Pakistan. A significant number of who are believed to have been trafficked (The Daily Star, October 8, 2000). According to the UNIFEM, about 300,000 Bangladeshi children have been trafficked to brothels in India over a period of time. Over the last five years at least 13,220 children are reported as being trafficked out of the country and it was

possible to rescue only 4,700 of them. It is believed that about 4,500 women and children from Bangladesh are trafficked to Pakistan annually. On the other hand, Bangladesh boys in the ages between 4-12 years are trafficked for camel racing in the Gulf; sexual exploitation of these boys by the employers in not uncommon (Ruhi, 2003). Report of Daily Star identified every year 20,000 women and children were trafficked from Bangladesh to the nearest countries (Daily Star, 2010).

The purpose of the study mainly focuses the vulnerability of child victimization in Bangladesh. For that several objectives have been performed to conduct the study. These are:

- 1) To explore the present status of vulnerable children and their familial background in Bangladesh.
- 2) To evaluate the reasons of joining and the existing behavior in the working place.
- 3) To identify the forms of violence faced by the children.
- 4) To understand the types of child victimization in Bangladesh.

Methodology of the Study

The study is mainly conducted on the quantitative in nature. Primary data has been selected to formulate and evaluate the result of the study. The study is quantitative in nature as it was based on survey on a convenient sample of 85 respondents from a purposively selected district called Mymensingh District. The study used a questionnaire schedule for face-to-face interviewing the selected conveniently for the survey as the literacy rate is low in the study area. Respondents who were willing to participate in the survey were interviewed. The collected data were coded carefully for analysis. This processing (included coding) was done with the help of SPSS program through computer. The data were analyzed with SPSS and with primarily descriptive statistical tools. The secondary data also used to modify and explain the current situation of vulnerable situation of children in Bangladesh. Secondary data were collected from different books, newspapers, journal articles, magazines and internet links.

Results and Findings.

Age	Frequency	Percentage
Less than 10	16	18.8
10-14	40	47.1
15 - 18	29	34.1
Total (N)	85	100
Sex	Frequency	Percentage
Male	51	60
Female	34	40
Total (N)	85	100
Religion	Frequency	Percentage
Muslim	42	49.4
Hindu	29	34.1
Others	14	16.5
Total (N)	85	100
Education	Frequency	Percentage
Primary	30	35.3
Secondary	39	45.9
Illiterate	16	18.8
Total (N)	85	100
Income	Fre quency	Percentage
Below 2000	22	25.9
3000 -6000	35	41.2
Above 6000	28	32.9
Total (N)	85	100
Occupation Place	Frequency	Percentage
Household	16	18.8
Restaurant	28	32.9
Industrial	16	18.8
Transport Work	10	11.8
Others	15	17.6
Total (N)	85	100

Table 01 : Demographic Characteristics of the Respondent

The demographic character of the respondents in the study shows the clear and specific idea of the victimized children and the vulnerable situation may be emerged at a serious rate. The respondent of the study is 85 and found that among 18.8% child are belonging to the age group of less than 10 years, 47.1% child are belongs to the age group of 10-14 years and 34.1% Child are belonging to the age group of 15-18 years. So it has been estimated that the child of 10 to14 years of age are abusing mostly rather than any other time period. On the other hand, among the respondents of victimized 60% child are male and 40% child are female. That means that male child was belonged to the vulnerable situation rather than the female children. The study also shows that religion of the respondent indicates 49.4% child is Muslim and 34.1% are Hindu and 16.5% are others. Therefore the study determines that the Muslim children were belonged more vulnerable situation rather than any other forms of religion in Bangladesh.

The education level of any individual always arise the basic structure of emotional and effective measurements. The study focuses that, mostly 45.9% of the respondent's education is secondary, then 35.3% have primary education and 18.8% are illiterate. That means the children who have secondary level of education are mostly abused than others. From the study we can see that maximum of the respondent's (41.2%) salary is 3000-6000 taka, 32.9% respondent's salary is above 6000 taka and 25.9% child get below 2000 taka as amount per month. The study also found that the working place of the respondent varies from several criteria and situation. Those are 32.9% child works in restaurant, 18.8% works in industry, 11.8% works in transport work, 18.8% works in household and 17.6% child work in other places out of the total respondent. So it is clearly seen that the child who are working in hotel are mostly abused than another work.

Family Types	Frequency	Percentage
Joint	44	51.8
Nuclear	27	31.8
Extended	14	16.5
Total (N)	85	100
Fathers Occupation	Frequency	Percentage
Fathers Dead	43	50.6
Day Labor	9	10.6
Farmer	7	8.2
Rickshaw Puller	16	18.8
Small Trading	10	11.8
Total (N)	85	100
Mothers Occupation	Freque ncy	Percentage

Table 02 : Familial Background of the Vulnerable Children in Bangladesh

Mothers dead	40	47.1
House -wife	17	20.0
Garments Worker	15	17.6
Day Labor	8	9.4
Others	5	5.9
Total (N)	85	100
Family Income	Frequency	Percentage
Below 3000	18	21.2
3000 -6000	38	44.7
Above 6000	29	34.1
Total (N)	85	100
Fathers Education	Frequency	Percentage
Primary	40	47.1
Secondary	19	22.4
Illiterate	26	30.6
Total (N)	85	100
Mothers Education	Frequency	Percentage
Primary	43	50.6
Secondary	14	16.5
Illitamoto		
Innerate	18	32.9

The vulnerable children who were being attacked with the serious threat of trafficking, child sexual abuse and oppression in the job sector such belongs in the described position of the society. The familial background of the children endangered the children in such a situation in where the children become in a vulnerable situation. The present study focuses that, 51.8 percent children come from the joint family, 31.8 percent comes from the nuclear family and 16.5 people come from the extended family. The occupation of the respondent person in the family shows a sophisticated picture in where 50.6 percent fathers were died, 18.8 percent fathers are rickshaw puller, and 11.8 percent fathers are small trader and 8.2 percent are farmer and 10.6 percent are day labor. The mother's occupation also conducted on a situation in where 47.1 percent mothers were died, 20 percent are house-wife, and 17.6 percent are garments worker and 9.4 percent are day labor. The family income of the vulnerable children in Bangladesh found that, 44.7 percent family earned tk that ranges from 3000-6000, 34.1 percent family earned more than 6000 tk per month and 21.2

percent family earned less than 3000 taka per month. In the case of parent's education the study find out that, most of the 47.1 percent fathers are primary educated, 22.4 percent are secondary educated and 30.6 percent fathers are illiterate in Bangladesh. On the other hand, 50.6 percent mothers are primary educated and 32.9 percent mothers are illiterate in Bangladesh. In a study found that, the family in where mother are educated, the children is more less require in vulnerable situation and the children are frequently go to school (Assad, Levison, and Zibani, 2001).

From the another study found that 9.7% fathers are small trading, 18.4% are day labor, 18.4% are rickshaw puller, and 7.8% are farmer out of 102 respondents. But while described the mothers education 54.4% mothers are house wife, 10.7% mothers are garment worker, 11.7% mothers are day labor and 1.9% mothers of child are related in another occupation (Alam, and Hossain, 2012).

Reason of Joining the Work	Frequency	Percent
Poverty	35	41.17
Family breakdown	21	24.70
Family Conflict	7	8.23
Lack of Education	6	7.1
Social Inequality	4	4.7
Lack of State Response	4	4.7
Natural disasters	8	9.41
Total	85	100.0

Table 03: Reasons of Joining in the Workplace of Children in Bangladesh

From the present study we see that maximum of the respondents (41.17%) are joining in the work for poverty, 24.70% for family breakdown, 8.23% for family conflict, 7.1% for lack of education, 4.7% for social inequality, 4.7% for lack of state response and 9.4% for natural disasters. Another study found that, poverty, unemployment, natural disaster, dowry, illiteracy, domestic conflict and gender discrimination are the important causes of victimizing a child in Bangladesh (Jahan, 2011).

