

An Analysis on The Vulnerable Effect of Climate Change on Children & Adaptation in Changing Situation in Darusha Union, Rajshahi District: Bangladesh

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Abstract

Children are the most vulnerable sufferer after any disaster first, and longest. The impacts of disasters on the children are diverse, ranging from direct physical impact, long term mental impact, and nutrition challenge due to flood, cyclone, and extreme temperature in Bangladesh. The goal of the study is to find out the impacts, consequences of climate change on children and find out the adaptation priorities shored up against these impacts. Primary data was collected from questionnaire survey and secondary information was collected on different parameter like physical and mental health effect, school dropping, drinking water crisis etc. Both rural and urban area was considered as analyzing the conditions and impacts of climate change on children. This obtainment has concludes with the measurement of the adverse effect to climate change on children and some admissible strategies for the changing situation as there is no longer distinction between normal periods and disaster periods.

Keywords: Climate, Adaptation, Disaster, Children, Changing Situation.

1 Introduction

1.1 Background of the study

Climate is the statistics of weather over long periods of time (Planton, 2013). It is measured by assessing the patterns of variation in temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count, and other metrological variables in a given region over a long periods of time. The change in terminology “climate” to “climate change” was to emphasis that the pollution of the atmosphere could result in a variety of an extreme weather events, not just warming. The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as a change of climate that is attributed directly or indirectly to human activity, altering the composition of the global atmosphere. Climate change is the at presents one of the most development challenge in this 21st century, and it is now clear that the eradication of poverty and inequality cannot be achieved without also addressing the causes and consequences of climate change. Climate change will exacerbate many of the common problems and natural hazards the country faces. Bangladesh is one of the country’s most vulnerable to climate change, as well as one of the most disaster prone. Bangladesh’s flat topography, low-lying and climatic features, combined with its population density and socio-economic environment, make it highly susceptible to many natural hazards, including floods, droughts, cyclones and earthquakes. More than 80 percent of the population is potentially exposed to floods, earthquakes and droughts, and more than 70 percent to cyclones. On average, the country experiences severe tropical cyclone every three years, and about 25 percent of the land mass is inundated with flood waters every year. Severe flooding occurs every 4-5 years and covers 60 percent of the land mass. Bangladesh, home to approximately 160 million people, is one of the most vulnerable countries in the world to climate change impacts (UNICEF, November 2016). Bangladesh faces different disasters every year and causes loss of a huge amount of country’s resources. Rajshahi, the north-eastern part of the country is the most effected region for extreme weather, frequent disaster events, extreme poverty, and geographical location. Salinity intrusion, extreme temperature, drought are the main three climate change effects which change the normal livelihood condition of this region. The consequences of climate change, and disasters in this region will harm the poorest and most vulnerable children first, hardest, and longest. The types of climate change impacts on children are diverse ranging from direct physical impacts, such as cyclones, flood, extreme temperature, to impacts on their education, nutrition, health challenges. As a result of these effects, children are more likely to

injures, die face long time school closures as well as illness due to drinking unsafe water (UNICEF, May 2016). So, this study aims to analysis the adverse impacts of climate change in different sectors on children, and trying to find out the development priorities shored up against climate change impacts.

1.2 Objective of the study:

- To find out the adverse effects of climate change in the study area.
- To analysis the present situation along with the consequences of climate change on children both in long or short term.
- To recommend some development priorities against this dynamic situation.

2 Methodology

The framework of methodology defines the means or modes of data collection, analysis process, or sometimes, how a specific result is to be calculated. The study is based on primary and secondary data base. For the first two objectives, ,mainly primary data has been required for finding out the adverse effects in different sectors and along with analyzing these effects on the most vulnerable effected group, children. Primary data was collected from field through reconnaissance survey, questionnaire survey, and RRA survey method. Reconnaissance survey gives the picture of existing situation, SWOT analysis of the study area. Questionnaire survey was conducted of 150 samples from school going children, parents of the children. Along with this two survey, RRA method is done with the elderly people of the study area, school teacher for acquiring information about present climate condition, effects, hazards, changing situation which help in the achieving the goal of the study. Secondary data sources of study area map, temperature, climatic condition, and statistical data of the losses for climatic hazard, statistical data of the effects for climate change. Some statistical chart, bar diagram, pi-chart have been made for showing the effects and impacts of climate change on children such as heath, illness, malnutrition, drinking water, mental health, long and short time injury, and going to school in the changing situation.

