

Challenges of Char People in Northern Bangladesh: A Study on Dimla, Nilphamari

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Abstract:- Bangladesh officially declared the huge productivity of crops in recent years. At the same time population lives below the poverty line especially in the northern part of Bangladesh. The food insecurity of Bangladesh and living condition is regionally varied and depends on several factors. The tendency of natural disaster, distribution of agricultural land, access to health facilities, education, and level of infrastructure development, employment opportunities, and dietary practices are some of the significant factors that affect food insecurity and peoples living condition. People of different classes, regions, educational backgrounds, gender experience the effects differently. This paper aims at exploring the challenges of Char Women and their socio-economic circumstances in natural disasters around the year, especially in flood and drought times. The existence of the Teesta barrage and the over extortion of stones from the river bed create the riverside environment worst to live in. This study is conducted in Kisamater Char, Nilphamari. A sample of 25 Char women is collected with a qualitative theoretical and methodological ground. The case study method has been used as a main principal tool. This study reveals that the majority of Char women are unable to maintain family food security in maintaining societal gendered customs.

Keywords:- Food Insecurity; Teesta; Char People; Women.

I. INTRODUCTION

The Teesta River supports the livelihood of more than 20 million Bangladeshi people. Some planned hydropower projects and dams in Sikkim, the Teesta Barrage in the west of Bengal for irrigation decrease the water flow that worsens the potential water resource condition. There is a continuous dispute Teesta reflects India's construction of the Gajaldoba barrage upstream of Dalia and reduction of flow in Bangladesh in the dry season. The sudden water release in

the wet season hampers the indigenous livelihood mechanism by creating flood and river erosion. The river basin people, char-people rely on the natural system. Any regulatory system of natural flow hampers in habitat, flood control, fisheries, public health, groundwater level, sanitation, cultural meanings, and values. Changing climate creates conflict, social stress, food insecurity, water insufficiency, and change in crop pattern. The Teesta Barrage causes several disasters that create disturbance in normal life, especially food sufficiency. The local people are habituated to disasters but climate change and environmental degradation challenge the coping mechanism.

The community indigenous knowledge becomes insufficient to solve the new human-made disaster puzzle. These populations living in the river basin, especially near the Teesta Barrage remained to detach from the people of the mainland of Bangladesh. They have their own lifestyle, own land distribution system, socio-political hierarchical system, own land, own unity, and own economic system. Many national and international organizations have been implementing different projects for the overall development of quality of livelihood but still changes. This study is conducted in Kisamater Char, Nilphamari. These populations living in the river basin, especially near the Teesta Barrage remained detached from the people of the mainland of Bangladesh. They have their own lifestyle, own land distribution system, socio-political hierarchical system, own land, own unity, and own economic system. Many national and international organizations have been implementing different projects for the overall development of quality of livelihood but still, changes are not visible. The inner mechanism of water development projects of the Bangladesh government and the internal mechanism of the river basin under the control of 'Mahajan' or 'local political leaders' are two influential factors in this regard. The reason is that without understanding the social dynamics and social mechanism of river basin people, developmental projects are

implemented that results only benefit the richer population who controls the river basin area. The reason is that without understanding the social dynamics and social mechanism of river basin people, developmental projects are implemented that results only benefit the richer population who controls the river basin area. In this context, our analysis of actual challenging coping mechanisms includes the poverty level, nutrition inadequacy and changed crop cultivation pattern, the unequal and private access to natural resources.

II. LITERATURE REVIEW

Paul (1984) explores the farmer's perception of the flood (normal and abnormal flood) in the jasmine riverbank area. Although Bangladesh is both flood dependent and flood vulnerable, the damage of crops, properties and human life has become a crucial issue. Historically, farmer's perception of flood refers to the sudden water level rise, heavy cloud formation, heavy rainfall, verbal information of rapid water level change. Agricultural adjustment defined human activities intended to reduce or minimize the negative impact of extreme events (white, 1974). The crop pattern and crop availability determine the farmer's choice of cultivation. As jute and Aus cannot tolerate exclusive rainfall, farmers comparatively choose Aman for its persistence capability. In the time of the flood, adjustment practices of farmers such as placing bamboo sticks around fields are adapted to the vulnerable situation. The severe flood of 1974 causes grist damage.

Paul (1984) also said about the pre-flood precautions including placing bamboo sticks around the field, building machan for animals, moving to higher grounds for safety. It also includes the interculturing of Aman and Aus with the protection from water hyacinths, movement by boats. The choice of farmers based on the flood sensitive Aus (harvested in July, August) and flood-tolerant Aman (harvested in October). In a normal year, without drought and flood, both crops can be harvested.

But in other situations, at least one crop can be harvested. Paul (1984) also explores the interconnection between farmer's perception and spiritual being's satisfaction or anger. The local people believe only Allah knows what will happen and when the flood comes. Paul observed local people are ready to adjust to normal floods but abnormal floods make their life insecure. (Paul, 1984:3-16).

