

Sustainable Food Security in Bangladesh: A Post-Pandemic Threat Assessment Study

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Abstract: This study attempts to find out and assess the post-pandemic threats of food security in Bangladesh pinpointing the key challenges and potential areas for future development. Bangladesh is a densely populated country with a large number of people living below the poverty line. The main challenge of the Government is to feed them meeting their hunger. Though enough food is nowadays available because of sufficient food production in the country, the accessibility of food or proper maintenance of quality of the food or equal distribution of food to all cannot be maintained properly. Besides, COVID-19 pandemic created the situation of food crisis due to lack of accessibility, stability and proper utilization of food. A number of threats from both internal and external sources hamper the desired food security in Bangladesh. Both empirical and secondary data has been analyzed in qualitative method conducting this study. The primary data is collected by conducting Key Informant Interviews (KII) related to food security in Bangladesh. And the secondary data is collected from the previously done literature in relevant field including research articles, books, policy reports, newspapers and so on. This study is attempts to contribute to the policy making and to combat threats towards sustainable food security in post-pandemic situation in Bangladesh.

Keywords: Bangladesh, Sustainability, Food Security, Pandemic, Threat Assessment

I. INTRODUCTION

The COVID-19 pandemic has created a global health crisis, and the long-term impact of the pandemic is predicted to reach far beyond today. Like many other countries, Bangladesh adopted a national lockdown strategy to prevent the spread of the COVID-19 virus. Although referred to as a 'general holiday,' the closure period lasted from 26 March-30 May. This strategy included a portfolio of protective measures against COVID-19 such as border closures, restraints on movement, transport restrictions, closures of offices, schools and restaurants as well as quarantine measures. The impacts of COVID-19 pandemic and the prevention measures on the food system are complex, heterogeneous and dynamic (FAO, 2020). Regular assessments are necessary to estimate the impacts on the system at all stages of the value chain from the supply of inputs, to field activities, harvesting, processing, distribution and sales (Amjath-Babu et al., 2020). The imbalances in supply and demand also cause price instability, affecting poor and vulnerable sections of society.

In the last few years, Bangladesh has shown great success in attaining optimum agricultural production and ensuring food self-sufficiency. To a greater extent, 7th Five Years Planning (2016-2020), National Agriculture Policy 2018, National Food Policy 2006, and Sustainable Development Goals (SDGs) have emphasized ensuring sustainable food security for the people of Bangladesh. According to the Food and Agriculture Organization (FAO), "food security is achieved when all people, at all times, have physical, social, economic access to sufficient, safe, nutritious food to meet dietary needs and food preferences for an active and healthy life" (FAO, 1996, 2003). The four basic requirements of food security are the availability, access, stability, and utilization of food. Sustainable food security requires stable supply of adequate food, properly functioning markets and the ability of households to generate a combination of home-produced food and income sufficient to cover all their basic needs. Food security is recognized as a public good as well as a social and economic good which ensures benefits to all individuals and remain available after optimum consumption. Paarlberg (2002) think that providing public goods to the people is the key responsibility of the government. Although international and non-governmental organizations assist government in this regard, ultimately the responsibility falls to government at all levels.

So, despite the cordial endeavor of the Government of Bangladesh, sustainable food security is under threat due to some geographical, environmental, natural, and human inconsiderate conditions and activities both from home and abroad, because it's not all about the production of food, but also about the proper distribution of food. Though Bangladesh produces sufficient food every year up to optimum level, in the year 2018, 21.8% of the total population live below the National Poverty Line (ADB, 2020). In 2010, 31.5% of households in Bangladesh lived below the national poverty line, and a mentionable portion of those suffered from food deficiency and malnutrition. The Bangladesh Bureau of Statistic (BBS) study found poverty as the major reason for food insecurity in Bangladesh (BBS, 2017). So, Government should play the vital role to ensure "the public goods needed by societies to remain peaceful and prosperous, goods that are unlikely to be produced in sufficient quantity by private markets alone or by non-governmental institutions" (Paarlberg, 2002).

In Bangladesh (a middle-income country with upward economic growth), it is essential first to understand the present situation in order to create a proper recovery plan. Bangladesh has made significant progress in poverty reduction over the last two decades. Its poverty rate dropped to 23.2% in 2016 from 48.9% in 2000 (Bangladesh Bureau of Statistics [BBS], 2018), which has also helped improve the country's food security status. Bangladesh has made remarkable progress over the last few years (Roy, Dev, & Sheheli, 2019) in most of the four dimensions of food security: food availability, food access, food utilization, and food stability. Still, a large portion of the population is being left behind having their food demand unmet. There must be some problems behind this unequal distribution of wealth and food. There are several dominant reasons found in different literatures behind food insecurity in Bangladesh but the impact of COVID-19 pandemic on food security is most dominant in Bangladesh. This paper aims to identify the prominent post-pandemic threats towards food security in Bangladesh. In addition, it has found out some threat management strategies which may neutralize and mitigate the threats and ensure sustainable food security in Bangladesh.