2.1 Literature Review

Climate change presents one of the greatest development challenges of our time, and it is now clear that the eradication of poverty and inequality cannot be achieved without also addressing the causes and consequences of climate change especially on children. Climate change and environmental degradation are already harming children, especially those that are most disadvantaged. Unless action is taken, future impacts will be far more dramatic, undermining much of the progress made for children over the last decades (UNICEF, May 2016). There should be a study which demonstrate the importance of a child-centered approach to climate action, and how applying a climate-sensitive lens to humanitarian and development interventions is essential for reducing children’s vulnerability to the impacts of climate change, and underpinning development outcomes more broadly. Its result can helps to mitigate the adverse effect of climate change on children (UNICEF, 2015). Bangladesh, home to approximately 160 million people, is one of the most vulnerable countries in the world to climate change impacts. The impacts became more vulnerable when it comes to a children. Major impacts are like- decreased school attendance, increased school dropout, drowning, injuries, skin disease and many more. This impacts can mitigate via proper caring of our children (UNICEF, November 2016). Bangladesh Govt. took Vision 2021 and to achieve this goal through a strategy to pro poor , climate resilient, and low carbon development, based on the four building blocks of the Bali Action Plan- adaptation to climate change, mitigation, technology transfer, and adequate and timely flow funds for investment, within an inviolate framework of food ,energy, water, livelihoods, and health security. This program involves the overall development in every sectors such as food security, social protection, health, infrastructure development, agriculture development, mitigation and capacity building etc. During any climate hazards, children mainly face food scarcity, lack of housing, clothing, suffer from many diseases, many physical injuries along with losses of relatives and other resources they may suffer from mental sickness. School going children cannot go the school and in the shelter house they may suffer physical or mental harassment which cannot recover so easily (MoEF, 2009)

