



Is Climate Change a curse? Causing Huge Effect on Various Fields: An Educational Perspective

Ritesh karmaker^{1,*}, Md. Habjul Alam Lemon²

¹ Nizam Uddin Ahmed Model, College, Sherpur, Bangladesh

² Accounting, Sherpur Government College, Sherpur, Bangladesh

*Correspondence: E-mail: karmakerritesh@gmail.com

ABSTRACT

This paper aims to highlight the causes of climate change creating a huge impact on various issues from an educational perspective. Changing climate issues affecting the deltaic region, Bangladesh. Bangladesh faces the most critical consequences of climate change because of global warming, and some man-made issues. The facts go on all over the world, including Bangladesh resulting in pushing back the country to face the complexity of a devastated climate. This paper has a qualitative look focusing on the facts related to changing aspects of Bangladesh for climate change. This article has three sections, a literature review showing the causes and the results of climate change, primary data collection with interviews and forum group discussion (teachers, research scholars, students, and farmers), and the design of the research. The primary data collected from the Sherpur district in Bangladesh shows the consequences of climate change and its impact.

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1. INTRODUCTION

Bangladesh now is at the core of critical climate change having the issue of global climate change. It results in the devastation of various sectors. Climate change molds the increase of various destruction which are incompatible with the earth's climate. As a developing country, Bangladesh faces the severe result of climate change and bears the consequences of intolerance aspects (Chowdhury *et al.*, 2022). The basis of climate change influences on Bangladesh such as food production, forest, health issues, and the mixed impact of local climate (Alam *et al.*, 2023; Mukul *et al.*, 2019; Shahid, 2010; Smit and Pilifosova, 2003). This velocity of climate change affects the climate of Bangladesh pushing it to the line of destruction having natural disasters. The frequency of natural disasters has been a common call in Bangladesh (Rasid *et al.*, 2013). The pose of threat has altered the natural system in Bangladesh. Climate change has been random in recent years for being the frequency of climate. Some factors are held responsible for the severe result of global climate change. It impacts food production, forests, health issues, and the mixed impact of local climate (Hasib *et al.*, 2016). In recent years the ratio of heat in monsoons has increased pouring huge heat into the pattern of climate in Bangladesh, as from April to August is the period of monsoon the amount of rain has decreased (Rahman & Lateh, 2017). The amount of heat has increased which is a blazing example of severe climate change which creates diseases and a rising mortality rate (Rahman *et al.*, 2019). When agriculture needs the proper amount of rain instead of exerting less rain resulting in a bad effect on agriculture (Basak *et al.*, 2013; Mohsenipour *et al.*, 2020). The huge heat bars the growth of crops. Farmers try to meet the demands of water and exact water through a pump. This process may not work as other facts including in process of holding the crops to be grown properly. Even overheating causes the intensity of cyclones in our area. The requirement for the production of crops suffers a lot from the transformation of the pattern of climate (Ruane *et al.*, 2013). People depend on direct climate issues to maintain their livelihoods (Afjal *et al.*, 2012). Bangladesh lies in the region of the foot of the mountain, the Himalayas which provides the core source of monsoon. Overheating obstacles to the flow of streams in the water body in Bangladesh. Bangladesh is a riverine country and most of the parts of the country depend on rivers both for irrigation and communication as well as many other matters. Agriculture has been facilitated using the availability of rivers but the adverse result of climate change holds the flow of water from the water bodies causing barriers to crop production. Along with crop production, there remain other functions of production of food that may be pushed back to the process of many kinds of food production, all the food sources suffer from the change of climate change. Climate change causes additional pressure earning and has a huge effect on the future food security. Climate change has an impact on housing (Jahangir & Akter Mullick, 2014). The effect on forests has posed the pose of threat to all existing natural systems. Sundarbans can be said the biggest forest or coastline forest in Bangladesh and India. It helps prevent the country from many natural disasters and provides a home to many animal species (Mukul *et al.*, 2019). In 2007 Sundarbans took the brunt of super cyclone SIDR but at present, the coastline of Sundarbans retreats from 200 to 150 meters in some places. The existence of this forest provides home to many unique species, of Bengal tiger, besides the Bengal tiger, many species are losing home and becoming extinct due to the culture of climate change. Every country should have 25 percent of its total area as forested land to maintain ecological balance (Al Faruq *et al.*, 2016). However, the Forest Resources Assessment (FRA) 2000 (FAO, 2001) indicates only 10.2% of the land area of Bangladesh is forest (Muhammed *et al.*, 2005). According to UNEP from 2015 to 2020 ten million hectares of forestland have been transformed into other land including the rainforest and the forest of Amazon. In response to