In my concern, the villagers of the Teesta River have many alternative crop choices in changed soil gradation. They cultivate corn, peanuts in sandy soil. Farmers take many coping strategies to adapt to the changed condition.

Barenstein (2008) shows the capacity of indigenous communities of maintaining the natural resources and solving dangers with collective efforts with an example of the haor basin, in northeast Bangladesh. Although international development agencies, governments, and NGOs take developmental projects for promoting the progress of rural to less developed areas, indigenous communities hold/doses

their own potentiality of maintenance of public irrigation system.

The resource development projects promised the maintenance of natural resources, but local participation organization facilitates much in irrigation, cultivation for both nature and human being. Barenstein (2008) shows the uncovered fallacies of participation in water resource management in rural Bangladesh. The collective interest motivates people to organize such type of institution. In the most conservative zone like the haor zone, participation organization is established by orthodoxy. Olson, a touch for collective action of goal fulfillment based on group interest. Here Olson explores these goals may relate to tangible commodities. Group goals and group interests are subject to solving such dilemmas. He proved the relevancy of his theory.

Wade (1998) found that collective action is closely linked to ecologically determining risks that menace the local production system. Generally, the haor basin of the basin of Sylhet in the dry season can produce one (winter paddy) crop can grow, while the whole of Bangladesh can produce three crops per year. The local community reserves water in numerous khals, beels, and dobas. The haor basin is rich in fish and water resources but government ownership of haor allows the only leaseholder to get access there. Drainage practices are strictly regulated through informal rules and local matabbars (informal village leaders).

The inequality of power distribution locally is based on the inequality of land distribution. Agricultural lands are unequally distributed among the local people. Self-cultivation, share based cultivation of crops are common. Hydraulic infrastructure strategies such as irrigation canals, jangals, cross dams, embankment cuts. Embankment closure help to cope with extreme weather.

Another common Indigenous water management technology all over Bangladesh is a cross dam for preserving surface water due to the domestic use of irrigation fish cultivation. Cross dams are built with bamboo mats, banana trees, bamboo poles. People voluntarily build cross dams per year. The removal of cross dams ensures the drainage of excessive water in the rainy season. The indigenous people protect their crops from the flood by the technique of drain of the monsoon. Although embankment cutting is referred to as a crime, people do it for protecting their crops, community approval of both general cultivation and matabbars allow to do it.

In the emergency of 1996, the collective effort to protect boro crops was executed by community people. Ignoring the announcement of govt. engineers organize the team to strengthen the vulnerable embankment portion with sandbags, bamboo sticks, mats of bamboo, and earth. Village funds known as samajik funds are collected for supporting common interest and spiritual rituals ceremony. Here, siral was appointed to pray for the wellbeing of paddy and their survival as a whole. Village donations are used in riverbank contraction or jangal making. There was an informal pulse

for water resource management and lightly respected rules aimed at regulating fishing practices. Fisher's interests must be protected by informal rules. Matabbar ave responsible for the overall management of common water resources, hydraulic infrastructure, and village fund, etc. traditionally, village communities take an initial stop for collectively protecting themselves. (Barensteine, 2008:4-18)

Banerjee (2010) used 'creative destruction' for analyzing the effects of riverine floods on agriculture productivity in Bangladesh. Although disaster caused severe damage to the physical capital stock, it may return with greater efficiency in the long run. The frequency of climate disaster is positively correlated with long-term accumulation in human capital, TFD growth, and GDP per capita growth. (Skidmore and Toya, 2002).

Disaster may help one to adapt with new upgrading technologies, new food resistant seeds, etc. Natural disasters that affect technology absorption can take place only in countries with high levels of per capita GDP. NOY and VU(2009) long presented research on the long-term effects of creative destruction of disaster by estimating low esteem events can generate a period of renewed economic activity and investment in the short run. The lethal disaster destroyed the capital in Vietnam but it had a positive impact on economics. After the years of the regular flood "DISASTER YEARS" 1987, 1988, Bangladesh is divided as 'flood-prone zone' and 'non-flood prone zone'. (Banarjee, 2010:2-13) in my concern the fertility of the soil of Bangladesh are the reaction of the regular flood.

Campbell (1999) wants to discuss food insecurity by two notions of the ready availability of nutrition adequate and safe foods as well as access to get food in a socially acceptable way. Risk factors that are responsible for food insecurity affect people's household resources and result in hunger, malnutrition, and other negative quality of health and quality of life.

By referring to the two dimensions of food insecurity, Campbell shows the insecurity of enough food for a healthy life and socially acceptable way to gain it with the opportunity of different food choices.

In the industrial country, the measurement of food insecurity depends on financial constrain and acquisition, consumption. At the community level the food market availability, access to food both financially and physically noticed. Monitoring the importance of physiological mechanism in food and nutrition, Campbell recognizes malnutrition, poverty, poor diet, family disintegration, famine, mental stress as potential consequences. (Champbell, 1999)

The linkage of that area with this concept allows seeing some similar criteria. Most of the people are the victim of malnutrition .anger, tension shows as stress and low rate of education reflect the severe condition of food inadequacy and food insecurity.