From the study of 102 respondents 74.5% were joined in the work for poverty, 16.7% for family breakdown, 2% for land fewer nesses and 4.9% for natural disasters like flood and river erosion (Alam, and Hossain, 2012).

The vulnerability is being defined capable of being wounded or attacked by various causes or circumstances. The children are always focusesd as a vulnerable situation for many scope or derive them or move to hazardous activities for while they are being vulnerable.

Reasons for child vulnerability	Bangladesh (%)	Urban (%)	Rural (%)
Supplement family income	69.4	69.7	69.3
Help operate the family business	4.1	3.5	4.3
Help needed at home	2.5	2.7	2.5
No suitable school in the area	0.3	0.3	0.3
Prepare child for an occupation	3.2	4.7	2.8
Unable to bear educational expenses	3.7	3.9	3.7
Child unsuccessful in school	4.8	5.2	4.7
Others	11.9	9.9	22.4
Total (N)	100	100	100

Table 04 : Vulnerable Situation of Children in Bangladesh

(Source: BBS, 2003; Ahmed, Uddin, & Hossain, 2009).

The main reason for engaging children in the workplace is to supplement family income in where urban (69.7%) & rural (69.3%) children are sent to the workplace by their parents. Several other reasons have been described by analyzing the urban and rural criteria in the above table for that the children were displayed in vulnerable situation.

The push factor and pull factor has identified as a causes of children vulnerability in Bangladesh. Push factor (poverty, death of the earning member of the family, parental divorce, natural disaster) and pull factor (scope for work, easy employment) divert the children into vulnerable situation (Salam, and Hossain, 2012). Some of other psychological causes endangered the children into vulnerable situation (parental disinterest in the children's education, failure in examinations, dropping out from school and psychological crisis in the family, punishment from family members and peer group) (Rahman, 1997). There are many reasons for becoming vulnerable situation for children in Bangladesh. The push factors are (family broken up, lack of parental care, poverty, due to workplace harassment) and the pull factors are (peer pressure, fascination of street life, lots of freedom) encompasses the street children for victimization (ICDDRB, 2011).

Type of assault	Frequency	Percent
No assault	28	32.9
Beating	14	16.5
Heating	9	10.6
Pulling hair	27	31.8
Grievous assault	7	8.2
Total (N)	85	100.0

Table 05 : Forms of Abuse in the Job Sector

The vulnerable children always faces a lot of problem while performing their duty in the job sector and harassed by the owner of the company employee who are belongs in the high officials. But the situation in the present context of Bangladesh is frequently changed by taking ongoing programs for vulnerable children. The study finds that, 32.9 percent of children are being out of victimized. The pull out of hair in the job sector is a common scenery in Bangladesh and 31.8 percent children are facing assault by the hierarchical authorities, beating for 16.5 percent, heating for 10.6 percent and grievous assault 8.2 percent in Bangladesh.

From the study children are tortured or harassed that 64.1% of the respondents are victim by physical torture by their masters and types of assault refers 11.7% are tortured by pulling hair, 55.3% by Beating, 16.5% by Heating and 14.6% by grievous assault. 20.4% of the respondents who are girl children harassed by sexually by their masters. 18.6% children are tortured by the senior partner very often. Sometimes 42.2% children are tortured by the senior partner (Alam, and Hossain, 2012).

Child Abuse	Frequency	Percentage
Physical	47	67.14
Emotional	17	24.29
Sexual	6	8.57
Total (N)	70	100

Table 06 : Forms of Child Abuse in Bangladesh

The vulnerable children always face threats outside of their homes and frequently encounter critical situations on the streets of the slums. In the slum areas children are normally encounter problems including sexually harassing girls (50%), proposals for romantic relationships or to try illicit substances (25%), threat of abduction (16%) and general verbal abuse (9%) (Sami and Mahmud, 2010).

Pattern behavior	Frequency	Percent
Rough	40	47.1
Good	16	18.8
Moderate	29	34.1
Total (N)	85	100.0

	Table 07 : Behavior	from the Em	plovee if any	Mistaken C	Occurred by	Child
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While anyone has been conducted any types of work in the job sector some mistakes also happened by the employee in the company or factory. But the behavior from the owner of the group and the senior employee always harassed the junior employee especially children in Bangladesh. The rough behavior (47.1 percent) comes from the senior employee to the children and moderate behavior (34.1 percent) and only 18.8 percent good behavior also found in the working sector in Bangladesh.

Table 08 : Effects of Child attack in Society

Effect	Frequency	Percentage
Honor	25	29.41
System loss and security	30	35.30
Culture of Harassment	15	17.65
Violation of social stigmata	15	17.65
Total (N)	85	100

The child victimization effect in every sector of life and their miseries endangers the economic and social life as well as the developmental sector of Bangladesh. When the child victimization arises in the society the overall situation may also changes frequently in any time. The losses of violation of social stigmata (17.65%), system loss and security in the governmental official (35.30%), culture of harassment (17.65%) and the honor (29.41%) for the society.

Table 09 : Child Victimization in Bangladesh

Victimization type	Frequency	Percentage
Primary	55	64.70
Secondary	20	23.54
Tertiary	10	11.76
Total (N)	85	100

Child victimization is a common incident in the developing countries like Bangladesh because of several reasons. In the present study three types of victimization have been outlined primary (64.70%), secondary (23.54%) and tertiary victimization (11.76%). Primary victimization means the direct effect of crime victimization which involving the personalized or individual victims in where physically harassed the children such as assault and other types of harassment. In the secondary victimization the children parents are being harassed by the owner of the factory, restaurant or the industrial sector in Bangladesh. In tertiary victimization, when the children parents indulge the case against the dictator group by the criminal justice system they also being harassed (Ahuja, 1996).

Direct victimization typically, authorities were most likely to know about more serious victimizations like sexual assault by a known (69 percent) or nonspecific adult (76 percent), kidnapping (74 percent), and gang or group assault (70 percent). Authorities were least likely to know about victimizations that peers were most likely to commit, including peer and sibling assault (17 percent), dating violence (15 percent), being flashed (17 percent), and completed and attempted rape (14 percent). Indirect victimization is being defined in where victim people doesn't harasses physically but also indicted with threat and other forms of domestic violence approximately one-half (49 percent) were victimized (Finkelhor, Ormrod, Turner and Hamby, 2012).

Legal and International Protection for Children

Labor Act 2006 - Bangladesh has already enacted the Labor Act in 2006, which includes prohibits employment of children under 14 years of age, as well as prohibiting hazardous works for persons under age 18. However, children who are aged 12 and above may be engaged in the labor activities doesn't grow their mental development and schooling. The law does not provide a strong enforcement mechanism for the child labor provisions. But, the majority of children (93 percent) work in the informal sector which endangered the law into vulnerable situation. Recently, the Ministry of Labor and Employment has adopted a National Child Labor Elimination Policy 2010, which eradicates child labor by 2015 with the support of UNICEF. A Child Labor Unit has also been established as part of this policy, which will have responsibilities including collecting and disseminating data relating to child labor.
UN Convention on the Right of the Child (1989) - One of the most significant articles in relation to child labor is those about the right to education. The CRC requires signatories to make primary education compulsory and free to all. Furthermore, it specifies the right of the child to be protected from exploitative work or performing any work that may be considered hazardous, interferes with the child's education or is harmful to the child's development.

ILO Minimum Age Convention No. 138 (1973) - Minimum age of employment is no less than the age at completion of compulsory schooling, which should not be less than 15 years. A country with insufficient economic and educational facilities may stipulate an initial age of 14 years. National laws may permit the employment of children who are aged 13-15 (or 12-14 where the minimum age is 14) in limited light work, which does not interfere with their development or affect their attendance at school.