climate change, some tree species will shift their ranges and migrate into landscapes in which they don't typically grow. Climate change can create new habitats for tree species and make existing habitats unsuitable. Climate change is creating warmer temperatures, deeper droughts, and drier vegetation.

All the results of climate change can have the vast possibility of carbon emission causing the factors of the above-mentioned threat to Bio Life. So Bangladesh can't be excluded from this grab of destruction and making the places unsuitable for residing as climate change has a negative influence on Bangladesh (Kabir *et al.*, 2016). Bangladesh suffered a lot in the southern part in 1991 as a result of climate change. Bangladesh faces the same consequences of global climate change. The people of Bangladesh are not excluded from the blame being imposed on them as many people play negative roles for their self-interest and for getting economic benefit without considering the value of trees in daily life. A report shows that the ratio of cutting trees in our country is 2.62 whereas it is 1.32 in other countries. As Bangladesh is a densely populated country people need space to live. To accommodate they finish up trees instead of planting more. The activity of ourselves may push us forward to the verge of danger waiting ahead (Dastagir, 2015). The result of a treeless country will be turned into a desert. It may bring drought, scarcity of food, and health problems as well as affect the ecological system, so parents in various professions directly related to climate issues lose jobs, and this impacts on home thus their students dropping out of education (Karmaker & Lemon, 2024). Even some try to turn the system but face a lot of problems. People and Good governance should think of ensuring a safe environment for the coming generation (Bhuiyan, 2015). Here Govt. and other bodies can play a vital role in taking measures against climate change because it is thought that for climate change Bangladesh may be submerged under water shortly (Mahmood, 2012). Besides these, the doubts about the issues regarding climate change are still prominent. However, there is a debate that regular visits to natural disasters can increase temperature (Brammer, 2016). To take proper steps the effect and impact of climate change have to be realized in the right way. There is to understand the impact and result of climate change in adapting to the situation. The assurance of natural gifts provided by nature itself will be hampered. The biodiversity will be disrupted in context with the possibility of natural helplessness. The climate will have been the worst version of its timespan. Bangladesh has already kept its step on the possibility of danger created by the lack of protection of the climate. Taking accurate measures can help reduce the adverse effects on livelihood, health, agriculture, and the environment mostly in the coastal areas. Because of this change, the soil is being salinized creating a great threat to the soil in coastal areas (Dasgupta *et al.*, 2015). People should have more conscience for the provision of their daily activities. Planting more trees, raising awareness, facilitating the availability of environmental safety etcetera.

2. LITERATURE REVIEW

The literature review in this paper shows the facts related to the matter of climate change in Bangladesh. Bangladesh faces the severe result of climate change and bears the consequences of intolerance aspects (Faroque *et al.*, 2013). This paper depicts the basis of climate change influencing Bangladesh. It influences food production, forest, health issue, education, and the mixed impact of local climate, the Royal Bengal Tigers are being threatened by these issues (Alam *et al.*, 2023; Bernzen *et al.*, 2019; Chowdhury *et al.*, 2022; Smit and Pilifosova, 2003; Mukul *et al.*, 2019; Karmaker & Lemon, 2024; Shahid, 2010). Climate change has impacted crop production (Ruane *et al.*, 2013). Brammer opines in his paper that natural disasters do not influence augmenting the temperature (Brammer, 2016).