Paul et al. (2013) clearly show Monga as seasonal poverty (et al and era 2008) and clinical phenomena .the existence of MONGA prevails in the northern countryside of Bangladesh affecting mostly agricultural day laborers, landless and marginal farmers, women, and child and aged person. The coping strategies are also highlighted as reducing quality and quantity of food, choosing alternative foods such as consumption of wild vegetables and less nutritious items.

In the months of mid-September and mid-December (Bhadra- Kartik) acute deprivation of food and starvation affects people's health. People lead their lives by borrowing from neighbors, friends, relatives, NGOs and selling productive assets such as cattle, chicken, and tress. People of the affected area change from their occupation like non-firming occupation, vendor, a rickshaw puller, fishing, day laborer, etc. In some extreme cases, people take advance payments for selling crops due to starvation. Seasonal migration, social disruption, and dependency on relief are the most common features of Monga affected area.

Human adaptation capacity is a complex and dynamic process, linking with the many social and economic variables. Monga affects child education and nutrition. However, Paul concludes with the relationship of occupation with Monga. He says government job holders get much to relax in Monga.

III. METHODOLOGY

The study has adopted a qualitative strategy and data was collected from FGD and case studies. The Tatipara village belongs to Dimla Upazilla, Nilphamari. Five case studies with targeted respondents and another twenty participants are units of analysis who are the head of their household. The purposive sampling technique has been used based on the demand research type. For secondary data newspapers, books, journal articles were reviewed. Contacts are done with the Upazilla chairman to ensure favorable conditions in the research area where Indian border guards visit the stateliness.

A. Selection of the Study Area at Preparatory Stage:

Teesta is a mighty river that covers a long area. The Teesta Barrage causes suffering and severe damage in many areas of Nilphamari, especially Dilma Upazilla face too many challenges for food insecurity due to too much disaster frequency. In all the disaster-prone area, we have selected a village named Tatipara, Kismater Char of Dakkhin Kharibari Mouza of Dimla Upazilla, Nilphamari. It is nearest to the river.

B. Study Area:

This area of Tatipara village is in the Dimla Upazilla under Khokharibari Mouza. This study place is so remote that situated beside the India-Bangladesh border area. The people of Tatipara village face extreme flood and drought around the year. Local people work as stone collectors and some involvement with agricultural work that depends on the natural environment and calamities.

IV. ANALYSIS AND FINDINGS OF THE STUDY

A. FOOD INSECURITY

Food insecurity, as regarded as one of the needs of human rights, is facing crucial challenges in the Tatipara village. The inhabitants are bound to fight food deprivation, malnutrition, hunger. Although this region continuously remarked as the zone of 'Monga' of 'hunger', the people of this area have endogenous knowledge to fight with that. But this valuable knowledge is incapable to fight new challenges as these climate changes are not natural. Moina and Hamida express their view that the traditional crops are not cultivated as production is not well. Cultivated agricultural lands are destroyed by riverbank erosion. These lands near to Teesta River continuously transformed as sandy land (Char). The chars are not fit for crops mainly for rice production.

Azima and Kalpona expressed their opinion that their family has to suffer from inadequate food. They also fast in the time of waterlogging and severe drought season. Reduction of meal frequency and meal size leads their life insecure, vulnerable, and unhealthy. Chronic poverty, high price market, and unfavorable climate make uncertainty, unavailability of food, differential access, instability of market hampers their proper nutritious health status. At the household level earning money and having access to food is so tough as most of the inhabitants are small farmers and day labor. An inappropriate amount of vitamins and minerals added under nutritious, underweight. Regular disease probability. Kolpona added in the time of unavailable food they collect aquatic foods such shapla, shalok, shak and kachu, aloer kondo, bamboo roots. But continuous climate change hampers the natural food availability and food chain infrastructure. The inhabitants of Tatipara village have less access to the market due to their poor affordability, low income, and poor purchasing capability. The utilization of food in a household depends on the gender perspective. Food safety and nutritional values and food choice of women are devalued. The cultural system provides the best and quite good amount of food for males while women get the least amount of food. Instability in the market resulting in food price spikes can cause transitory food insecurity. Hasanur and Azima told about the consequences of food insecurity. Disease spreads, famine is quite known to them. Child's education and growth are hampered. Inhabitants also adopt many socially unacceptable ways to restore emergency food supplies such as stealing. All the participants agree that the Teesta Barrage hampers their normal food production and causes food insecurity, while the Government and NGO initiatives are less capable to improve their present condition and degradation and climate change are the major risk factor for food insecurity.