ILO Worst Form of Child Labor Convention No.182 (1999) - Requires countries to implement time-bound measures to eliminate the WFCL.

Millennium Development Goals (2000) - Overarching development agenda for developing countries, with targets set for 2015. Most relevant goals are that fundamental needs of universal primary education and eliminating gender disparity in terms of access to primary and secondary education.

Education for All Goals (2000) - Global education agenda outlining six goals to meet the basic learning needs of every child, youth and adult. Most important goals are ensuring that by 2015, all children, particularly girls, children in difficult circumstances and those belonging to ethnic communities have access to free and compulsory primary education; equitable access to appropriate life skills and lifelong learning programs; and ensuring quality of education in all aspects so that measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

Global Taskforce on Child Labor and Education for All - A collaborative partnership of key co-ordination of ILO, UNESCO, UNICEF, the World Bank and the Global March against Child Labor in the area of education and child labor. The Global Taskforce will work on strengthening knowledge on the link between child labor and education; advocacy and social

mobilization; and policy coherence, program support and developing partnerships.

Global Campaign for Education - A civil society movement that aims to hold governments to account for their promises made to provide education for all. The campaign is actively working across 100 countries of the world and brings together civil society organizations, trade unions, child rights campaigners, teachers, parents and students.

Understanding Children's Work, in December 2000 - As part of broader efforts towards eliminating child labor, the ILO, UNICEF and the World Bank initiated the inter-agency research project. The project is mainly laid out the priorities for the international community to address child labor. The Agenda specifically identified the crucial need for better information on the child labor phenomenon and to strengthen co-operation and co-ordination among the three partner agencies in the child labor field.

Recommendations and Way of forward

Eliminating child labor and the worst forms of child labor

The Government of Bangladesh ratified the ILO Convention 182 on the Worst Forms of Child Labor (WFCL) in 2001. Although prohibited by the Labor Act (2006), nearly 3.2 million children aged 5-17 work in Bangladesh BBS Out of these child laborers, 1.3 million are engaged in hazardous work. The program strategies include development and implementation of the monitoring mechanisms, and provision of non-formal education, skills development training for children trapped in the WFCL, socio-economic empowerment programs for their families, and workplace improvement programs.

1. The government should engage with the Ministry of Labor and Employment serving as the focal point and will to address child labor and the establishment of children's rights to education and protection from against any harmful activities.

2. The government should address the National Child Labor Elimination Policy and Program and ensure about its implementation. The ILO Convention No. 138 on Minimum Age for Child Labor should be ratified and the operationalization of the program must be established as soon as possible. 3. The government should provide and enlarge one stop service in the working sector such as industrialist and garments sector in Bangladesh as per being government and diplomatic support should be ensured so that the productive and responsible trade union movement established (Chandra, 2011). The budget reallocations, accountability and monitoring system in the case of child labor and the condition of working place should be supervised by the governmental authority.

4. Implement the Labor Act 2006 and the articles 87 and 98 of ILO convention and the existing labor laws to reduce risk factor and victimization (Chandra, 2011).

5. Strengthening the policy and legal framework on child labor in Bangladesh including heading the process for determining hazardous sectors, occupations, activities and conditions in the country.

6. Developing and implementing a multi-disciplinary and multi-tiered child labor monitoring system and advocacy awareness rising and social mobilization programs.

7. Dialogue and comprise are the ways of maintaining and reduction of conflict and ensure management system in the working place (Chandra, 2011).

8. The primary and secondary education should offer as free to the children of our country and to make education inclusive, flexible and adaptive for learners especially for working class children.

9. Blue prints and best practices should adopt in the countries that help the policy manager to eradicate the problems of child labor victimization from Bangladesh.

10. Collaboration and enterprise programs among government, NGOs and the private sector should be encouraged to develop and implement a comprehensive national education programs for all levels of children. This type of programs should enrich effectively with special entities so that the children will eager to go educational institutions.

11. The complete strategy for child labor and education, in line with Education for All and MDG goals, should be incorporated into regional,

national plans such as the Poverty Reduction Strategy, and national initiatives on Education and health status for all that would promote good governance.

Conclusion

Child victimization is a very important threat for our economic, cultural and democratic structure. The several types of condition and situation enforce the children to become vulnerable. The push factor and pull factor also influences the children vulnerability in Bangladesh. The demographic characteristic of the children and their familial background estimates the measurement of victimization in Bangladesh. As a developing country, the prime issue of child labor is poverty, familial breakdown and the continuous natural disasters. Beating, heating, pulling hair & grievous assault are the common forms of assault conducts in the working sector in Bangladesh. It is a public consent that, the owner of the company misbehaves with the children when any mistaken have occurred by the employee. At the same time, the physical abuse, emotional and sexual abuse encompasses to children. Support in the family income is the concerning issues for vulnerable situation. The primary victimization, secondary and the tertiary victimization are the heinous forms of victimization in Bangladesh. The Act and treaties have been established across the world to protect the right and responsibilities of children. But these enforcement is very essential to uphold the rights and dignities of the children. The government has taken several initiatives to enforce the law and legal provision but the civil society and the mass people also conduct the legal duties to enlarge the importance of children in the society.

References

Ahmed, MUL and Hossain, A 2009, Child Labor and Education in Bangladesh: Current Practices and Policy Recommendations. *Bangladesh Education Journal*, Vol. 15, No 3, pp 41-63.

Ahsan, T 2011, *The status of un-served children in education: Working children in Bangladesh*, Campaign for popular education (CAMPE): Bangladesh.

Ahuja, R 1996, *Sociological Criminology*, New Delhi: New Age International (P) Limited Publishers.

Akter, S, Abdullah, ASM 2013, Protecting Child Labor in Bangladesh: Domestic Laws versus International Instruments. *Bangladesh e-Journal of sociology*, Volume 10, Number 1, pp 33-36

Alam, MA and Hossain, I 2012, Child Labor and Victimization: An Empirical Study at Tongi, Gazipur, Bangladesh Labor force, Vol. 15, No 1, pp 56-65

Ali, HM 2006, The Role of Communicative Strategies taken by four NGOs in raising awareness against Trafficking of women and children in Bangladesh: A study on six vulnerable Areas.

Assad, R, Levison, D and Zibani, N 2001, The effect of child work on school enrollment in Egypt, pp 55

BBS 2003, Report on National Child Labor Survey 2002-2003, Bangladesh Bureau of Statistics, Govement of the peoplee's Republic of Bd, pp 55

BLF 2012, Repot on Identification of child labor and perceived risk status: Perspectives in Tongi, Gazipur, *Bangladesh Labour Force*, Dhaka

Burgess, RL 1979, Child Abuse: A social International Analysis. In: *Advances in clinical child psychology*. Vol.2. New York: Plenum Press.

Chandra, RR 2011, RMG Industry: A Few Recommendations. Bangladesh Labor forcs, Vol. 14, No 2, pp 37-40.

Devasia, V and Devasia, L 1992, Criminology victimology and corrections, Ashish Publishing House, New Delhi, India

Farouk, SA 2005, Violence against women: A statistical overview, challenges and gaps in data collection and methodology and approaches for overcoming them. BNWLA. Bangladesh, pp 45

Finkelhor, D, Ormrod, R., Turner, H and Hamby, S 2012, *Child and Youth Victimization Known to Police, School, and Medical Authorities.* Juvenile Justice Bulletin. Office of Justice Programs, U.S Department of Justice.

Hossain, H, Dodge, CP. (ed.) 1996, From Crisis to Development: Coping with Disasters in Bangladesh. Dhaka: The University Press Ltd.

IAS, L.K, Varadan, S and Kumar, P 2007, *Study on Child Abuse: India* 2007. New Delhi, Government of India.

ICDDRB 2011, Vulnerability of Bangladeshi Street-Children to HIV/AIDS: A Situation Analysis. International Centre for Diarrhoeal Disease Research, Bangladesh.