2.2 Location of the study area

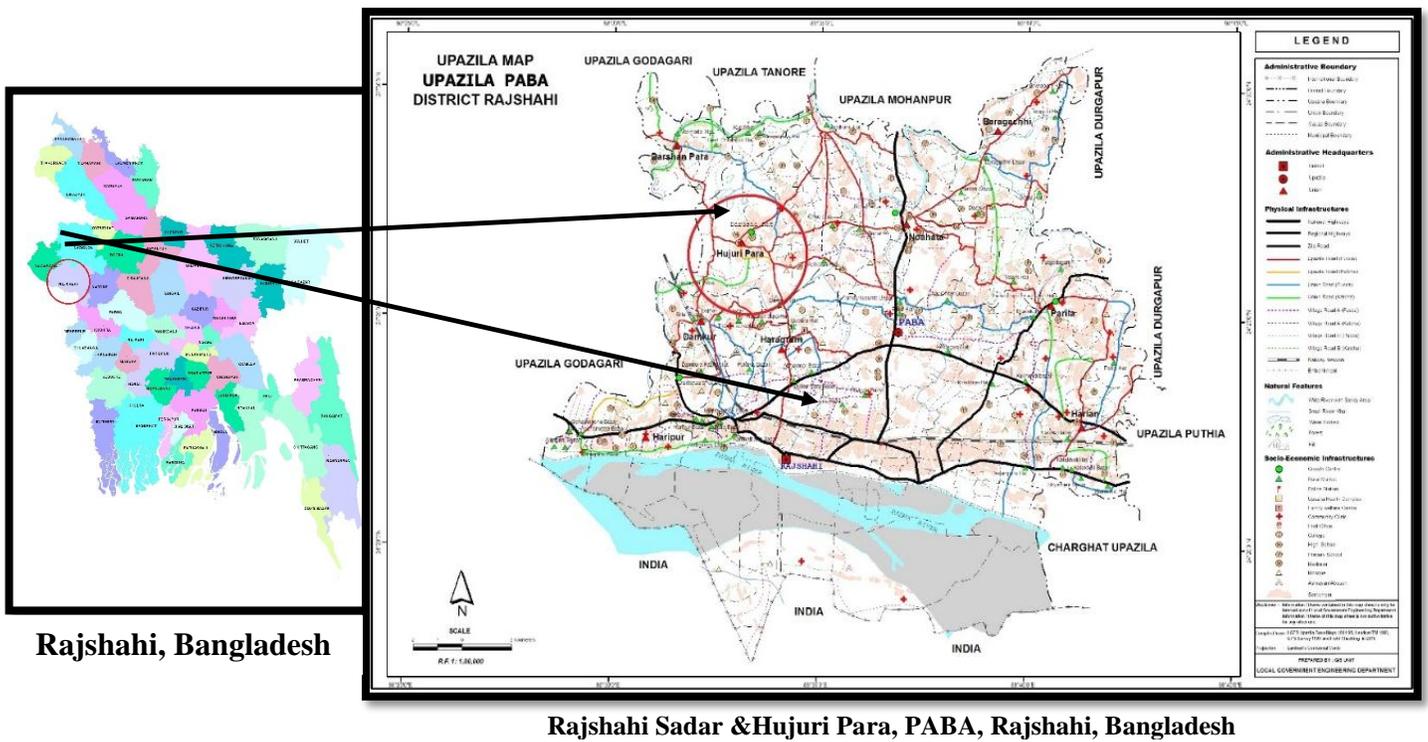


Figure 1. Location Map of the Study Area Source: Google Image 2018

The northern part of Bangladesh is suffered from extreme hot temperature, drought, and water crisis in summer season, and extreme cold, mist, dense fog in winter season. In this changing situation, people try to cope up with change in yielding of crop, vegetable production, livestock, fisheries, and so on. But the younger member of the family are left behind without any protection during extreme hot or cold weather condition. This study was conducted in Rajshahi Sadar and in a rural area which is effected by the consequences of climate change. Hujuri Para Union in PABA Upazila, Rajshahi is the study area which is located $88^{\circ}33'27.663''E24^{\circ}27'1.954''N$. The total area of this union is 27.81km^2 . The total population of this union is 22043 and Rajshahi Sadar upazila which is situated beside the river bank of Padma is selected as the second study area. Rajshahi city is one of the oldest metropolitan city in Bangladesh. This divisional city is also re known for the silk industry and education facilities. Rajshahi is located at $24.40^{\circ}N$ $88.50^{\circ}E$ and is situated on the northern bank of the river, Ganges. Mainly, Talaimari area under Motihar Thana is considered to collect primary data and other survey conduction.

2.3 Existing Situation

Climate change is no longer something to happen in future, it is here, and now. Bangladesh is among the countries which are the expected to be the worst sufferer by climate change. The northwestern portion of the country commonly affected by drought, which generally has lower rainfall than the rest of the country. Droughts are seasonal, and cab devastate crops, causing hardship to poor laborers, and others who cannot find a work. As Rajshahi is mainly known for “Varendra Track” which means the climatic condition is extreme here, extreme temperature, drought, less rainfall are the main effects of climate change in this region. The mean annual rainfall is 1530 mm, and the average dry and wet seasonal rainfall is 135mm and 1395mm respectively in this area. Throughout the year, the mean annual maximum temperature is $30.85^{\circ}C$ and the minimum is $20.51^{\circ}C$.The mean maximum temperature is $29.77^{\circ}C$, mean minimum temperature is $17.02^{\circ}C$ in the dry season. In the wet season, it reduces in $32.26^{\circ}C$. Drought and flood are the common hazardous problem. Flood causes damage in crop production but there is no flood protection embankment and flood shelter in this area. During the summer season, excessive temperature brings water crisis problem along with drought. Children cannot drink safe water and suffered from many diseases. In the rainy season, children cannot go school for

a long period, suffer from malnutrition, serious injury, mental stress, and so on. If the present situation continues, future generation will suffer from long term physical and mental problem.

3. Effects of Climate Change on Children

Bangladesh is widely recognized to be one of the most climate vulnerable countries in the world. It experiences frequent natural disasters which causes loss of life, damage to infrastructure, and economic assets, and adversely impacts on lives and livelihoods especially the children and poor people. From the antenatal stage onwards, children are exposed to constant environmental threats to their health and well-being. These threats existing all environments – in developing and industrialized countries, in rural and urban areas, and everywhere children live, learn and play. Many children, especially those in developing countries, stand on the front line of poverty, pollution and resource degradation. Children are affected by unsafe environments in many ways: They may die from environment-related illness; those weakened by such illnesses are more susceptible to under nutrition and opportunistic infections; and their physical and mental development may be permanently stunted. An estimated 36 per cent of deaths in children younger than 14 years are attributed to illness and conditions related to poor environments. The largest burden is attributed to diarrhea, which kills at least 1.9 million children under five annually and sickens tens of millions more (UNICEF, November 2008). Besides them dropping out from school, decreasing in school attendance, different injuries, skin disease, scarcity of pure drinking water, very hot and cold weather are also devastating for children. The study team works to find those effects on children so that we can know about which is dangerous for children and in which sector we should take care our children to save them from swallows by climate change. All the climate change consequences threaten food security, livelihoods, health of the citizens. Climate change is also likely to increase the incidence of water borne and air borne diseases. Bacteria, parasites, and diseases vector can breed faster in warmer and wetter condition due to flood, extreme temperature, poor drainage system and lack of river embankments. As a result, Children get easily effected by different diseases and their health condition getting worse. Shortage of safe drinking water is likely to become more pronounced, especially in the northwestern part of the country. This will impose hardship for the women and children who are responsible for collecting drinking water for family from far way. Increasingly saline drinking water may also increase health hazards like dizzy feeling, skin diseases due to temperature and polluted water on the children (MoEF, 2009). During any climate hazards, children mainly face food scarcity, lack of housing, clothing, suffer from many diseases, many physical injuries along with losses of relatives and other resources they may suffer from mental sickness. School going children cannot go the school and in the shelter house they may suffer physical or mental harassment which cannot recover so easily.