B. INDEGENOUS COPING STRATEGIES

Indigenous knowledge is transgenerational valuable learning that human learns in an unconscious mind in our socio-cultural area for protecting themselves. This knowledge system, skill, technologies are known as 'coping strategies'. These mechanisms are based on available

technologies and the choice of skills that are applied to a variety of community and individual properties that can change during the course of disaster.

C. INDEGENOUS FLOOD PREVENTION AND COPING STRATEGIES

Local people both from char and river basin practice their own adaptive techniques depend on people's socio-cultural-economic circumstances and characteristics of the flood. In this study, various preventive strategies are found from the shared opinion of the FGD participants. The practices include the placing of barriers around the house, raising the platform of the house, creating a barrier with water hyacinth and thatch, bamboo sticks known as thekha (barrier). Bamboo or wood made machan or potato in the upper part of the shelter. The available wood, bamboo, water resources are used for these indigenous adaption techniques. Reducing the number of meals and relying on inexpensive food, selling assets, all are added to the list of adaptive techniques. Fatema and Johora tell that they borrow and sell their assets to mitigate the negative impacts of the flood. The char people and flood bounded people use boats made of banana trees for communication. They have a common tendency to depend on relief in the crisis period. These preventive and mitigating strategies give them the strength to fight regular natural disasters. Raising homestead is another option to protect shelter to a safer place during the worst cases. These techniques are used for human shelter and livestock shelter.

D. LOCAL MEDICINE PRACTICES DURIND AND AFTER FLOOD

As waterlogging and flood are regular incidents, local people have their own strategies to face many water borne diseases, skin diseases, cold, dysentery, diarrhea, and fever during and after the flood. Nayeb Ali and Nurjahan inform that majority collect medicine from the local Bazar without any consultation of a doctor. Herbal medicine is very popular based on indigenous knowledge to be cured from diseases. Tulsi (*ocimum santum*), Hartoki, Bohera, Basak (*Adhatoda vasica*), Pudina (*menthe Arvensis*, *Trifola*, and leaves from local trees for making medicine, as Akondo leaves for pain. The use of the Rasun (Garlic) and Ada (Ginger) with hot oil is famous for curing diseases. Gandon vadal, pudina, and Thunkuni are used for stomach problems such as dysentery, diarrhea.

E. CHANGES IN EATING BEHAVIOR

People generally face scarcity of food and try to cope up with it by reducing the number of the meal, depends on the less expensive (flatted rice, jute leaves as a vegetable). In this study, Nayeb Ali informs us people eat khudi (one kind of power of rice), shapla, shaluk.

F. COPING WITH DROUGHT

It is famous for drought. People do not have work, no agricultural work for cultivation. The males of these areas go outside as rickshaw puller for seasonal work known as 'Mafij' and return to their home in the normal season. People start from the inadequate diet then depend on less expensive food, then starvation, all techniques are applied.

Women sold their own assets, tress, furniture, jewelry for survival, and work for others for daily food. Women collect wild plants for family diets, cattle sold, other livestock sold, and the land piece sold all are common consequences of drought. Government initiatives are so late and insufficient that the community cannot run flexibly.

G. NO ALTERNATIVE SOURCE OF INCOME OF TATIPARA INCOME

Tatipara women expressed their helpless condition due to drought and males of their household bound to alter their traditional occupation. Women who work in stone collection become the patient of many known and unknown dust allergy.

Who Takes the Preventive Most?

Family is a fundamental social unit for reducing risk. The family friends, neighbors, extended kin relations are the network for exchange, mutual assistance, and the social contract. Women and older persons with their knowledge collect medicine, food, and take initiatives for survival. Women collect energy, fuel and make portable stoves for cooking. The burden of pure water collection for drinking and take care of ill, disable, old family members, is the culture-based role of women. Here, coping strategies, adaptation techniques are depended on class, social status, and economic capabilities. Very often poor, marginalized and local people of disaster-prone zones suffer most, take shelter in the shelter home.

H. INDIGENOUS KNOWLEDGE OF RISK PERCEPTION

Risk perception varies from community to community. In Bangladesh, the riverbank people have their indigenous knowledge of upcoming floods, tornados, drought, scarcity of fishes, etc. From the discussion with local and especially with many old aged villages, it has been found that people of this village get the previous assumption of risk by pointing the position of stars in the sky, the black clouds emergence in the northwest side of the sky, from the cultural knowledge of bangle calendar, and many other ways. They set up bamboo in the river for pointing out the rise or down of river water. Local views and indigenous knowledge of risk perception are incapable and insufficient to cope up with these new changes. The Teesta Barrage controls the normal flow of water and sudden water leaving in rainy make their life vulnerable and make them less capable to fight with these unpredictable dangers.