ILO 1998, *Child Labor; Targeting the Intolerable*, Geneva, Switzerland ILO 2006, *Baseline Survey on Child Domestic Labor in Bangladesh*. Dhaka.

Islam, M S 2013, Child Abuse and NGOs Activities in Bangladesh. *Bangladesh Research Publications Journal*, 8 (3), Vol. 8, No.3, pp. 215-221.

Jahan, K 2011, *Role of NGOs in Prevention of Women and Children Trafficking in Northern Border Areas of Bangladesh.* Department of General and Continuing Education, North South University.

Rahman, DW 1997, Child Labor Situation in Bangladesh: A Rapid Assessment, ILO/IPEC, Dhaka.

Ruhi, RA2003, Human Trafficking in Bangladesh: An Overview. *Asian Affairs* Vol. 25 No 4, pp 45-56, CRDB Publications.

Salam, SA and Hossain, MM. 2012, Communication Strategies of NGO's Child Labor Elimination Programme: A Case Study in Bangladesh. *Social Science Review*, Vol. 29, No 1, pp. 51-72

Sami, MS and Mahmud, MI 2010, Youth Led Survey on the Commercial Sexual Exploitation of vulnerable children and youth in Dhaka Slum Areas, Aparajeyo-Bangladesh.

Tariquzzaman, SK and Kaiser, E 2008, Employers Perceptions of Changing Child Labor Practices in Bangladesh. *Research Monograph Series No.* 35, BRAC.

UNICEF 1999, Report on Asian Child Labor, United Nations for International Children Emergency Fund UNICEF 2010, Child Labor in Bangladesh. Bangladesh, United Nations for International Children Emergency Fund Viano, EC 1976, Victimology: The Study of victim, *Victimology*, Vol. 1, No 1, pp. 1-7.

Wisner, B, Blaikie, P, Cannon, T & Davis, L 1994, *At Risk: Natural Hazards*, People's Vulnerability and Disasters. NY: Routledge.

AIDS as Epidemic in the World

Ms. Shamsun Nahar Chowdhury*

Abstract

The UNAIDS Global Report UNAIDS Global Report on the epidemic estimated that in 2009, 33.3 million people worldwide are living with HIV, the overwhelming majority of whom live in sub-Saharan Africa, that is 22.5 million men, women and children. Estimates vary as to when and where HIV and AIDS originated. Some speculate there were a number of isolated cases as early as 1930. The goal of the study is to measure the socio economic condition of the children of street base sex worker of selected area which will help the project management to measure the project achievement after completing the project period. This research functions as basic information about the real situation of the children of floating sex workers in the Chittagong and Comilla City areas. The research made it clear that the SBSW found solutions for the upbringing of their children, but many of these solutions are not satisfactory. In many cases the SBSW were forced to give their children away to family members and many of them are not able to visit them as often as they wish. If the children live together with their mother it is sometimes difficult for the SBSW to find someone to care for the children while they are working. Even though the children have basic education, most of them left school too early and are not able to find a good job.

Background

Evidence suggests that the current epidemic began in the late 1970s, when it began to spread rapidly. This spread created a degree of hysteria around AIDS as no one knew what it was, its cause, how it was spread or what treatments were available or could be developed. (Chowdhury and Mashreque 2014). HIV is Human Immunodeficiency Virus. Viruses usually infect the cells of a living organism and make more copies of itself. Usually a person's immune system will find and kill the virus as quick as possible.

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The difference with HIV, however, is that it attacks the immune system. It infects the cells of the immune system and destroys or impairs their function. Infection then occurs as the immune system slowly gets attacked by the virus, breaking down the body's ability to fend off infections and diseases.

Acquired Immune Deficiency Syndrome (AIDS) refers to the most advanced stages of HIV infection. It is defined by the occurrence of any more than 20 opportunistic infections or related cancers, hence the use of the word 'syndrome', as it is not a single disease.

HIV can be transmitted through a number of ways:

- o unprotected sexual intercourse (vaginal or anal) or oral sex
- o transfusions of contaminated blood
- o sharing contaminated needles, syringes or other sharp instruments
- o Mother-to-child transmission either during pregnancy, childbirth or breast feedin



Figure 01 : HIV Virus

It can take anything from 10-15 years, or longer, from initial HIV infection to the development of full blown AIDS. Antiretroviral therapy (ART) can help to slow down this transition by decreasing the viral load of an infected person.

Who are at Risk Groups

These were initially defined as men who have sex with men, injecting drug users and people who have received treatment with blood products. However, this has changed over the years with the increase in transmission through heterosexual intercourse. The group most at risk in sub-Saharan Africa is married women.

Mother-to-child Transmission: The transmission of HIV from a HIV+

mother to her child either during pregnancy, labour, delivery or through breastfeeding the baby. If a woman is positive and she wishes to have a child or is already pregnant, Antiretroviral drugs can be taken throughout the pregnancy, which are highly effective in terms of the prevention of transmission from the mother to the baby. If a mother is HIV positive a caesarean section (an operation where the baby is delivered through the mother's abdominal wall) may be performed in order to prevent contact between the baby and the mother's blood and other bodily fluids. If the mother is already taking ARVs, then there would be no need for a caesarean section because the risk of HIV transmission would be very low. If the mother has a very high level of HIV in her blood, a caesarean section may be recommended, however it may not be advisable if she is in resource poor settings.

Opportunistic Infections: An infection that occurs due to a weakened immune system such as Tuberculosis, Thrush or Herpes. These opportunistic infections can lead to death in a person who is HIV positive, rather than the HIV virus itself. A person living with HIV who shows signs of having more than 20 different opportunistic infections is considered to have developed 'full blown' AIDS.

Dry Sex: The use of herbs to dry out a woman's vagina. This causes more friction during penetration and can cause tearing in the woman's vagina or vaginal wall, thus leaving her more susceptible to infection.

Concurrent Sexual Partners: Ongoing sexual relationships with a number of people at the same time. These relationships may last for short or long periods of time - such as in polygamous marriages.

Polygamy: The practice of having more than one spouse at a time.

Levirate: A traditional practice in Zambia where if a woman's husband dies, his brother or male relative can take her as a wife.

Sororate: The concurrent marriage of a man to his wife and her sister.

Sexual Cleansing: A traditional practice where the widow of a man is forced to have sexual intercourse with his male relative in order to 'cleanse' her of his ghost and any illnesses he may have had. This appears to be declining in Zambia due to the high risk of HIV transmission.

Patrilineal: The passing on of property, land, etc. through the male side of the family - from a father to his son or brother and so on.

Feminization of HIV and AIDS: This refers to a number of things. Firstly, it refers to the continually increasing number of women and girls who are infected with the disease. It also refers to the fact that women and girls are becoming infected and dying at much younger ages. And finally, it refers to the negative overall impact that the disease has on the lives of women and girls, whether they themselves are infected or affected.



Subpopulations representing 2% or less of the overall US epidemic are not reflected in this chart.

Figure 02 : New Infection in 2012



Bangladesh-7500

Figure 03 : Regional Scenario of HIV AIDS

National Response to HIV/AIDS: Government: In late 1996, the Directorate General of Health Services in the Ministry of Health and Family Welfare outlined a National Policy on HIV/AIDS. A high?level National AIDS Committee (NAC) was formed, with a Technical Advisory Committee, and a National AIDS/STD Program (NASP) unit in the ministry. The NAC includes representatives from key ministries, non-government organizations and a few parliamentarians. Action has been taken to develop a multi?sector response to HIV/AIDS. Strategic action plans for NASP set forth fundamental principles, with specific guidelines on a range of HIV issues including testing, treatment, safe blood supply, prevention among youth, women, migrant workers, sex workers, and STIs. While earlier commitment was limited and implementation of HIV control activities was slow, Bangladesh has strengthened its programs to improve its response. The Government of Bangladesh prepared the National Strategic Plan for HIV/AIDS for the period 2004?2010 under the guidance of NAC and with the involvement and support of different stakeholders. As a follow-up to this, the Government recently completed the National HIV Strategic Plan for 2011 to 2015. Efforts to mainstream HIV/AIDS in public sectors outside the Ministry of Health and Family Welfare were initiated through designation and training of focal points on HIV/AIDS in 16 government ministries.