Farmers encounter huge problems in irrigation and maintaining economic balance. The visit of natural disasters is very common in Bangladesh (Rasid, 2013). It has a negative impact (Kabir *et al.*, 2016). Cutting down trees in an indiscriminate way has a huge impact on the weather pattern of Bangladesh (Dastagir, 2015). Annual rainfall is projected to decline 153 mm from 2011 to 2020 creating the dry condition but it is worse than that of 2020 (Rahman & Lateh, 2017). Moreover, farmers suffer much from a lack of water (Mohsenipour *et al.*, 2020). A country should possess 25% of forestland (Al Faruq *et al.*, 2016). But Bangladesh has only 10.2% forestland according to Forest Resources Assessment (FRA) 2000 (FAO, 2001) (Muhammed *et al.*, 2005). In this paper, the crisis of housing has been highlighted (Jahangir & Akter Mullick, 2014). The southern part of the country faced a lot for being vulnerable (Afjal *et al.*, 2012). This paper shows that overheating causes the intensity of cyclones in our area. There remain so many doubts about the issues arising from climate change. Climate change depends upon the issues of health alike (Hasib *et al.*, 2016). Proper steps adaptation would reduce the adverse influence on livelihood, health, agriculture, and the environment—particularly in the coastal areas (Chowdhury *et al.*, 2022). The risk of soil being salinized is increasing (Dasgupta *et al.*, 2015). Lives are not safe in riverine areas because of climate change. There is to understand the impact and result of climate change in adapting to the situation. Climate change causes additional pressure earning and creates extra pressure for future food security. In Bangladesh Governance has a role in dealing with the situation well (Bhuiyan, 2015). But both the Govt. and the non-Govt. organizations can play a pivotal step in handling the situation perfectly or there is suspicion of Bangladesh going underwater (Mahmood, 2012). A literature review has molded the specific issues focusing on the impact of climate change in Bangladesh.

3. METHODS

3.1. Study Area

The study was conducted at Sherpur Sadar Upazilla, Sherpur Dist., which is situated at 25°00' 0.00" N and 90°01' 0.12" E latitude and longitude, respectively. The city, which has 356.12 square kilometers of land and was upgraded to a district on February 22, 1984, lies about 197–199 kilometers north of Dhaka, the capital of Bangladesh.

3.2. Research Design

In this article, a divergent mixed design was used. This research methodology was selected because it makes it possible to gather a variety of important facts that are necessary to build a comprehensive understanding of the topic at hand. Convergent designs are employed to identify and evaluate issues from several perspectives. Purposive sampling, on the other hand, is used to choose key informants and focus group participants for the study. It took close to four months to gather the primary data needed for the article.

3.3. Method of Data Collection

Surveys, focus groups, semi-structured interviews, and questionnaires were employed to gather primary data for this investigation. Additionally, a literature review was finished. To lessen the drawbacks of each, it was decided to combine these strategies. There is a basic description of the method below.

3.4. Questionnaire

A questionnaire was the main tool utilized to collect data for this article. The questionnaire uses both closed-ended and open-ended questions to make it easy to interpret. They

completed it in their mother tongue. One data gatherer was present and in charge of gathering the data; the moderator was in charge.

3.5. Interview

The primary informants were interviewed in a semi-structured manner to gather data. It is carried out with certain people, including teachers, research scholars, students, and farmers. This is done to examine specific data from the relevant party and add it to the answers that are gathered from surveys.

3.6. Focus Group Discussion

Ten participants per Focus Group Discussion (FGD) were used in this investigation. Teachers, researchers, and students from different educational institutions in Sadar Upazilla, Sherpur, conducted the focus group discussion (FGD) study. The concerns that were not brought up in the questionnaires and interviews were the main focus of the FGD. It was also used in conjunction with information-required survey questions.