I. NATURAL RESOURCES OF WATER

As a part of the Ganges river basin, the Teesta riverbank contains too many natural resources that are bestowed with mighty Teesta. The Transboundary River meets different agricultural and industrial needs and a high level of water dependency ratio of 75.5 percent. Natural resources face challenges due to different infrastructure projects (hydroelectricity projects, dams). Different bilateral

and agreements regulate regional water sharing. Water is now 'emotive and politically changed' ignoring environmental safety, common needs of downstream people. Teesta is a snow fed river with several glaciers and glacier lacks in an upper Sikkim region that travels at high velocities with large quantities of debris and sediment. A big area of the global biodiversity hotspot, with a rich variety of endemic flora and fauna. In Bangladesh, the Teesta is crucial to meeting the agriculture and irrigation needs of northern parts of the country that are water scarcity and drought-prone. From the argument of local people, I get the Gazaldoba Barrage upstream of Dalia has noticeably reduced the water availability in the dry season. The community demand for farming, irrigation, fishing, which are crucial, is undermined. The representatives of these communities describe changes in the river and riverbank sides over the last 20 or 30 years. They notice increased sedimentation, siltation of river, braiding, and the growth of the chars in the river beds.

These changes affect heavily flora and fauna and result in flooding and riverbank erosion, many families are relocated as a result. The elderly Nayeb Ali said the quality of silt and sand has increased in recent years. Navigation faces difficulties due to the fragmentation of the river caused by siltation. Reduction of rainfall, water scarcity results in depletion of the fish population, loss of species, mohasoul, borali, and local varieties as bagar, piyali which are once available and plentiful, have become increasingly rare. Local traditional fishermen of Tatipara now tend to leave their customary occupation, as the river is not plenty of fishes. Teesta is the lifeline for irrigation, navigation, agriculture, farming, and fishing. The structural policies of water development projects hamper the productivity of the Rangpur division which is the poorest zone of the whole of Bangladesh. Lack of insufficient water, Tatipara villagers use to collect water by motor, as a result, they have to depend on groundwater by spending money. The cost of agriculture significantly increased here. To be very specific, nature gives a natural resource to this riverbank stone, sand. The poor previously collect stones hand by hand and now some Government accepted contractors use drazing machine for stone collection and sand. The local people's access is denied strictly in Tatipara village as well as other areas. These people collect stones secretly and sold them to primary stakeholders. The stone collection process involves great paradoxes and steps of stakeholders, from the primary stakeholders to the secondary stakeholders and a big business racket. The stone collection is a clear example of political economy that shows differential access to natural resources. The local elites, chairman, member, influential villagers, and political personalities have access to natural resources. Their access to natural resources is clearly unethical but somehow socially acceptable as the poor and marginalized work as the day laborer for local Mahajans and chairman.

TABLE 1: THE LOCAL CROP PATTERN OF TATIPARA VILLAGE

| Summer | Rainy | Autumn | Fall | Winter | Spring |
|--|---|--|--|---|--|
| Boishakh-Jayesho (Mid April-Mid June) | Asharh-Shrabon (Mid June To Mid-August) | Vadro-Ashbin (Mid-August To Mid-October) | Kartik-Ogrohayon (Mid October To Mid-December) | Poush-Magh (Mid December To Mid-February) | Falgun-Chaitro (Mid-February To Mid-April) |
| Rice (Aman) Chili Corn Wheat Peanut Jute Sharno Rice Borno Rice | | Chili Corn Onion Garlic Peanut | | Corn | Onion Garlic (No Special Production This Time) |

All time cultivated crop: Corn, Onion, Garlic, Chili, Dhania, Kalizira, Tomato, Potato, Brinjal etc.

What are the Changes Taking Place?

As the quality of soil changes and char lands are increasing people are targeting to cultivate some species that are suitable for sandy land. Corn, wheat, onion, chili, peanut are the main harvesting crops. Aus crop gives lower production. At least 20-25 years ago, people cultivate rice as their main crop. Although regular inundation took place, farmers got much production of rice. But new changes in soil and water scarcity bound people to leave rice and took others.

HOW THESE NEW FOOD/CROPS CULTIVATE SUPPORT FARMERS:

New crops create a scope of income opportunity. Displaced and poor people cultivate char lands and become benefited. Azima and Nayeb Ali said the powerful or influential get control over char and the poor work as 'adiyar'.

J. QUALITY OF LAND

As the Transboundary River, Teesta is controlled by development strategies, natural quality of soil has changed. The quality of soil is changed due to scarcity of water, water diversity projects result in water scarcity in the dry season, and damage the local ecosystem and reduce productivity. The fertility of land changed, it is the argument of local people of Teesta Barrage. The fertile land is transforming itself into sandy and low water-holding land so production quality and quantity both have changed highly. Saidul and Serina told that local people previously cultivate rice as a major crop, but new challenges of productivity force people to cultivate crop and peanut in the sandy zone (char) in that area. Expert opinion express that water sharing with India is crucial in achieving food security and sustainable livelihood in Bangladesh. Agriculture land and its quality in Bangladesh, especially in Nilphamari totally depended on the availability of freshwater, for irrigation, Teesta rivers water, and monsoon rain. Groundwater depends on seasonal rainfall. Arsenic havoc increases much demand for the Teesta River freshwater. Scarcity of water influences regional food production. It also results in famine, less food production, deforestation, arable land reduction, and overall

landscape changes in this Tatipara village area. The seasonal food crisis of this Tatipara is known as Monga. This type of food insecurity makes people ecological vulnerable and economically weak and income deficiency, unemployment is the consequence of it. As the quality of land changes, the environmental refugee is increasing rapidly. As the quality of land is unable to meet the demand for food, there remains no alternative to turn occupation in other sections. Azima told that the sandy land perfect for peanut and other sandy adjustable foods.

