

Climate change and vulnerabilities of women: Voices of the victims in Dhaka City

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Abstract

The query of this study is to get a scenario on the perceptions of the women about how their livelihoods have been affected due to climate change. The broader research question of this study is: What do the women say about the economic vulnerabilities of their livelihood due to climate change? The adverse effects of the vulnerability of the women's livelihoods have been investigated in the light of the livelihood framework. This research approach was dominantly qualitative, rooted in a detailed analysis of interview texts and grounded in a broader contextualisation of the vulnerable women's socio-economic, cultural, and political situation based on the livelihood framework. This research found that most women are socially and economically vulnerable due to climate-induced migration. Though their income level rises, their livelihood expenditure, especially in the case of health expenditure, rises simultaneously. However, the most alarming issue about those women is that they become socially vulnerable and have no social security. Their children mostly do not get any form of education. Food, sanitation, and social security have worsened compared to the past.

Keywords Climate change · Vulnerabilities · Natural shocks · Livelihoods

1. Introduction

Currently, climate change is a global concern for all living beings. The environmental degradation, ecological imbalance, changes in the climate pattern and so on are creating an adverse effect on the socio-economic livelihoods of the people. One of the vulnerable victims could be the low-income group of people, especially the women. Listening to women's voices about the vulnerabilities of their livelihoods due to climate change is the critical concern of this study.

Climate change and its socio-economic impact is a burning issue for scholars, activists and people of all walks of life. Bangladesh is also very concerned about this issue. A lot of academic evaluation reports, news articles etc., are being

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published regularly, though the vulnerability issues of the women have gotten a little attention. Ahmad et al. (n.d.) synthesised the different dimensions of climate change on coastal areas, emphasising the socio-economic impacts. Gupta (2005) highlighted the issues of vulnerabilities due to climate change in India's context. However, the problems of women's vulnerabilities have not been addressed there.

1.1 Objective

The query of this study would be to get a scenario on the perceptions of the women about how their livelihoods have been affected due to climate change. The adverse effects of the vulnerability of the women's livelihoods will be investigated in the light of the framework presented earlier.

1.2 What is Climate Change

The climate change phenomenon refers to seasonal changes in the growing accumulation of greenhouse gases in the atmosphere over a long period. Tackling this phenomenon is of utmost importance, given the pivotal role climate plays in forming natural ecosystems and the human economies and civilisations on which they are based.

Recent studies have shown that human activities since the beginning of the industrial revolution – manifested in fossil fuel consumption for power generation, land deforestation for agriculture, and urban expansion – have contributed to an increase in the concentration of carbon dioxide in the atmosphere by as much as 40%, from about 280 parts per million in the pre-industrial period, to 402 parts per million in 2016, which in turn has led to global warming.

Indeed, the Intergovernmental Panel on Climate Change has described anthropogenic climate change as “inevitable” because of the numerous changes observed in the temperature of the atmosphere, oceans, and sea ice and some extensive changes in the climate cycle over the 20th century.

Several parts of the world have already experienced the warming of coastal waters, high temperatures, a marked change in rainfall patterns, and increased intensity and frequency of storms. Rising sea levels and temperatures are expected to be an increasing trend.

Moreover, the potential for severe and irreversible climate and environmental changes, including the continued melting of polar ice layers, such as those found in Greenland and West Antarctica, could cause sea level rises exceeding 10 meters and harmful fluctuations in ocean currents, and increased methane emissions.

The probability that most of the global warming of the last 15 years results from human actions is more than 90%. The failure to address climate change will inevitably undermine the world's economic and social stability.

The Intergovernmental Panel on Climate Change has issued an urgent call to reduce global greenhouse gas emissions and adaptation measures to respond to anthropogenic climate change.

1.3 What is vulnerability?

Vulnerability can be defined as the diminished capacity of an individual or group to anticipate, cope with, resist and recover from the impact of a natural or artificial hazard. The concept is relative and dynamic. Vulnerability is often associated with poverty, but it can also arise when people are isolated, insecure and defenceless in the face of risk, shock or stress.

People differ in their exposure to risk due to their social group, gender, ethnic or identity, age, and other factors. The vulnerability may also vary in its forms: poverty, for example, may mean that housing cannot withstand an earthquake or a hurricane, or lack of preparedness may result in a slower response to a disaster, leading to more significant loss of life or prolonged suffering.