4. RESULTS AND DISCUSSION

4.1. Data Analysis

Five participants per Focus Group Discussion (FGD) were used in this investigation (see **Figure 1**). Teachers, researchers, farmers, and students from different educational institutions in Sadar Upazilla, Sherpur, conducted the focus group discussion (FGD) study. The concerns that were not brought up in the questionnaires and interviews were the main focus of the FGD. It was also used in conjunction with information-required survey questions. Although internet resources are now quite helpful, this paper still needs to be finished with the appropriate materials. Books, published research papers, peer-reviewed journal articles, websites, and online periodicals are examples of sources. The respondents helped compile the data. This paper has both primary and secondary sources.

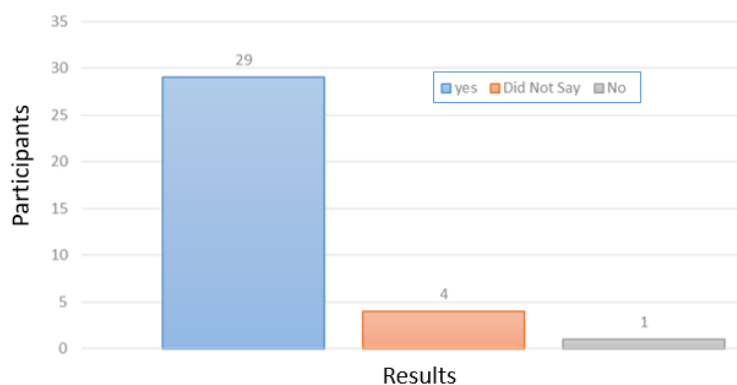


Figure 1. Respondents' views on, field data gathered surveying the causes and results of climate change.

The majority of the respondents (85.29%) said 'yes' about the causes of results of the climate change. While the least respondents (2.94%) opined "No" about the causes of results of the climate change. On the other hand, respondents (11.76%) said "Didn't say anything" about the causes or results of climate change.

Table 1 is to reach the objectives of this research. Respondents were asked to depict their background information in response to age group, and gender to show the causes and results to be expressed concerning this article. The findings have been obtained as shown in **Table 1**.

Background information of the respondents n=34. The majority of the respondents 12 (35.29%) were aged between 45-50 years while the least respondents 11 (32.35%) were aged between 45-50 and respondents 11 (32.35%) were between 50 and above. Most of the respondents male 29 (85.29%) were male while 5 (25.04%) were female. The majority of the respondents 33 (97.05%) were married but respondent 1 (2.94%) was unmarried.

Table 1. Category.

Category		Frequency	Percentage (%)
Age	Less than 40-45	12	35.29
	45-50	11	32.35
	50-Above	11	32.35
Gender	Male	29	85.29
	Female	5	14.70
marital status	Marriage	33	97.05
	Unmarried	1	2.94

Table 2 is for response to the topics referred to in this Article, the causes of climate change affecting the environment. Data was field survey in Sherpur Sadar Upazilla, Sherpur (2023-2024). Respondents 21 (61.76%) said the cause of climate change is natural disasters. Whereas just respondent 1(2.94%) said that the cause of climate change is the mode of weather change. respondents 9 (26.47%) expressed lack of water is another cause of climate change. Respondent 3 (8.82%) said that the cause of climate change is overheated.

Table 2. The findings about natural phenomena.

Category	Frequency	Percentage (%)
Natural disaster	21	61.76
Lack of water	9	26.47
Overheat	3	8.82
Change of the mode of weather	1	2.94

Table 3 is for response to the topics referred to in this Article, the effects of climate change on the environment. Data was obtained from a field survey in Sherpur Sadar Upazilla, Sherpur (2023-2024). Respondents 11 (32.35%) told the effect of climate change on health. Whereas just respondent 1(2.94%) talked about the result of climate change on morbidity and mortality. respondents 9 (26.47%) opined about the consequence of climate change on earnings. Respondent 8 (23.52%) depicted the effect of climate change on food. Respondent 3 (8.82%) described the effect of climate change on education. Respondent 2 (8.82%) talked about the effect of climate change on housing.