K. WATER SCARCITY AND FOOD INSECURITY

Bangladesh is known as a country of rivers and has a long history of struggling with floods, a tropical cyclone. Seasonal water problem and scarcity tackled with indigenous knowledge techniques but the growing scarcity not only of local people but also of the whole country. The water scarcity in the northern zone of the Teesta River has a direct relation with the gap between demand and supply locally during the dry season. Water scarcity hampers human consumption, food production, irrigation, transportation, biodiversity conservation, etc. Water scarcity in the dry season bound people to get attempt to use ground level water for irrigation. From Shahina and Mafiz the people of Tatipara village face too much problem in the dry season (months of December to May). This water stress is caused by very low precipitation, high evaporation, and very little water in the river. The worsening situation is increasing day by day and turns the situation alarming in the food security system. Some people of Tatipara leave the farming occupation and adopt new occupation in other (Zilla Shohor) districts and capital. Drought severity reduces crop production. Nayan Miah said that is quite expensive, whole villagers are self-sufficient with natural resources in previous days.

L. WATER POLICIES OF BANGLADESH RELATED TEESTA RIVER

Water is a contested resource, as it has many implications and multiple sources of gaining ecological, social, and economic benefit. Stakeholders with the power of politically contested techniques achieve differential access to natural resources of water. Although the water governance of Bangladesh argues about the moral appeal and ecological necessity, it gives priority over economic necessities. Water

management, distribution, usages all are questionable and some social protests of dynamic civil society institutions, groups of ecological safety raise their voice to consider the potential necessity of water depended on communities. The water politics of Bangladesh is related to the relationship between its neighboring countries. Bangladesh is a country downstream, it has dependency over other South Asian countries like India and upstream countries. The relationship between Bangladesh, India historically be difficult due to political tensions and regular armed conflict in the border. Bangladeshi culture and livelihood pattern is so closely related to the river. Numerous bilateral treaties and agreements regulate regional water sharing and infrastructural development (dam, hydro political power) dominate communal rights over the water. Although the Indus valley treaty of 1960 is renowned as a landmark treaty, India continuously violates its rule. In this complex geopolitical scenario, the situation of water resource management and utilization of shared transboundary water resources is getting worse day by day. India as a country of upper stream position gives a limited space of accountability, transparency. Bangladesh Government also considers these needs as peripheral demand and given less attention. A series of development activities on Teesta involves a series of cascade dams for hydropower generation in the Sikkim state and violates the human right of Bangladeshi people on Teesta water resources. Hydroelectric projects aimed to produce a huge amount of electricity. India used to divert Teesta water for their own water necessary for the irrigation of 30 million hectares. In Bangladesh, there is a proposed irrigation plan for the northern part of the country aimed to increase agricultural production, food security and employment opportunities, etc.

It covers Nilphamari, Dinajpur, and Rangpur division and Lalmonirhat, Thakurgaon. Dalia Barrage in the Lalmonirhat district played a crucial role as canal head regulator, flood embankments, irrigation, and drainage canal. It reduced the canal availability to northern areas. Bilateral negotiations and the idea of both consequences of unequal power relations between two states.

M. HEALTH PROBLEMS

River basin people commonly suffer from water-borne diseases like diarrhea, cholera, dynasty, etc. When sudden and unusual floods and waterlogging happens, then people suffer much. Sanitation problems and collecting pure water and available food for family members become acute. Women as a pride of the family, have to face the problem of sanitation problem. They have to go away or distance place for a toilet. Women of Tatipara village told they use boat made of banana tree (Kolar vela) to go to toilet. Women, children, the old, disable suffer most from this climate change. Severe old and severe damage not temperate disturbs the normal way of life. Women in a discussion of their health problem told that they face a severe problem of unusual menstruation, RTI, Acidity, skin problems, etc. The respondents added in severe conditions of climate, they face common menstrual problems, lower abdominal pain, heavy bleeding, white discharge accompanied by abdominal