Non Governmental Organizations (NGOs): More than 380 NGOs and AIDS Service Organizations have been implementing programs/projects in different parts of the country. These initiatives focused on prevention of sexual transmission among high?risk groups involving mostly female sex workers, MSM, IDUs, rickshaw pullers and truckers. NGOs are often better positioned than the public sector to reach vulnerable populations, such as sex workers and their clients and injecting drug users. Building the capacity of NGOs, especially the small ones, and combining their reach with the resources and strategic programs of the government is an effective way to change behavior in vulnerable populations and prevent the spread of HIV.Bangladesh initiated an early response to the HIV epidemic starting in the mid-1980s. Since then, the response has been enhanced considerably, and many HIV-prevention interventions among the most at-risk populations and the general youth are being undertaken. Alongside prevention activities, gathering of data has been a key activity fostered by both the Government and individual development partners. This paper reviews available sources of data, including routine surveillance (HIV and behavioural among most atrisk populations), general population surveys, and various research studies

with the aim to understand the dynamics of the HIV epidemic in Bangladesh. Available data show that the HIV epidemic is still at relatively low levels and is concentrated mainly among injecting drug users (IDUs) in Dhaka city. In addition, when the passively-reported cases were analyzed, another population group that appears to be especially vulnerable is migrant workers who leave their families and travel abroad for work. However, all sources of data confirm that risk behaviours that make individuals vulnerable to HIV are high-this is apparent within most at-risk populations and the general population (adult males and youth males and females). Based on the current activities and the sources of data, modeling exercises of the future of the HIV epidemic in Dhaka suggest that, if interventions are not enhanced further, Bangladesh is likely to start with an IDU-driven epidemic, similar to other neighboring countries, which will then move to other population groups, including sex workers, males who have sex with males, clients of sex workers, and ultimately their families. This review reiterates the often repeated message that if Bangladesh wants to be an example of how to avert an HIV epidemic, it needs to act now using evidence-based programming.

Conclusion

It can be said that the children of SBSW face discrimination in society as soon as their background is revealed. In contrast to acceptance experienced by the children living in houses, the women who live with their children in the streets say that their children are teased, beaten and that they only have contact with other children of SBSW. Very few sex-workers have voter ID cards and almost all the children of the street based sex workers don't have any birth registration certificates. And sex workers don't want their children to be a sex workers and even they don't want any influence of their profession to their children but unfortunately these children has great impact of their mother's profession into their life. (Chowdhury and Mashreque 2014

Children of street based sex workers are extremely disadvantaged group They are stigmatized from birth, according to the literature review. Also many people in mainstream society perceive that the children of sex workers were conceived in sin and that sinfulness is inherent in a person. This view makes their acceptance into society virtually impossible, so they often start working in the brothel themselves. Popular sympathy is more common with regard to children who are brought up in villages and then trafficked or In fact the research results did not bring many surprises. They showed what was predictable; namely that it is difficult for the women to look after their children, that the women really give their best, but that facilities such as daycare centers or schools would make the sex workers' lives easier on an economic and emotional level and most importantly, that these institutions may provide better future prospects for the children.

References

GED 2009, *Millennium Development Goal Need Assessment and Costing*, Special Report of General Economic Division of Government of Bangladesh and United Nations Development Programme (UNDP)

Small Hands but Big Work: Girl Domestic Servants and their Predicaments

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Abstract

The use of children as domestic servants is one of the most pervasive forms of child labor in Bangladesh as in other countries in South Asia.. "Children as young as five spend 12-14 hours a day, seven days a week, to earn money to support their families. An unfortunate social and institutional acceptance of this practice has made thousands of Bangladesh children vulnerable to many forms of violence and abuse. The study focuses on causes of girls domestic worker in Bangladesh and their prevention approach through training and education for better opportunity of livelihood in future. YPSA action researchers found that One of the major causes of migration to big cities is the seeking of better employment opportunities. Sixty-four per cent of the girls belonged to families where parents and children were involved in economic activities. An unfortunate social and institutional acceptance of this practice has made thousands of Bangladesii children vulnerable to many forms of violence and abuse. Research works and project reports note that since the root cause of girl-child labor is endemic poverty and systematic gender bias against female children, the government should provide assistance to girl domestic servants. Now YPSA has been assisting the government to conscientize the domestic girl servants. YPSA in joint collaboration with SAPLANEER has been conducting benmark survey in Chittagong in the midst of policy advocacy intervention.

Background

Migration from small villages and towns to big cities is quite prevalent in Bangladesh . YPSA action researchers found that One of the major causes of migration to big cities is the seeking of better employment opportunities.

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Sixty-four per cent of the girls belonged to families where parents and children were involved in economic activities.

One girl worker said:"My parents are absolutely clear that only male child deserves school education because after studies he will help them. My father is convinced that girls don't need to study as they have to help their mothers and contribute to family income. My mother is saving money from my salary because she has started the preparation of my marriage and huge finances are required for a girl's marriage in our community.'

Most of the girls had never attended any school, formal or informal , while some had attended a religious school or madrassa . A small number had attended formal school but were not able to even complete their primary education. Despite the low level of education among the girls, nearly all of them showed enthusiasm to attend school if they were ever given the opportunity. In big cities such as Dhaka and Chittagong , donor agencies with the collaboration of NGOs should establish a helpline specifically for girl domestic workers in troubled situations. The helpline should coordinate with service providers--government or non-government--to provide some relief to the girls.

Community based organizations should initiate evening school and health programmes particularly for girl domestic workers, and government and institutional donor agencies can help them to this end. The country's electronic and print media can also play a role by spreading awareness about the problems of girl child domestic workers. In fact, the extent of the problems faced by child domestic workers, boys or girls, is enormous. Research, surveys, investigative or fact-finding reports can only spotlight a tiny portion of these at a time. Various forms of violence and exploitation are still unexplored. Vulnerable group in the urban communities lives under the shadow of fear and restrictions. Several manifestations of violence against young street daughters have tormented their existence. They are hapless in the state of neglect without any community support.

September 30 is earmarked for the observance of daughter day and October 2 being observed as street child day. Human rights activists and women groups raise slogans and stage protest demonstration against all forms of violence against daughters. Despite observance of special day or week for community sensitization street girls or daughters continue to suffer a lot in a

street environment unfriendly to them. Torture, harsh treatment and sexual abuse continue to batter and bruise their lives.

The beleaguered daughters working as young maid servants are likely to be grossly neglected. Reliable estimates of the magnitude of their crisis are scanty. Untold stories of their extremely bitter taste of life in the wake of escalating tension and trepidation illustrated with the cases of abandonment, rape, trafficking to brothels, persecution and even beaten to death or almost death are plenty. They are the product of worsening poverty situation in the countryside, dislocation due to forced eviction and natural calamity and rural-urban migration. Being detached from their original homes they are exposed to severe abuse in a cruel street situation. Many among the poor daughters who have migrated to metropolitan areas are provoked by some imposters to find 'pot of gold' in Dhaka and Chittagong.

Advocacy for improving street situation to give the girl maverick a sense of life is distressingly missing. The role of feminine movement is being redeemed through persuasion, discussion, campaigning communication and networking. The protagonists of such movement project the voice of daughters in general. Voice of street daughters does not find any outlet for manifestation. The plight of the little paid youg girl beggars description. Even then they are over sighted as the issue of child or child labour policy. Mandate expressed in periodic conference on children hardly takes note of street daughters. They are out-of-reach vulnerable group suffering recurring odds of urban life.