The reverse side of the coin is capacity, which can be described as the resources available to individuals, households, and communities to cope with a threat or resist a hazard's impact. Such resources can be physical or material, but they can also be found in how a community is organised or in the skills or attributes of individuals and/or organisations in the community (What is Vulnerability (n.d.)).

Physical, economic, social and political factors determine people's level of vulnerability and the extent of their capacity to resist, cope with and recover from hazards. Poverty is a significant contributor to vulnerability. Poor people are more likely to live and work in areas exposed to potential hazards, while they are less likely to have the resources to cope when a disaster strikes (What is Vulnerability (n.d.)).

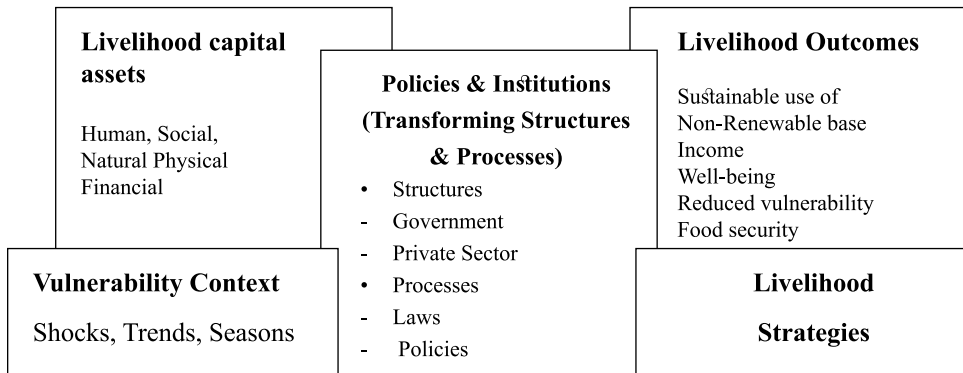
1.4 Vulnerability and women

As for vulnerability to the impacts of climate change, poverty plays a significant role. Due to the living conditions of the poor, they are often more exposed to hazards and have fewer options to avoid, or cope with, the impacts. According to UNDP, more than 70 per cent of the world's poor is female, and the share of women among the most vulnerable is significantly high. Moreover, additional factors indicate that vulnerability involves heavy gender differentials that need to be considered (Cities and Climate Change Global Report on Human Settlements 2011).

1.5 Livelihood framework

To understand the linkage between livelihood strategies and better living expectations, many socio-economic factors remain to consider. Natural, physical, human, social, financial, and political assets construct the livelihood capital assets. Moreover, the transforming structures (government, private sector) and processes (laws, policies, culture, institutions) play a vital role in utilising the livelihood capital assets. Besides them, vulnerability context (shocks, trends, seasons) is also crucial. Thus, livelihood strategies are constituted. This livelihood framework is presented in Figure 1.

Figure 1: Livelihood Framework, Pinker (1999)



1.6 Research question

This study would mainly focus on the economic consequences of the vulnerability of women due to the natural shock of climate change. The broader research question of this study is: What do the women say about the economic vulnerabilities of their livelihood due to climate change?

The sub-questions for this study would be as follows:

- a. What are the financial consequences for the women due to climate change?
- b. How does the natural shock impact the women's income level due to climate change?
- c. How does the natural shock impact the consumption pattern of the women due to climate change?
- d. How does the natural shock impact women's employment opportunities due to climate change?

2. Literature Review

Brandt and Commission on Environment and Development introduced the idea of sustainable livelihoods. Later, United Nations Conference on Environment and Development expanded the concept, advocating for achieving sustainable livelihoods as a broad goal for poverty eradication (UNDP 1997). The idea of Sustainable Livelihood (SL) differs from conventional definitions and approaches to vulnerability and poverty. It gives more attention to the various factors and processes related to vulnerable poor people, particularly women's ability to make a living economically, ecologically, and socially sustainable. So, the SL concept offers a more coherent and integrated approach to vulnerability (Krantz, 1994).

Robert Chambers and Gordon Conway (1992, p.12) proposed the following composite definition of a sustainable rural livelihood, which is applied most commonly at the household level:

A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable and can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.