cramps, irregularity of menstruation, etc. In a question of who suffers most, Kalpana and Mafiz told that women, children, old suffer most. But Shahina, Sharifa, Saidul told that they thought males suffer most because the male had to go outside from the home. Males cannot remain silent both in a high temperature and in severe cold. They have to go out for income and on the other side women have to keep in safe place and women have to do cooking just with what their man income for the family. When women become a victim of fever, cold, asthma, RTI, and various gynecological diseases due to malnutrition, unhygienic sanitation practice, and lack of awareness. Rural women almost become a vulnerable section of the society and suffer from ill-health. Enamul Haque and Abdul Hamid express that they are too much tried to see their women ill who always suffer from diseases. In the study, it has been found that some gender access to medical treatment and medicine. Women inform their parents or husband about the illness lately. Men do not buy medicine from the bazaar or take the women to the hospital for treatment unless it becomes a critical situation. Women claim that they cannot save themselves from severe cold waves in summer, as a result, cold, Ashma and other respiratory diseases troubles their life. The miserable condition of women's respiratory health due to malnutrition and unusual life condition. Azima express, she did not get enough food although she was pregnant, from her mother-in-law. Her husband and in-laws sent her back to her father's family. Shahana told that women rarely go to the hospital for treatment and childbirth or pregnancy. Traditional birth attendants (local dai), local Kabiraj give them treatment and involves the risk of health in their future life. Local people often find alternative treatment with spiritual healers (Kabiraj), herbal treatment, etc. These healers give them Tabij (spiritual treatment) pani pora, and some requirements to follow in their daily life. Tatipara village is too remote that government does not allow electricity service here. The transformation and communication system is too bad that people cannot move to the hospital anytime. People collect medicines from the local Tista bazaar and sometimes visit the parallel doctor (homeopathy doctor) for treatment.

No government clinic and private hospital in Tatipara village. People have to go to Dimla Upazilla health complex for treatment. Here, two nurses and a doctor visit it irregularly and send all patients to Nilphamari Sadar hospital. Female health workers visit the area 'Tatipara' rarely but visitors for telling about hygienic hand wash and family planning but elders (Murabbi) do not tell to lessen her.

N. CHALLENGES TO NEW RISKS

Traditional lifestyles are at the risk of new challenges for Tatipara villagers. In the discussion with villagers, it has been found that various changing patterns in the village lifestyle. From their argument, it has been found that significant changes in this area and their lifestyle. People were used to cultivating some traditional types of rice, although the land was at the risk of inundation or flood regularly. When the Teesta barrage was built up the natural lifestyle become affected. Non-seasonal and sudden floods

create uncertainty in their life, crops, and livestock. Traditional crops like vajoi rice (one kind of regional popular rice) were cultivated. Water resources like borale, blam, pangash, puti were available. Local people are used to fighting with seasonal difficulties. But now water control and management now at the head of the women and upstream country. Farmers used cow dung, and Sobuj Sar (compost) fertilizer, and natural pesticides to cultivate their crops. Now farmers use chemical fertilizers from the market. From human natural manufacture, people turned to market sold chemical fertilizer and pesticides. The irregular flood and water scarcity troubles crop production. Abul Miah and Abdul Hamid told that rice, wheat, corn need sufficient irrigation for good production. The crops face trouble and crop production is destroyed. Abul Miah crop faced severe damage due to lack of proper rainfall and water scarcity. Unseasonal and sudden rainfall with heavy thunder and heavy stone raining cause severe damage. Buying water from motor per hour increases production cost. River erosion increases cause damage day by day. In the previous 2 years, it takes 20-25 hectares. So migration occurs and people take shelter in both districts and migration. Ground-level of water is decreasing day by day. Food challenges take place in critical condition. At the family level, male members of the family transfer their traditional occupation. A tendency of becoming a rickshaw puller, day laborer is highly noticeable. Sharifa and Shahina expressed a group of traditional families of fisherman changed their traditional occupation due to lack of water and fishes in their river water. Without any natural flow of water, they do not get enough fish. Two families are shifted to Sadar Nilphamari, they work there as rickshaw puller and day laborer. These new risks affect the community life, traditional and economic life.

O. FERTILIZER

Traditionally, the villagers of Tatipara use their indigenous knowledge of fertilizer making but their practices face serious challenges due to the change of ecosystem. In an ecosystem all variables are interrelated, changes in water flow and water management destroy the whole food chain of Tatipara villages. Two types of fertilizers are used in this village:

P. ORGANIC FERTILIZER

Sharifa and Kalpana, Abdul Hamid told farmers to collect gobar (cow dung), vegetable's extra roots, daily waste foods, gasher chapa (peat) in a specific place to make compost fertilizer. The sources of organic fertilizers are the field where livestock pasture around, the livestock shelter, animal waste from slaughterhouses, plant waste from slaughterhouses, plant waste from agriculture. In previous days, farmers collect cow dung and animal use to make natural fertilizer. The farmer leaves the root of the crop in the field for making the fertilizer. Kacha pata, chai all are used for natural fertilizer.

Q. CHEMICAL FERTILIZER

As the land grade and size are both low and small, farmers have to cultivate in a good manner for harvesting a large amount of crop for gaining economic solvency.

Science gives farmers the way for huge production. Euria, potash is used as chemical fertilizer.