4. Findings

Climate change is now the greatest problem of country like us. It becomes more vulnerable when it comes to children. The study team tries to find those sector which effects children most on the basis of primary survey which includes children’s opinion and their parents too. After collecting and analysis the data it comes that water crisis and different water borne diseases are mostly effect the children. Besides as the weather of Rajshahi is very hot in summer season and also very cold in winter season, it creates a lot of difficulties to the children. It is very difficult for them to cope up with this weather. Though a few portion of children get physical injury during any disaster events, the percentage of lack of nutrition, losses of house, parents, and resources is very high. A large number of children suffer from many skin diseases, epidemic water and air borne diseases. Due to lack of safe drinking water, children get easily suffer from many physical problems. Also, children cannot go to school in the post disaster period and this percentage is also very high.

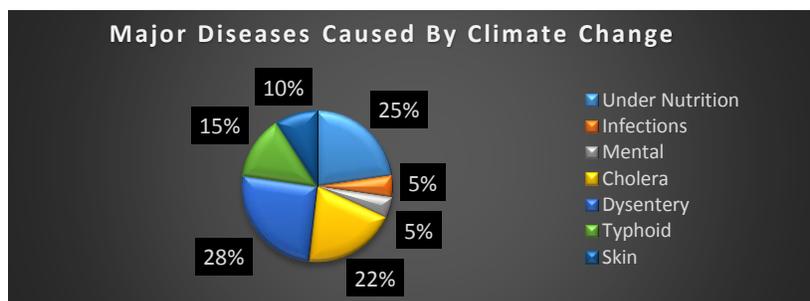


Figure 2. Effects of Climate Change on Children

Source: Field Survey 2018

Climate change creates some major diseases too. Most of the cases both children's and adults faces this diseases. Adult's people can survive on this kind of situation but it is very difficult for the children to face this diseases. The study analysis show that Dysentery and Under Nutrition are the two major diseases. Not only them but also some mental and physical diseases are happen to the children. If the local government can provide proper nursing for the children on those time when the climate change became more vulnerable, it can save many pure life who could be the future of Bangladesh.

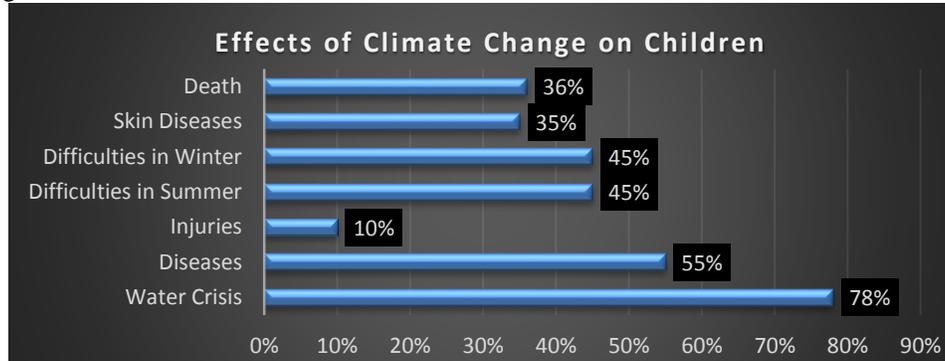


Figure 3. Major Diseases Caused By Climate Change

Source: Field Survey 2018

The higher temperature and changing rainfall patterns, coupled with increased flooding, rising salinity in the coastal belts, and droughts are likely to reduce crop yields and crop production. IPCC estimates that, by 2050, rice production in Bangladesh could decline by 8% and wheat by 32% (against the base year 1990) (MoEF, 2009). From the primary survey, it has also been proved that, children are mostly effected by climate change consequences in the sector of food security. Almost 62% respondents said that children are the mostly effected group during and after a climatic hazards. Children cannot get nutritious food and they can easily effected by various diseases. Loss of crops, rice, wheat, vegetables, livestock, fisheries make them helpless during the hazards. The health condition is also miserable during the hazards. Lack of proper drainage system, sanitary system, and sewage system in the shelter house, lack of proper health knowledge, lack of medial service, relief goods, children and women get easily sufferer from various health problems. Almost 30% respondent said that, they face health related problem during climatic hazards. Rest 9% people said that different epidemic diseases are broke out during these calamities.