Of the various livelihood components, the most complex is the collection of assets, including tangible assets and resources and intangible assets such as claims and access. Based on them, people construct their living; here, the definitions of livelihood sustainability emphasise the ability to avoid, or more usually, to withstand and recover from various stresses and shocks. The Institute for Development Studies (IDS) and the British Department for International Development (DFID) have implemented the SL concept and approach. Leading proponent Ian Scoones (1998, p.14) of IDS proposed a modified definition of SL:

A livelihood comprises the capabilities, assets (including material and social resources) and activities required for living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, and maintain or enhance its capabilities and assets, while not undermining the natural resource base.

This new definition does not include the requirement that for livelihoods to be considered sustainable, they should also ‘contribute net benefits to other livelihoods’. With some minor changes, this is also the definition adopted by DFID. The IDS team also outlined a tentative framework to analyse sustainable rural livelihoods. It has three elements: Livelihood resources, Livelihood strategies, and Institutional processes and organisational structures.

A range of differences remains among economists to explain the relationship between the environment and GDP growth rate. Some economists argue that economic growth will eventually improve the environment, despite past environmental degradation increases correlated with economic growth (Dinda, 2004, Arrow *et al.*, 1995). Others raise questions on the relation between economic growth and resource depletion, environmental damage, destruction of basic ecosystems or cause of reduction of biodiversity (Cramer, 1998, Beckerman, 1992). Considering both views, Barker (2005) partially explored this issue by studying the work surrounding the Environmental Kuznets Curve (EKC) Hypothesis. After analysing a wide range of literature on this issue, the author concluded that some industrial nations had achieved strong de-linking at least for a while and the EKC relationship seems to require the introduction of strong regulations. Some have feared that the resultant increases in business costs could reduce competitiveness.

This study has undertaken a literature review on climate change studies in cities. The literature review has also collated the key issues and the state of evidence by sector for cities. These relate to sea-level rise in coastal cities, infrastructure damage from extremes, health, energy use, water demand and availability, tourism and cultural heritage, urban biodiversity and air pollution. This sectoral analysis

shows a substantial variation in impacts with location and site. The review has also considered methodological approaches and how they can affect the results and economic cost estimates—it is essential to ensure that this type of information can be effectively used in city analysis. Several areas are highlighted to improve methods and consistency between impact assessments.

To understand the complex and differentiated processes through which livelihoods are constructed, Scoones (1998) points out that it is insufficient to analyse the different aspects; one must also examine the institutional processes and organisational structures that link these elements. It is essential that SL analyses fully involve the local people to let their knowledge, perceptions, and interests be heard.

2.1 Livelihood Approach: Gender aspects

The existing inequality between men and women within a community is influenced and reflected by the patterns of power. UNDP has recently issued a paper exploring how the ‘five steps’ procedure to program planning could be made more gender-sensitive (Krantz, 1994, UNDP 1997). CARE systematically collects data disaggregated by gender when undertaking livelihood security assessments at the community level (Rusinow, 1999). Finally, DFID’s Sustainable Livelihood (SL) framework highlights the need to give particular attention to vulnerable groups, including women, when conducting regular SL analyses, supplemented with specific Gender Analysis (DFID, 1999). In this sense, gender considerations are minimally covered in all three approaches’ analytical procedures and frameworks.

However, it is one thing to ensure that gender is being addressed in principle and another to make it possible for women to express their genuine perceptions, interests, and needs concerning specific livelihood issues in practice. Even the otherwise quite advanced participatory techniques such as PRA frequently cannot involve women to the extent necessary to get a good picture and representation of their situation (Rusinow, 1999).

Part of the problem is that such exercises tend to be organised that do not suit women’s time requirements and other practical constraints. But another problem is that by their very nature, public events tend to attract only certain types of ‘public knowledge’ that, by social definition, is generated by men and not by women (Mosse, 1994). Furthermore, appraisal methods often do not allow sufficient time for continuous dialogue and critical reflection with the concerned women — often imperative for their ability to express their views on crucial issues (Humble, 1998).

Another potentially significant constraint in this context is that SL approaches tend to take the household as the basic unit of analysis. Thus, most of the attention is on how different categories of households relate to different types of assets, to the vulnerability context, markets, organisations, policies, legislation, etc. (Rusinow, 1999). The concept of livelihood tends to direct attention to the household as the decision-making unit since it is at this level that various economic activities are combined into particular livelihood strategies.