The trauma level of homeless young maids who might have lost their virginity is very high. They show a sign of behavioral disorder that include the symptoms like traumatic neurosis, anxiety depression, phobia, abnormality and agitation. Such behavioral disorder has deleterious effects on her growth. First and foremost community obligation is to protect the existence of house maids against the deluge of home violence that is responsible for mentally traumatizing them. Only community support and senility will do a lot to build up resistance against violence created by their employers. Only international concerns and legislative measures will not be able to curb violence that continues to beleaguer the lives of our daughters roaming aimlessly on the pavement without any safety. All the institutional means of protection with stringent laws must be backed by the power of social force at the community level.

There is another reason : there is a danger / risk of being raped by household head/adult son or brutally tortured by caretakers working in some households as child domestics. Evidence is available that working girls are being abused verbally often beaten for inadvertent breaking of utensils, Punishment for this trifling matter may some time happen in the form of subs-traction of the amount of money equivalent to value of ceramic plate / cup or glass broken. Girls spend long hour washing, cleaning, fetching water, preparing food and carrying out other household activities. Not only these tasks physically hard and demanding they rob girls of the opportunity to play and enjoy life. Their engagement in multiple domestic works rather leads to under-remuneration for their services. Almost every household from lower middle to upper class engages maid servants. They have to do all the odd job. Although slavery is non-existent they work like slave.

There are allegations that caretakers usually overlook the fact that child domestics are children and have the same needs and desires as other children. Yet, they are placed in the same category as adults in terms of work load and performance and expected of the same commitment and single-minded devotion to work as their adult counterparts. One should conceive of girl child domestics also to be the workers of tender age and should view their hopes, aspiration and dreams sympathetically. They should be allowed to enjoy life to the full with all sorts of amusements permissible for the age. Schooling should be a part of their life.

Conclusion

In Bangladesh violence against women, particularly young maid servants, is on the rise despite stringent laws against the heinous crimes. Girl-child domestics are among the major victims. According to BNWLA survey, around 50 per cent maids are beaten by their employees, 25 per cent fall victim to sexual harassment and 10 per cent are raped.

Reference

YPSA, 2015. Project Annual Report of Prevention and Reducing Girls Domestic Worker, SAPLANIR, Japan, 35p.

SAPLANIR, 2015. Status and Education support of Prevention and Reducing Girls Domestic Worker, SAPLANIR, Japan, 35p.

Drawbacks in Delivering Legal Aid in Bangladesh: An Introspection

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Abstract

Humanitarian programs suchas legal aid in a developing country like Bangladesh are very essential. Its natural that there will be some drawbacks with every running program. Likewise, the present legal aid system of our country is facing some barriers in its way of implementation. Those hurdles are originated from different sources. This paper tries to find out and explain those sources and drawbacks with some suggestions to get rid of them.

Introduction

In Bandhu Mukti Morcha v Union of India, (1984) 3 SCC 161, former Chief Justice of India P.N. Bhagwati observed:

"Where one of the parties to a litigation belongs to a poor and deprived section of the community, and does not possess adequate social and material resources, he is bound to be at a disadvantage as against a strong and powerful opponent under the 'adversary system of justice' because of his difficulty in getting competent legal representation, and more than anything else, his ability to produce relevant evidence before the court." (Islam, 2013)

Poverty is a curse and mother of many evils (Sharma, 1993). The evil effects of poverty are so far reaching in nature that it posed a challenge to some of the fundamental notions of legal order. One of its side effects is lack of access to the justice system of the poor. The common law court system inherits huge cost, lengthy procedure and unnecessary complexity to ensure justice.

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To an indigent, who is struggling every moment for his livelihood in Bangladesh, those common law issues seem to be Himalayans to access to the courts. It is not possible for a poor man in our country to go to a law firm and hire an advocate on his behalf to fight his matter in the court of law. But the constitution of Bangladesh is providing the guarantee of equality before law under article 27 and right to protection of law for every citizen under article 31.

Furthermore the Preamble of our constitution is focusing on that point. It reveals- "Further pledging that it shall be a fundamental aim of the state to realize through the democratic process a socialist- society free from exploitation- a society in which the rule of law, fundamental human rights and freedom, equality and justice, political economic and social will be secured for all citizen". The crisis originates from this legal point of view.

In one side the supreme law of the country confirms the equality and protection from law as fundamental rights but the socio economic condition of the country is not so developed to fulfill those constitutional standards. To solve this problem the government came forward and started providing free legal aid to the poor since two decades ago. The Parliament enacted 'The Legal Aid Act 2000' and 'The Legal Aid Rules 2001' and established The National Legal Aid and Service Organisation' to institutionalize the legal aid activities. At present the government is rendering legal aid in most of the districts of the country through this national legal aid organisation very effectively.

Besides the governmental initiative, NGO's have also forwarded their hands for free legal aid with the financial helps from the foreign donors. In this case the leading NGOs are Bangladesh Legal Aid Services and Trust (BLAST), BRAC, Madaripur Legal Aid Association, Bangladesh National Women Lawyers Association (BNWLA) etc. Though both the government and NGOs are trying for legal aid with their best effort but some barriers are there which are slowing down the entire legal aid activity. Some of those problems are social, some are from statutory weakness and some are from financial lacking. Through this article it is being tried to find those drawbacks with their nature, effects and solutions.

Understanding Legal Aid

Most of the modern democratic states of the world are considered as welfare states. The ultimate objects of the states are to up lift the human dignity concerning its own people's condition such as providing free legal aid. So far

no universal definition of legal aid is recognised. Legal Aid means the assistance for the economically deprived or below income people to meet up their costs of legal advice both inside and outside the court arena like Legal advice, Representation, Family mediation etc. The 'Legal Aid Act 2000' is the ultimate basis of all types of legal aid activities in our country and it has a quote on legal aid. It defines legal aid under section 2 (a) with the following words:

"Legal Aid means providing a person who is poor or financially helpless and incapable of invoking justice for many other socio- economic conditions with the followings-

- I. Counseling and assistance in a litigation to be filed, filed or pending in any court of law.
- II. Giving honorarium to any conciliator or arbitrator appointed to conciliate or mediate any case under the provisions of section: 89B of "The Code of Civil Procedure 1908"
- III. Giving any other assistance including expenditure of the case.

The first ever legal aid service was establish in "New York city of USA in 1887" with the founding of "Legal Aid Society of New York". Free legal aid is fundamental to social and legal justice. Literally Free Legal Aid means free legal service to persons unable to pay for a lawyer Collins, 2009). The concept of Free Legal Aid denotes a wide meaning and includes all incidental costs for expenses of the litigation (Halim and Siddiki 2008). It can also be defined as a means and tested benefit in the form of financial assistance for persons to meet the cost of advice and representation in legal proceedings (Halim and Siddiki, 2008). The 'New Encyclopedia of Britannica' defines 'Legal Aid' as the professional legal assistance given, either free or for a nominal sum, to indigent persons in need of such help. In criminal cases most countries-especially those in which a person accused of a crime enjoys a presumption of innocence-provide the services of a lawyer for those who have insufficient means of their own. In some countries defender offices with salaried personnel, either publicly or privately supported, have been found to be the most economical solution. In other countries where there is no shortage of lawyers skilled in criminal law and trial practice, private lawyers undertake this duty, being assigned by the court or being chosen by the accused person himself.

In many countries these private lawyers receive no remuneration or only a

nominal fee paid either by the state or from charitable funds. In an increasing number of countries, the provision by the state of a fund sufficient to pay an adequate fee and to cover all allied expenses is considered to be necessary to ensure that the person receiving this aid gets proper service and justice.