Table 3. The findings regarding the condition.

Category	Frequency	Percentage (%)
Health	11	32.35
Earning	9	26.47
Morbidity and mortality	1	2.94
Education	3	8.82
Housing	2	5.88
Food	8	23.52

The following equation has been done using the help of AI to make the paper more scientific and pragmatic to the research scholars. The result is in equation (1):

$$[\log(Z_{i,t}) - \log(Z_{i,t-1})] = \beta \cdot \log(Z_{i,t-1}) + \alpha \cdot \text{Climate_Heat}_{i,t} + \rho \cdot \text{Climate_Flood}_{i,t} + [\mu_i + \theta_t + \epsilon_{i,t}] \quad (1)$$

$[Z_{i,t}]$ represents the level of impact of climate change in a specific location, (i) is the data at a time (t) , measured by various indicators such as heat and floods. $[\text{Climate_Heat}_{i,t}]$ and $(\text{Climate_Flood}_{i,t})$ are the indicators of climate change effects on heat and floods respectively, for location (i) at time (t) . $[\mu_i]$ represents the location-specific effect, capturing variations in the impact of climate change across different areas that are not accounted for by the observed variables. $[\theta_t]$ represents the time-specific effect, capturing variations in the impact of climate change over time that affect all locations equally. $[\epsilon_{i,t}]$ represents the error term, capturing random fluctuations or measurement errors in the impact of climate change that are not explained by the observed variables. The sign of the (β) coefficient will determine whether there is a relationship between the past and current impact of climate change, indicating the presence of a lag effect.

Additionally, the coefficients (α) and (ρ) determine the magnitude and direction of the effects of specific climate change indicators on the overall impact of climate change (see equation (2)).

$$[\log(Z_{i,t}) + \lambda \cdot \text{Economic_Crisis}_{i,t}] = \beta \cdot \log(Z_{i,t-1}) + \alpha \cdot \text{Climate_Health}_{i,t} + \rho \cdot \text{Economic_Condition}_{i,t} + [\mu_i + \theta_t + \epsilon_{i,t}] \quad (2)$$

$[Z_{i,t}]$ represents the level of impact of climate change in a specific location (i) at the time (t) , measured by various indicators such as health issues. $[\text{Climate_Health}_{i,t}]$ is an indicator of climate change effects on health for location (i) at time (t) . $[\text{Economic_Crisis}_{i,t}]$ and $(\text{Economic_Condition}_{i,t})$ are indicators of economic conditions and crises respectively, for location (i) at time (t) . $[\mu_i]$ and (θ_t) represent the location-specific and time-specific effects respectively, capturing variations in the impact of climate change and economic conditions over different areas and periods. $[\epsilon_{i,t}]$ represents the error term, capturing random fluctuations or measurement errors in the impact of climate change and economic conditions that are not explained by the observed variables. The sign of the (β) coefficient will determine whether there is a relationship between the past and current impact of climate change, indicating the presence of a lag effect. Additionally, the coefficients (α) and (ρ) determine the magnitude and direction of the effects of specific climate change and economic indicators on the overall impact of climate change.

4.2. Findings

The result of the climate is inevitable for the unlucky consequences in shaping the future of the people of Bangladesh. It has been proposed the reasons for being victims of climate change in Bangladesh. The effect of climate change is a regular visit in Bangladesh (Rasid *et al.*, 2013). It fetches other problematic issues in Bangladesh (Chowdhury *et al.*, 2022). The effect occurs in the issue of climate change has created a loop between the present situation and the coming condition of the country and the passage of suffering of the people living in this deltaic situation (Faroque *et al.*, 2013; Alam *et al.*, 2023; Kabir *et al.*, 2016). The result has not brought any good results for the people primarily. Food, housing, health, and education have had much impact on the result of climate change (Bernzen *et al.*, 2019; Jahangir & Akter Mullick, 2014; Mohsenipour *et al.*, 2020). Here they are the direct victim who serves their profession in encountering climate change indeed everyone has to be victimized by climate change resulting the issues of health hazards (Hasib *et al.*, 2016). Here the reasons found in