There is a risk. However, intra-household inequalities in economic control, interests, opportunities, and decision-making power, which often have gender as a basis, are not given sufficient attention. Thus, women might figure among the poor only when they are heads of households and not when they are vulnerable, socially and economically subordinate members of prosperous households (Rusinow, 1999).

In all fairness, DFID's Guidance Sheets recognise that it is not sufficient to just take the household as the sole unit of analysis, but that there is a need for disaggregation into men, women, different age groups, etc. (DFID, 1999).

3. Research Method

3.1 Research paradigm

As the objective of this research is to explore the insights of the women about their vulnerabilities on livelihood due to climate change, this study would illustrate and analyse their voices of them regarding these issues since this study wishes to create and provide a space for the women to raise their voices and views on this issue. Hence, the investigator thinks the phenomenology¹ research paradigm best fits my study (Kane, 1995).

3.2 Research approach or technique

This research approach would be dominantly qualitative, rooted in a detailed analysis of interview texts and grounded in a broader contextualisation of the vulnerable women's socio-economic, cultural, and political situation based on the livelihood framework. This study does not lead to generalisation but more so to insights that can assist us in better understanding the particular ways the women view their vulnerabilities in their livelihood due to climate change. However, quantitative data would be collected to get an overall impression of the participants.

This study will start with a broader overview (macro) of the livelihoods of vulnerable women. Then from there, a group of participants would illustrate the vulnerabilities' characteristics. After that, in-depth insight into the vulnerabilities of women's livelihoods as they (women themselves) perceive them would be asserted.

3.3 Collection of information

Three tools have been applied to collect the information; one, quantitative tool; two, FGD; three, in-depth interview. We have collected data from Shahbag, Polashi, Kawran Bazar, Rayer Bazar, and Kamrangir Char.

A survey questionnaire was applied to over a hundred women whose living conditions have been affected due to natural shock (which would be the symptom of climate change). This questionnaire contained income level, consumption pattern, expenditure sectors, employment status, etc. In the survey questionnaire, the data on different causes of the way of natural shocks have collected and selected the

participants whose livelihoods have been changed due to climate change. From this data, stakeholders for the FGD have been selected.

Then, six FGDs have conducted. The number of participants for each FGD was 8-12. This FGD reflected an overall voice of the nature of the vulnerabilities of the women. Considering the nature and depth of the vulnerabilities of the women, interviewees have been selected.

Then, this study purposively selected seven women who have migrated to Dhaka city due to climate change. The researcher tried to investigate their perceptions of climate change vulnerabilities. During the interview, interviewees courageously open-up their minds and had confidence. The study followed an informal conversation mode (conversation with a purpose) using a semi-structured questionnaire. The interviewees did not feel the discussion was mechanical or rigid to reflect on this subject. Hence, the interviewees had a free and spontaneous atmosphere, which is crucial for expressing their views.

3.4 Organization of information and analysis procedure

The following steps have been followed to organise the information. From the quantitative tools, an overall illustration of the livelihood of the vulnerable women would be presented.

Then, the FGD would portray the typical characteristics of the phenomenon of the vulnerabilities of the women. This would lead to digging out this issue further. After that, this study would record the interview with the interviewees' consent following the standard ethical approval process.

Then the interviews would be transcribed along with the interpretive note and memos to analyse the information. Afterwards, the data/information would be coded using keywords, such as income-expenditure, food security, shocks, etc. After coding them, the investigator would extract themes corresponding to the research topic. Here, the 'analyst-constructed typologies'¹

based on the livelihood framework would be applied to categorise the information or reflection that the study would collect from the interviewees (Marshall & Rossman 1999).

4. Findings and Discussion

4.1 Case Studies

The following cases are selected from the in-depth interview:

¹ In analyst constructed typologies, the themes are created by the researcher and these are grounded in the data but not necessarily used explicitly by participants (Marshall & Rossman 1999).

CASE X1

A 60 years old widow from Lalmonirhat, a household worker with a monthly income of Tk 6,000/- migrated to Dhaka due to drought and river erosion. During the conversations, the following findings came out for that case.

Though the economic condition is better due to migration, social security becomes vulnerable, and total livelihood expenditure rises, especially regarding health, accommodation and sanitation.

The children do not get any education, although their income rises.

CASE X2

Thirty-eight-year-old married woman from Habiganj, Sylhet, a day labourer by profession (Kagoj Korani) with a monthly income of Tk 6,000/- migrated due to flood and excess rainfall.