The demand for foreign seeds: Rural people have their own way to produce seeds and naturally preserve them. They have their gudam ghar (store) for seed preservation. But nowadays the preservation of seeds and utilization face too many challenges. The new seeds of a foreign country are introduced and assured as better productivity and ability to meet peoples demand. So native garlic, onion, and rice seeds facing challenges. If people produce potatoes, they choose Holland's seed and other foreign seed that gives the big size and better production. But native indigenous seeds were available and used on a trans generational basis.

R. COMMUNITY LIVELIHOOD

In a study of Tatipara village, most inhabitants are poor and work as adiyar (leaseholder) of others land. In the contact of ¼ production of crop and yearly contract, they get the lands. Some people have their own lands. Some people have their own land who cultivate by themselves. Before 20/25 years all have farmers and having their traditional occupation transformed from generation to generation. But significant changes are taking place in this village. Young and male are targeting to swift their traditional occupation. Day laborer, a rickshaw puller, van puller are the targeting occupation. In the crisis period, all of the villagers work as a unit to fight. They all constructed the junjankha dighi sides that stop the excessive water.

S. EDUCATION AND HAND TO HAND TO MOUTH LIVELIHOOD

In the whole Tatipara village area, there is only one primary school and two teachers. The school is contracted both for education and a flood-affected shelter home. Azima, Sharifa, Abul Hamid all others tell that this is the only shelter home of their total area. The existence of Gunjankhaa dighi and its bank is the bank is less structured. It is considered a major threat for them, especially for the rainy season. Nayeb Ali, the retired master of the primary school, told about the comparatively poor condition of the school's result than others. As most of them are 'adiyar' and their income level is too poor that they cannot run their child's education properly. The family needs manual labor for livestock care, energy collection. Especially girl child is assigned to do household chores. So village children do not get the proper opportunity for higher education, while food is not available for the household level. When the village chronic poverty and food insecurity completing higher education is a dream. But some families who can bear the afford education sent their children Sadar college and Rangpur for higher education.

T. LOCAL WATER POLITICS

Local hydro politics is related to village politics. Water is the major necessity for crop production. Those lands of Tatipara is near to the river, they get much access to river water. But those lands are in a much distance of river remain to depend on the shallow machine and (locally called boding machine). They purchase water by the hour. They have to buy diesel for purchasing a motor for irrigation. Those who

can bear afford this cost get much water for irrigation. Here influential and rich (who have a huge amount of land and capital) get priority overall small adiyar (small farmer). In this Tatipara village, Nayeb Ali, those who have much more capital and land can purchase water property than poor and small farmers in the season of irrigation. The location of the field is also necessary. If the first place location is not permitting passing water, the next field holder faces trouble. Water scarcity makes them quarrel, sometimes cases are filed against them on Thana.

U. NATURAL VULNERABILITIES

In this study, It has been found that natural disasters overall the year make the villagers' lives vulnerable. In the summer season, they face heat wave, kalboishakhi, drought, water scarcity, etc. The heat wave hampers health and crop natural adaptive capabilities. The major problem of summer is the kalboishakhi jhar (summer storm) that damages the crops severely. In the rainy season, the villagers face regular and sudden floods or water logging when India releases water in the rainy season. It hampers the livelihood of river bounded people. Riverbank erosion is the acute problem of this village. In this village. A large number of people lost their household land and agricultural land to riverbank erosion. Nayeb Ali got 40 bigha land of paternal property but riverbank erosion took all. 'humra dui vai baper sompottir 40 bigha koe paisino, ei nodi make soboraha kore dilo'. Riverbank erosion makes refugees.

V. INFORMATION ACCESS

As the area of Taripara is a riverbank side Government and other private electricity do not want to invest here as result television channels and satellite challenge are out of network. No solar system is used for electricity production. The poor cannot buy the battery and other television for entertainment and information. These villagers remain deprived of information of weather forecast, or any emergency news of weather. Local chairman, member, no one help to get this news to villagers. Although males have access to the local bazaar, hat, so they get information first than females.

W. LOCAL COMMUNITY CULTURE

Local community culture does not provide the same access to all. Especially the 'VATIA' who live mainly in char do not get proper access in the mainstream functional activities. The VATIA have another type of culture, they are too laborious than other people. Local does not want to get marry the VATIA or char people. The VATIA culture is undermined by locals and they are kept separate.

Continuous displacement is looked at here. Riverbank erosion and other disaster vulnerabilities, low income instigate or push people to leave this place and migrate. Local who lost lands for riverbank erosion migrate from this place. Afroza Begum informed that her two sisters shifted their home to Nilphamari for riverbank erosion.

V. CONCLUSION

Tatipara people live in a world of deprivation of information and live in vulnerability and insecurity in many senses. Their indigenous knowledge helps them in many ways to survive in such a condition. This study also reveals that the continuous extortion of stones and the barrage of the Teesta river causing damage to the environment of the Teesta riverside area. Tatipara women face challenges in managing food crises during floods and drought time majorly because of the intersectional factors.

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