the paper might be feasible for fighting the situation moreover the debates of increasing the heat and temperature mayn't be affected (Brammer, 2016). Food production has much influence on climate change (Ruane *et al.*, 2013). The result shows of causes responsible for the occurrence of the climate in a proper way. The measures to be taken for the tolerance of climate change and ways of coping with the situation. Governance needs to deal with the situation well (Bhuiyan, 2015). But both the Govt. and the non-Govt. organizations should handle the situation properly or there is doubt about Bangladesh's submersing (Mahmood, 2012). The result describes the climate change causing the issues related to Bangladesh has been a major issue to be handled in the future with proper steps and caution. The most important fact should be awareness and not doing anything negative approach for the deterioration of the environmental issues. The data from line chart 1 and line chart 2 show the fluctuation of rainfall and the gradual increase of the temperature impact on the agriculture management system. Some crops like jute need huge water sources to be decomposed but due to the lack of water sources it is not being continued in this area, Sherpur was once done here. It also influences some crops such as 'Aman', a paddy, that requires timely rain but for lack of timely rain, it needs extra irrigation to be grown, resulting emphasizing on additional economic pressure on the farmers. For gradual increase temperature respondents of primary date, farmers opined about the untimely production of many crops and vegetables alike creating economic and psychological pressure on them.

As shown in **Figure 2**, The data was inserted in the pie chart in regards to the objective of this paper to confirm the variety of the climate change affecting the environment. Background information of the respondents in primary data collection is in pie chart 1. 21 respondents (61.76%) said the result of climate change is a natural disaster. 1 respondent (2.94%) said that the effect of climate change is the mode of weather change. 9 respondents (26.47%) expressed lack of water is another consequence of climate change. 3 respondents (8.82%) talked about the findings of climate change, and overheating.

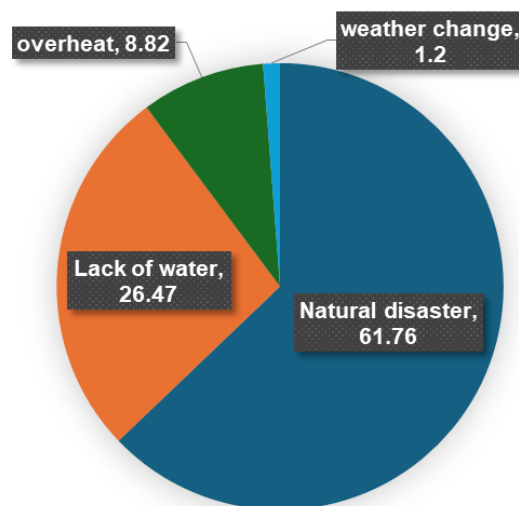


Figure 2. Pie-chart 1.

As shown in **Figure 3**, the data was designed in the pie chart regarding the objective of this article to ensure the effect of climate change on the environment. Background information of the respondents in primary data collection is in pie chart 2. 11 Respondents (32.35%) told the effect of climate change on health. 1 respondent (2.94%) talked about the result of climate change on morbidity and mortality. 9 respondents (26.47%) opined about the consequence of climate change on earnings. 8 respondents (23.52%) depicted the effect of

climate change on food. 3 respondents (8.82%) described the effect of climate change on education. 2 respondents (5.8%) talked about the effect of climate change on housing.