According to her, though economic condition improves, social security becomes vulnerable due to migration.

In the case of child education, it is better to compare to the past, but other expenditures such as health, accommodation and sanitation become vulnerable and expensive.

CASE X3

Forty-five-year-old married woman, a household worker with a monthly income of Tk 5,000/- migrated from Kurigram due to drought.

Her income rises due to migration, but her total livelihood expenditure increases significantly in the case of health expenditure. At the same time, her social security becomes vulnerable.

In the case of children, the standard of living (in terms of monetary status) becomes better in education, sanitation, and food, but social security becomes vulnerable.

CASE X4

Forty-five-year-old married woman, a beggar by profession with a monthly income of Tk 6,000/- migrated from Lalmonirhat due to drought.

Her income level does not change due to migration, but expenditure on health rises and social security becomes vulnerable.

In the case of the children, food and health conditions improve compared to the past, but children do not get any form of education.

CASE X5

A fifty-year-old married woman, a household worker with a monthly income of Tk 7,000/- migrated from Lalmonirhat due to drought and river erosion.

She becomes more vulnerable both socially and economically due to migration.

Though her children get an education, their social security, food, health condition, and sanitation become vulnerable.

CASE X6

A fifty-year-old married woman who migrated from Jamalpur due to river erosion is a professional vegetable trader.

She and her family become more vulnerable socially and economically. Her livelihood expenditure rises due to the rise in health expenditure.

CASE X7

Thirty-two years old married women migrated from Satkhira due to salinity. Her livelihood condition becomes better compared to the past but expenditure on health increases due to climate-induced migration.

Her children's education, food, and health conditions deteriorated.

CASE X8

Thirty-seven-year-old married woman with a monthly income of Tk.7000/- migrated from Tala, Satkhira due to Salinity. She is vulnerable both socially and economically.

Her children's education, food, and health condition have worsened compared to the past.

CASE X9

Forty-five-year-old married women with a monthly income of Tk 12,000/- migrated from Barguna due to Salinity. Her livelihood condition becomes better compared to the past but expenditure on health increases due to climate-induced migration.

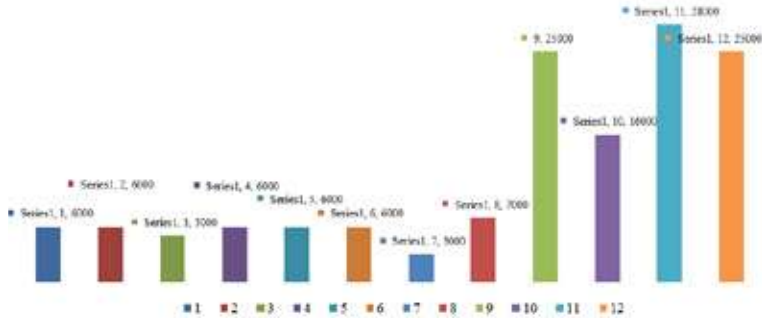
Her children's education, food, and health conditions become better compared to the past.

4.2 Outcomes of the FGD

4.2.1 Income Distribution

Figure 1 shows that in most cases, income ranges remain around Tk. 5000. However, in one case, the income level is more than Tk. 25,000.

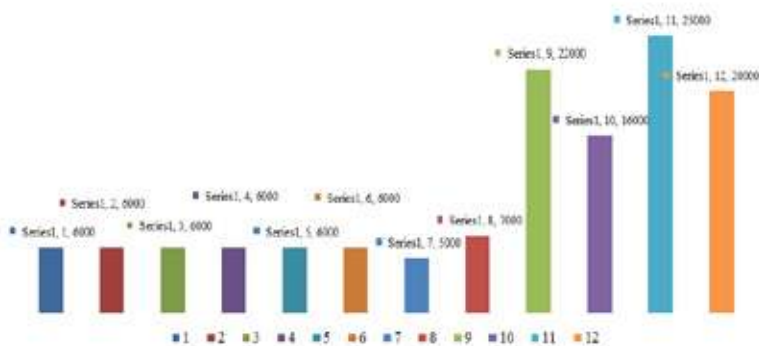
Figure 1. Monthly Income



4.2.2 Expenditure

It was observed that the number of monthly expenditures varies from about Tk.5000 to Tk.25000 (see fig. 2). So, there remains a wide range of differences from case to case.