Eligibility for Access to Legal Aid

The legal aid service has been established so that the indigent people can access to the court of laws and have justice. So the first and foremost eligibility to access legal aid is to be a poor. But poverty has its own nature and classification. So some specific criteria of poverty have been fixed under Rule 02 of "The Legal Aid Rules 2001" for Bangladesh and only those people who come under these criteria will be eligible to receive legal aid. The persons who are entitled to get legal aid under Rule 2 of "The Legal Aid Rules 2001' are as follows-

- i. Freedom fighter who is incapable of earning or partially incapable of earning or who is without any employment or whose annual income is not more than 6000 taka
- ii. The person who is receiving old age benefit
- iii. Women and children who are victims of illegal trafficking
- iv. Poor women who is a holder of VGF card
- v. Women and children who are victim of acid- throwing
- vi. Any person who has been allocated house or plot to any ideal village
- vii. Poor widow, women deserted by her husband
- viii. Any handicapped person with earning incapacity
- ix. Any person who financially incapable to protect or defend his rights in the court
- x. Any person who has been detained without trial and incapable to defend himself due to financial crisis
- xi. Any person who has been considered by the court financially incapable or poor
- xii. Any person who is recommended by the jail authority as financial helpless or poor
- xiii. Any other person who are considered by the Legal Aid Board from time to time due to the financial crisis or any other socio economic reasons or disaster whose yearly average income is not more than taka 3000

Legal Aid Providers in Bangladesh

To provide sound legal aid service in a lower middle income country like Bangladesh is a gigantic task. At present this tusk is jointly performed by the government itself and Non-government organisations. The government cannot afford the full support due to shortage of budget, red tapism, density of population, highest rate of illiteracy, lengthy and rigid system of delivering legal aid, lack of work efficiency etc. Under these circumstances some NGOs with the help of handsome budget come forward to solve this problem at a large scale. Their contribution in this field is increasing day by day unveiling numerous successes. For which now a day's legal aid service is reaching at grass root level ensuring justice in all sphere of life. But they have their inherent problems too. In some cases their budgets are made limited by their authority, some time they have the limitations for accepting cases considering number, nature, areas etc. A short briefing on these two sides legal aid service in Bangladesh is given bellow for a better understanding of the objects of this paper.

Govt. Legal Aid Service

Though the concept of the legal aid is very old but this service came in practice in our country a few years ago. Earlier, in most of the cases the advocates provided legal aid by themselves. But so far they could not be able to initiate any program to provide legal aid collectively. Though some organisations are providing legal aid in some of the parts of our country but it could not influence the whole country (Akhtaruzzaman, 2008). In 44 years of it's independence constitutional history legal aid movement in Bangladesh has not gained any momentum at the general level until 1994. The Govt. established a National Legal Aid Committee chaired by the Honorable Minister, Ministry of Law, Justice and Affairs and District Committees chaired by the District Judge to provide legal aid to the poor litigants and an amount of money was allocated to cover the costs of such representation under the authority of the District Judge. Funding was made available from govt. resources, donation from national and international organizations and other sources. Nevertheless, govt.'s initiatives had achieved only minimum success. However, by another resolution in 1996, the resolution of 1994 was repealed. Next, it was in 2000 when the government in assurance of financial cooperation by the Canadian International Development Agency (CIDA) made an initiative to provide legal aid to indigent litigants and in view of that plan 'The Legal Aid Act 2000' was passed providing for legal mechanism and access to legal aid throughout the country (Halim, 2008). In this

connection, to make the legal aid program more effective, the government also enacted 'The Legal Aid Principles 2000' and 'The Legal Aid Rules 2000'.

Before the enactment of 'The Legal Aid Act 2000' the legal aid activities were continuing scatteredly by the NGOs and advocates privately. The government tried to turn that scattered service into a uniformed and institutionalized program by 'The Legal Aid Act 2000'. In this course, government established 'The National Legal Aid Organisation' under section 3 of 'The Legal Aid Act 2000' which is now the central authority of the entire government legal aid service in our country.

This national organisation is the planner of different schemes of government legal aid service. To execute those schemes various committees have been formed under this national organisation such as the National Management Board, District Committee, Upazilla Committee and Union Committee to cover up the whole country, from capital to the villages. The National Management Board is responsible for management and administration of the National Legal Aid Organisation. It also provides legal aid to the poor litigants and supervises the activities of the district committee. The District Committee is the key mechanism for providing legal aid to the mass people. Government has established a legal aid office in the court buildings of most of the districts of the country.

The District Judge is the chairman of this committee. Anyone who seeks legal aid from the government can directly apply to the chairman of the district committee. The Upazilla and Union legal aid committees do not directly provide legal aid like the District Committee but they receive and collect the applications for legal aid form the indigent peoples and send them to the District Committee. They also create awareness among the village people about the legal aid service of the government. This is how the government is providing legal aid to the poor people of the country.

NGO Legal Aid Service

The movement of legal aid in the USA & UK has been due to largely the intensive efforts of private voluntary organisations such as legal aid societies, the social service organisations, the law school clinics and the Bar Associations etc. The Legal Aid support of the NGOs is worth mentioning (Islam, 2013). In Bangladesh NGOs are playing a pivotal role in providing

legal aid that easily reached to the major portion of the country. Legal aid is a continuous process for which a desire of devotion for the betterment of the country is first and foremost requirement considering the government coverage. NGO's are the development partners of our country and the sign of development is enjoying different lawful rights and available opportunity to access to justice. Since our independence, the NGOs are trying to create such socio-economic condition for our poor people.

To reach that height, they are providing free legal counseling, free advocates to fight in the law courts on different civil and criminal matters, creating awareness about different rights and free legal aid service etc. May be, the NGO's are not so organized like the government legal aid offices but their strength lies in their devotion and responsibility to the work, hardworking and in creating network with other NGO's working on the same ground. They always try to reach and work with the people and their problems from the root. NGO's are also innovative in their service considering the needs and demands of their indigent clients. With the regular legal aid service, Some NGOs are providing TA/DA and rehabilitative suggestions so that they can arrange their livelihood after relieved from the court procedure.

ADR (Alternative Dispute Resolution) is a very common and effective system used by most of the NGO's to stop the pitiable parties to enter into the intricate court system and save their money and honour. This system also teaches and makes aware those underprivileged parties that problems can be lawfully solved outside the court NGOs basically depend on the donors' financial support and a mixed work strategy that is approved by the donors assessing the real status of the courtry in different ways for legal aid service. In numerous projects the NGOs are working in collaboration with the government. The leading legal aid providing NGOs are Bangladesh Legal Aid Services & Trust (BLAST), Bangladesh Rural Advancement Committee (BRAC), Bangladesh National Women Lawyers Association (BNWLA), Madaripur Legal Aid Association (MLAA), Ain O Shalish Kendra (ASK) etc.

Drawbacks of Legal Aid Service

No place and work is out of obstacles in this world. Drawback in legal aid means the state of presence of hindrance elements which disrupt the flourish of legal aid to the suffered and indigent people in the society in full swing. Both the government and non-government legal aid services have problems

concerning their theory and practice. Among the hindrance elements we can categorize those as follows-

- a) Statutory Drawbacks
- b) NGO's Drawbacks
- c) Socio-economic Drawbacks
- a) Statutory Drawbacks:

Though "Legal Aid Act 2000" has been designed to bring efficiency and uniformity in delivering legal aid to the underprivileged people of the society but there are still loopholes in the provisions of this statute which paved the way of inefficiency in providing standard service to the targeted sections. Here one thing to remember that these ambiguities are not created intentionally but results of unconsciousness and inexperience. We termed this lack as "Statutory Drawback".

The first drawback is started from the very beginning of the govt. legal aid service. It is about the application procedure. The Legal Aid Act 2000 doesn't provide any specific procedure for applying to seek legal aid. Moreover there is no specific form like the other government offices to apply. It is not also clear to whom the application will be submitted. Most of the legal aid seekers are poor and illiterate. If there is a mere and open system to access to legal aid is available they will find it very familiar to them. Absence of a declared specific form, procedure and person may prove the legal aid service as an ambiguous one to the indigents which will hamper the objects of the said act.