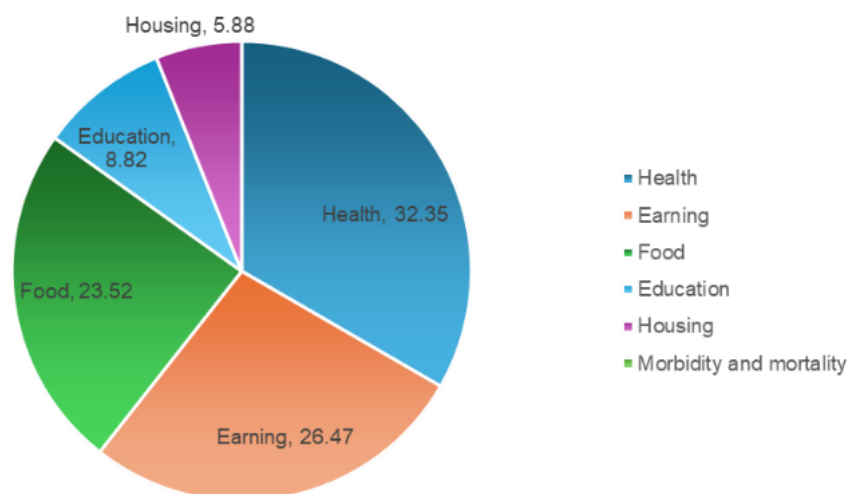


Figure 3. Pie-chart 2.

Figure 4 shows the annual highest rainfall in Sherpur district. Data was achieved from the Department of Agriculture Extension, Sherpur, Bangladesh. The above-mentioned line chart shows the annual rainfall from 2019 to 2023 in Sherpur district. The data has been achieved from the Department of Agriculture Extension (DAE), Sherpur from 2019 to 2023 about the annual highest rainfall in Sherpur. In it, the fluctuation of rainfall has been observed over the years. In 2023, the highest rainfall was 157.4 mm whereas the lowest rainfall was 60.8 mm in 2022. There is a huge gap between these two years because of climate change impact. In 2019, the highest rainfall was 98.6 mm and the highest rainfall in 2020 was 86.4 mm. In 2021, the highest rainfall was 92.4 mm. It is seen that the data on the fluctuation of rainfall has been recorded in a variation of time from 2019 to 2023.

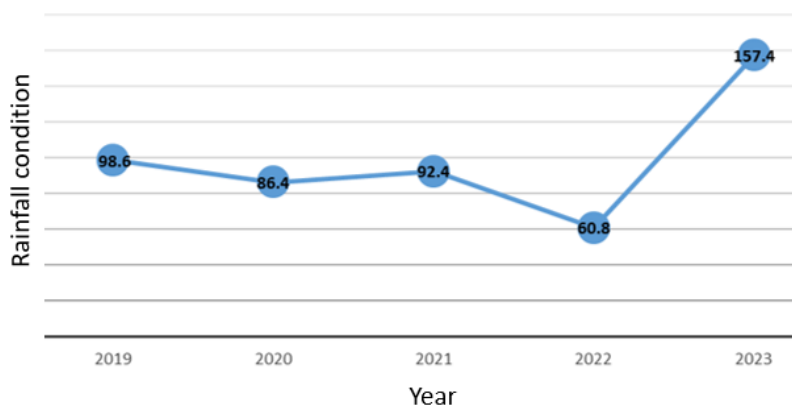


Figure 4. Line chart 1 for the effect of rainfall.

Figure 5 shows the annual highest temperature in Sherpur district. Line chart 2 mentioned above shows the highest temperature from 2019 to 2023 in Sherpur Dist. Bangladesh. The data on the highest temperature has been achieved from the Department of Agriculture Extension (DAE), Sherpur from 2019 to 2023 the annual highest temperature in Sherpur. The highest temperature was 38°C in 2023 but the lowest temperature was 35°C in 2020. In 2019 the highest temperature was 37°C. In 2021 the highest temperature was 37°C and in 2022 the highest temperature was 37°C. The analysis made in the line chart shows the gradual increase in the temperature is the result of climate change.