Figure 2: Monthly Expenditure



4.2.3 Food

There was a mixed observation about their food. Some said they now have better food than before, and some deny it.

4.2.4 Education of the children

The situation is very unacceptable that most of them do not get any education, and very few get a formal education and go to school.

4.2.5 Social security

The most alarming thing during this conversation is their social security (physical). They are so vulnerable that they have no fixed shelter. They have to live in the street, footpath etc. So security is the primary concern for the women at this stage.

4.3 Discussion and Policy Implication

The low-income group in a developing country like Bangladesh is more vulnerable; women are mostly affected. Bangladesh is one of the most affected countries due to climate change. In this research, the investigator tried to find out women's social and economic vulnerability, and this study found a very exasperating scenario. Most women are socially and financially vulnerable due to climate-induced migration. Though their income level rises, their livelihood expenditure, especially in the case of health expenditure, rises simultaneously. The most alarming issues about those women are that they become socially vulnerable as they have no social security, and their children mostly do not get any education. Food, sanitation, and social security have worsened compared to the past. Achieving the Sustainable Development Goal by 2030; will be a significant challenge for policymakers without considering these women in the policymaking.

In this study, the women's problems, coping strategies, and struggles of Bangladesh were illustrated in the voice of the vulnerable population. Since our policymaking mostly follows the top-down approach in most cases, the voices of the vulnerable groups are often missing.

4.3.1 Policy Suggestion

The investigator expects that not only from the outcomes but also from the process of the study, the policymakers may get some insights from this study to incorporate them into the policymaking and application process.

The policymaker can take a different method for different types of climate change-affected people. For salinity-affected people, the first thing is to have an assurance of safe drinking water and create an alternative livelihood despite farming. The vocational training centre can be established in those areas to give them different technical and handcraft training and may provide them training in livestock farming. Govt. can arrange a soft loan for those women to start a venture to assure their livelihood income by applying the skills they have learned from the training centre. Govt. can establish different cottage industries there. If their income is guaranteed, they will not move to Dhaka as the city is more unsecured for them.

In the case of drought-affected people, food security will be the government's main priority. As there are no farming activities due to drought, alternative livelihoods should be ensured like handicrafts, livestock farming and so on by providing them soft loans and training. The establishment of cottage industries can also provide them with alternative income sources, limiting them from migrating.

Although Gucchagram is established for homeless people due to river erosion, it is not practical due to a lack of income-generating activity. So, it is necessary to develop different types of livelihood activity in those Gucchagram projects, say livestock farming and handcraft project. Many of them have a house in Gucchagram, but they have been forced to migrate to Dhaka for their livelihood.

5. Concluding Remarks, Limitations and Further to do

Climate change is a global concern for all the living beings on the earth, and this has mainly affected the socio-economic conditions of low-income women. Thus, Listening to women's voices about the vulnerabilities of their livelihoods due to climate change is the critical concern of this study.

This research found that most women are socially and economically vulnerable due to climate-induced migration. However, their income level rises, and their livelihood expenditure, especially health expenditure, rises simultaneously. However, the most alarming issue about those women is that they become socially vulnerable and have no social security. Their children mostly do not get any form of education. Food, sanitation and social security have become worsen compared to the past.

In this study, the women's problems, coping strategies, and struggles of Bangladesh were illustrated in the voice of the vulnerable population. Since, in most cases, our policymaking mostly follows the top-down approach, the voices of the vulnerable groups are often missing. This study emphasises that achieving the Sustainable Development Goal by 2030 will be a great challenge for policymakers without considering these women in policymaking.

5.1 Limitations and Further to do

This study has several limitations, and also this study explores many avenues further to do.

1. The study is based on Livelihood Framework. However, there are many other concepts regarding the relationship between vulnerabilities and. So, the design of this study has limited itself to one conceptual framework. The same subject matter can be designed and interpreted differently by following different concepts and theories.
2. The number of participants in this study is limited. The findings are derived from their insights. More insights can be found in the number of participants increased.
3. This study concentrates only on the women of Dhaka City. Further analysis can be done by including other territories.
4. There remain multiple arguments on the concept of vulnerabilities and women. In this study, the concepts of 'vulnerabilities' have been taken generally and not very clearly defined. An examination can help with a more specific meaning of vulnerabilities and women.

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