The second loophole relates about the name and classification of cases. 'The Legal Aid Act 2000' doesn't provide any direction about the name and classification of the cases for which people will seek for legal only. Such an ambiguity frustrates a poor victim whether he is entitled to apply for legal aid or not. No doubt this is a great disappointment for us.

The third gap of the act concerns the learned lawyer's qualification and selection. An advocate who has at least five years of experience of practice may be appointed as a panel lawyer. This provision rejects the younger lawyer's opportunity to uphold humanity. Young people are very strong, energetic and fresh in mind. But this strength and energy of our youths cannot be used for government legal aid purpose in our country due to the immature condition under the legal aid act. The fourth statutory barrier is

about the application to the Supreme Court for legal aid. If any matter is pending in the Supreme Court and if the concerning party wants to apply for legal aid, they have to apply to the Honorable Law Minister who is the chairman of the National Legal Aid Organisation. Here is also no suggestion about the applying procedure. In a developing country like Bangladesh its very tough for a single individual to connect with a state minister and reach the application. Again, if it is possible to reach to the minister, it will take a long time to complete the official bureaucracy. It will make nothing but just make the poor victim hopeless about invoking his rights and justice.

Fifth problem is about the payment to advocates before starting the trial. Generally a good amount of money is required to file a suit or a case before entering into the trial procedure. But the government legal aid office used to pay a very nominal amount to the learned advocates for the beginning of a case or a suit. This type of financial policy makes the advocates less interested about dealing the legal aid litigations. Fifthly, if a poor man from a village or union level wants to file a petition for legal aid to the govt. he has to collect a certificate from his local councilor who is, in most of the cases a biased one. If the councilor finds that the applicant is not his supporter, most probably he may not provide the certificate to that legal aid seeker or he will demand bribe for this purpose.

Sixthly, District Judge is the chairman of the district legal aid committee. He is responsible for calling upon the meetings and taking decisions about the applications for legal aid. Here two problems lied. District judge performs these responsibilities in addition to his regular duties and without any payment. So he may feel a great pressure on him for such additional work load which may hamper his judicial activities. Moreover, District Judge has some official bar to be available among the public. So, it is a burning question that how far it is efficient to depute a public servant like him in a service like legal aid where mass people are the main subject to be served?

Seventhly, the members of the District Legal Aid Committee are very high officials such as District Judge, District Magistrate, Superintendent of Police, Superintendent of Jail Police, President of the District Bar Association, Public Prosecutor etc. Their presence is necessary in every meeting of the District Legal Aid Committee. But the problem arises in this point. Because these officials are always very busy and its tough to manage their schedule for the meeting. In the eighth position we can claim about the problem of appeal to the National Legal Aid Board on rejection of the application by the District Committee. Here after the rejection the applicant may make an apple to the National Legal Aid Board for accepting his claim within the sixty days from the date of rejection. It takes a huge time to get the application granted by the national committee because of distance from the district to the head office. For this reason justice may be delayed and the legal aid seekers may feel helpless.

b) NGO's Drawbacks

Non-government Organisations are not always bound by the Legal Aid Act 2000. They have their own strategy and motion for legal aid service based on the financial help of the donors form around the globe. Accountability to the donors and to the higher authorities made the NGOs as unique organisations. But within this unique environment there are some inherent barriers which weaken the legal aid procedure of the NGOs. The first problem of the legal aid NGOs is the funding. Most of the NGOs don't have their own source of fund. They are completely dependent on the foreign funds. If the funding is stopped the entire legal aid service by an NGO will be stopped. Let us think that someone was dealing a case in the court with the financial help of an NGO and while the hearing was conducting, the donors of that NGO stopped providing fund. What will happen? The poor litigant will find himself as a boat without a sail. Second problem may be the target oriented service.

That means in every year a fixed amount of cases are entertained by most of the NGOs or a fixed amount of money will be spent for legal aid service which is finalized by the head offices. But cases and litigants are not limited like the NGOs strategy. So NGOs cannot be able to reach to all the indigents. Sometime it is found that two or more NGOs are running same programs in the same area but there is no connection or coordination exist between them. As a result all of them find their service unsuccessful due to insufficient litigants. If they have coordination and distribution of money and area among them, the legal aid service would be more fruitful. Sometime NGOs do not preserve the records and registers of their service. It is proved as a problem when any researcher needs that information for his research. So they should keep them properly.

c) Socio-economic Drawbacks

Bangladesh is a developing country and most of the people are illiterate and financially insolvent. We are signed as a third world country. Under this socio-economic culture our country contains some negative features which are one of the root causes of disrupting the implementation of legal aid service in full swing. This situation is termed here as socio economic drawbacks. Both the government and nongovernment organizations are facing these same drawbacks during their legal aid service. In this case the first drawbacks should be illiteracy and poverty. The demon of poverty has kept the underprivileged section busy in collecting daily livelihood and gets them far from schools and other educational institutions.

All the time they are fighting for their existence. Under this circumstances its not possible for them to be aware of their various rights and duties, modern facilities and governmental protections such as legal aid service etc. In fact most of them don't have any idea about right and legal aid due to lack of knowledge. Another thing is to be mentioned here that illiteracy has created a deep fear among the indigents about the court and police matters. They always try to keep themselves far away from the hectic court system. They don't have the concept that courts are their friends and will bring them remedy and justice. Rather, they think that court will enhance their pain with loss of money and bring them social hamper. For a situation like this, not only the illiteracy or poverty, but also the complexes, lengthy and costly system of the common law courts are equally responsible. Under such a social condition, if the indigents are concerned about free legal aid service, they will feel encouraged to enter into the court for ensuring justice.

Again, one thing worth mentioning here that awareness programs are a vital part of legal aid service but both the govt. and non-government offices are not running the awareness programs so strongly at present thought he scenario was different in beginning time of legal aid service in our country. Along with this, some villages live in very remote areas and communication systems of those areas are very hard to reach. So, most of the time, those remote areas remain out of awareness program.

Conclusion

Legal aid service is totally a humanitarian function to up hold the status of the underprivileged of the society. As a developing country we are dependent on foreign aid for our development activities in a great proportion and the government is under numerous pressures and limitations. Despite thousands of limitations, government is highly devoted in providing legal aid to the underprivileged sections. The NGO's are also performing a great role in this respect. As there is a less in everything, legal aid programs also inherits some cracks in it. To remove those statutory barriers, the government may seek help and suggestions from the legal aid scholars and experts. Other country's statutes may be reviewed to generate more effective systems and ideas. Finally, government can form a commission on this issue. The NGO's should give more importance while making their strategies that how they will coordinate and interrelate with other NGOs working on the same field and area. This will make their program more fruitful and help to build a right based society. But before everything, poverty and illiteracy should be up rooted. Because these two are the root of all the above mentioned drawbacks.

References

Islam, S 2013, Legal Aid in Bangladesh: A Theoretical Study on Govt. & Non-Govt. Organisation, Government of Bangladesh, pp 45

Sharma, SS, 1993, *Legal Aid to the Poor: The Law and Indian Legal System*, Deep & Deep Publications, New Delhi, India, p xi

MoL, 2000. Legal Aid Services Act 2000, Ministry of Law, Act No. VI of 2000, 10p

The Legal Aid Rules MoL, 2001, The Legal Aid Rules, The People's Republic of Bangladesh. Ministry of law, Dhaka, Bangladesh. Halim, A and Siddiki, NE 2008, The Legal System of Bangladesh after Separation", 1st ed. (Dhaka: University Publications Limited, p 354

Halim, MA, 2008, *The Legal System of Bangladesh*', 3rd Edition, (CCB Foundation, Dhaka), p 257

Authors Guideline for Social Change

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