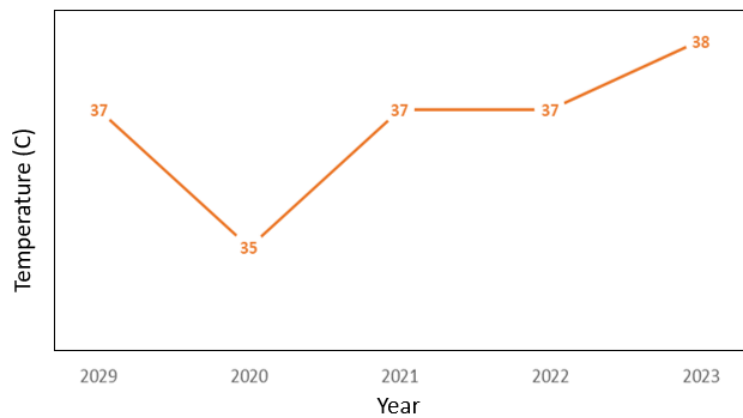


Figure 5. Line chart 2 for the effect of temperature.

4.3 Discussion

The title is based on climate change having a heavy effect on the environment causing huge harm to the presence of the aspect of environment. The process of climate change is not only related to Bangladesh alone but also to the issues of the world's environment. The causes, their results, and the ways of trying to control it can be effective for discussing the matter in line with the issue of climate change (Kabir *et al.*, 2016). The continuation of climate change brings other natural calamities. Water is scarce, so farmers suffer a lot (Mohsenipour *et al.*, 2020). Because of climate change other problems arise. It fetches other problematic issues in Bangladesh (Chowdhury *et al.*, 2022). It creates pressure on food and other issues. Bangladesh is in the grip of the world's climate change motion having a huge impact on cultivation (Faroque *et al.*, 2013; Alam *et al.*, 2023; Ruane *et al.*, 2013). Climate change creates many problems including the indirect effect on education (Karmaker & Lemon, 2024). The existence of rivers gives Bangladesh the name riverine but in use of the utility of the rivers has less significance. Fields of the farmers have to be supplied water during pumps pouring much pressure on farmers' economic capabilities (Ruane *et al.*, 2013). It is to realize the impact and result of climate change in adapting to the situation and livelihood. The rivers are dying out because of climate change. The lands near the sea losing their space becoming vulnerable to many species, and the degradation of the numbers of the Royal Bengal tigers is a living example of being that example. Health issues that occur due to climate change cause fundamental harm to the health of human beings (Smit and Pilifosova, 2003). But both the Govt. and the non-Govt. organizations must more steps to face climate change or some researchers doubt Bangladesh's submersing into water (Mahmood, 2012). Soil salinization poses a threat to climate change (Dasgupta *et al.*, 2015). In riverine areas lives face vulnerability in pursuing livelihood (Afjal *et al.*, 2012). Debates arise about the issues arising from climate change. The things noticed in the circumstances of discussing the problems can be prime aspects of the paper rather than finding out the solutions. Consciousness cares a little among the people in materializing the measures prominent in the paper.

5. CONCLUSION

The causes and consequences of climate change in Bangladesh in this paper show the major traits related to global climate change. Bangladesh is facing major issues occurred to the cause of climate change and will face severe consequences of climate change for various reasons. The facts are put to show the utility of this paper and the compatible facts written in context with the traits of the paper. The study has helped a lot to move the findings forward.

Until the country has taken measures to role the danger to be removed, it may face consequences for the future generation. It demonstrates the prime concerns of climate change by discussing the latest findings. The writing covers the probable factors and the result of climate change holding the issues found in the journey of the study. One of the most significant facts about climate change impacts is the findings of the trends of continuing productivity discussed in the results. All united attempts can be a measure to be taken seriously for preventing the environment suitable for living. It is a try to exhibit the facts related to climate change. The forecast of environmental dangers has been put forth and warnings have been delineated with the circumstantial aspect of climate change affecting Bangladesh including the primary data source area Sherpur.

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7. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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