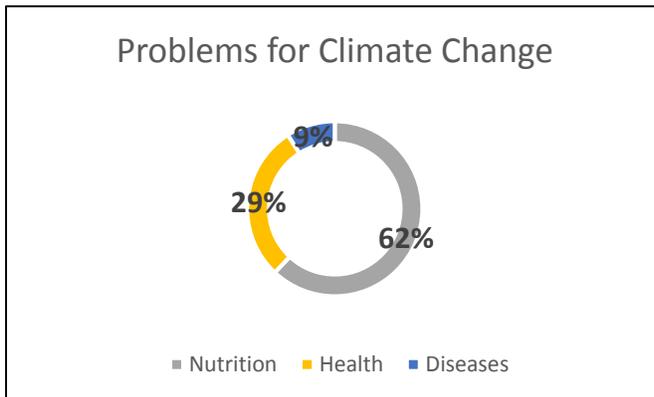


Figure 4. Problems for Climate Change

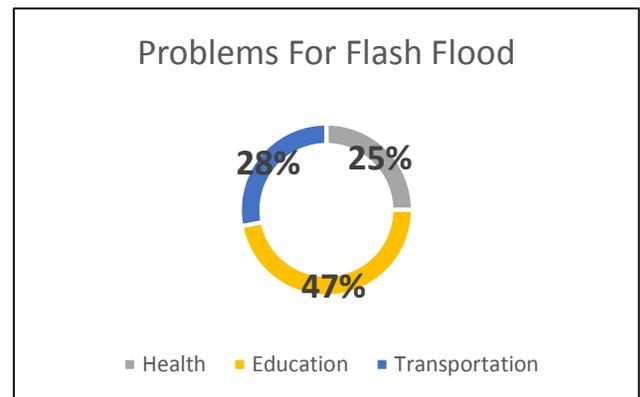


Figure 5. Problems for Flash Flood

Source: Field Survey 2018

Figure 5 shows that how the children deprive from their basic needs as a result of climate change problems. Bangladesh Govt. took an initiative to construct multi-purpose cyclone shelter house for the flood, cyclone, and hazard affected people. These shelter house are used as school in the normal days. So, in the rainy season and when the hazards come out, children cannot go to school for a long time span and the normal routine of their education surely hamper seriously. After the hazards, many people migrate due to loss of property and resources, and so as the children of those family. They cannot continue education further for extreme poverty and other problems. Sometime they become homeless and lost their parents and these reasons also work as a pull factor in the way of education. Again, due to flood and

cyclone, many children get injuries and lost their parents and other resources. Mental and physical treatment is also recommended for all the children in the post disaster period.

5. Possible Strategies to mitigate changing climate situation

Bangladesh Govt. took Vision 2021 and to achieve this goal through a strategy to pro poor , climate resilient, and low carbon development, based on the four building blocks of the Bali Action Plan- adaptation to climate change, mitigation, technology transfer, and adequate and timely flow funds for investment, within an inviolate framework of food ,energy, water, livelihoods, and health security. This program involves the overall development in every sectors such as food security, social protection, health, infrastructure development, agriculture development, mitigation and capacity building etc. which are beneficiary for all aged citizen especially for the children people who are the most vulnerable group due to climate change. The possible strategies and the required investments in different sector are listed below:

- For reducing the increased frequency and severity of cyclones, investment is needed in establishment of cyclone shelter center and early warning system.
- For reducing the devastating consequence of flash flood and extreme rainfall, early warning system, up gradation of flood embankment, drainage system and flood protection system. Also, for mitigating the result of floods, climate resilient cropping system is needed to be developed.
- Improved irrigation, water management system, provision of drinking water source, efficient use of rain water, drought resilient cropping system are needed to be adopted in the drought and extreme temperature situation.
- Proper basic health education, other health prevention program, immunization in the changing situation, supply of safe drinking water and hygienic sanitation system also extreme need in the post disaster period. (MoEF, 2009)

Conclusion

Climate change is a common phenomenon for a country like Bangladesh. The consequences of climate change may can bear the adults but the most vulnerable groups will be the poor and the children. The effects of climate change is multidimensional on the change both physical and mental health. Govt. now take an adaptation strategy to mitigate the consequences of climate change. In this strategy Govt. mostly give priority to the most vulnerable group, children. For overcome this problem conscious climate change program is needed to be taken now. Adaptation strategies must be followed by the community people, stakeholder, and sectorial Govt.

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