II. LITERATURE REVIEW

Food security is significant in Bangladesh like any other countries of the world. There are numerous study on food security in association with sustainable development. The COVID-19 crisis has affected the world in an unprecedented way (Loayza and Pennings 2020). In addition to the public health effects of the disease, measures to contain the spread of COVID-19 pose significant risks to food and nutrition security through disruptions to food production, distribution, and access (Amjath-Babu et al., 2020). Food security is concerned not only with food availability but also with access to and utilization of food. So, food security can be explained in terms of food availability, access to food and utilization of food (USAID, 1995). "Food availability means sufficient quantities of food are consistently available to all individuals within a country. Such food can be supplied through household production, other domestic outputs, commercial imports or food assistance. Food access is ensured when households and all individuals within them have adequate resources to obtain appropriate food for a nutritional diet. Access depends upon income available to the household, on the distribution of income within the household and on the price of food. Food utilization is the proper biological use of food, requiring a diet providing sufficient energy and essential nutrients, potable water, and adequate sanitation." "Effective food utilization depends in large measure on knowledge within the household of food storage and processing techniques, basic principles of nutrition and proper childcare. Successful food security and poverty-oriented programs not only assist poor rural populations to produce more and diversified products but to produce a surplus that can be marketed and thereby generate income for the purposes of improving quality of life through improved diet and nutrition, investment in productive activity, and as collateral for credit

to purchase inputs and/or other supplies to enhance agricultural or non-agricultural enterprise." (FAO, 2003)

In a recent study of Food and Agricultural Organization (FAO), more than a third (36.4%) of the youth and adolescents surveyed in rural and urban areas reported moderate or severe food insecurity during the lockdown period. This figure is higher than the national average (31.5%) before the COVID-19 pandemic. Severely food-insecure populations reported going without eating for an entire day, exhaustion of food reserves, or both. Compared to changes in income status due to COVID-19, the highest prevalence's of "moderate or severe food insecurity" (42.9%) and "severe food insecurity" (11.8%) were found in groups that reported concurrent losses in household income. It is found that among youths, almost twice the proportion of boys (43.6%) reported higher moderate or severe food insecurity compared to girls (28.8 percent). Severe food insecurity was also reportedly higher among boys at 12.9% compared to girls at 5%. In addition, across regions, Sylhet had the highest prevalence of moderate or severe food insecurity (61.6%), followed by Rangpur (52.7%), and Mymensingh (51.7%). The lowest prevalence of moderate or severe food insecurity was found in Barisal (14.9%) (FAO, 2020).

Abdullah et al. (2017) found some underlying causes of food insecurity such as inflation, unemployment, unequal distribution of wealth, lack of enough labor. Seid (2007) figured out the problems regarding food insecurity and its determinants in the rural population of the Amhara Regional State of Ethiopia. Mannaf & Uddin (2012) in their study on the food security status of the farmers of selected areas of Bogura District tried to address the factors which influence the food security status of the farmers. Here they found that 55% of the total sample were in food security basing on the standard of the daily calorie intake of 2,122 k.cal. They also found a positive correlation between household food security and household monthly income.

III. METHODOLOGY

This is a qualitative study that conducted through the use of both primary and secondary sources of data. In empirical study, total 10 Key Informant Interviews (KII) are conducted to catch the specialized thought on post-pandemic recovery of food security. On the contrary, the necessary secondary data are collected from the Food and Agricultural Organization (FAO), Bangladesh Bureau of Statistics (BBS), World Bank, Household Income and Expenditure Survey (HIES), Bangladesh Demographic and Health Survey (BDHS), Bangladesh Economic Review, Bangladesh Integrated Household Survey (BIHS), as well as other published and unpublished documents. This study covers no specific area, rather the overall scenarios of the food sector in Bangladesh is focused. In this study, it is explored the data that covered all the four dimensions in this area, i.e., food availability, food access, food utilization, and food stability using a systematic literature review. Nonetheless, for being the assessment procedure partially dependent on secondary data sources,

there may be risks of misinformation or lack of required information impossible to be verified. Still, with due consideration of ethical issues, the endeavor of filtering contents likely to be false or unreliable has surely been assured.

IV. FINDINGS AND DISCUSSION

4.1 Pandemic Situation and Food Security in Bangladesh

The pandemic has spread day by day over the whole nation and the number of affected people has been increasing. In order to protect the population from COVID-19 disease, the government declared "lockdown" throughout the nation from 23 March to 30 May in 2020 and prepared some necessary steps to spread awareness to keep this syndrome away from them. Bangladesh is the second most affected country in South Asia, after India (IEDCR, 2020). People of Bangladesh

have suffered during the lockdown period and some of them have lost their jobs. Formal and informal economy also has been fallen down and agricultural production also has been disrupted during the pandemic situation. The availability of raw materials, domestic and imported, has been hampered, and prices of those materials have increased. Processed food production has fallen by an average of 10 to 20 percent, as reported by different interviewed companies/ enterprises. In addition to production disruptions, farmers also face output market challenges, with fewer buyers willing to purchase products, particularly for perishables. Commodities with high income elasticities such as fruits and vegetables, meat, fish, milk, and eggs are facing significant declines in demand due to contraction in incomes of non-salaried informal workers and price spikes, especially in urban areas (Abhishek et al. 2020).

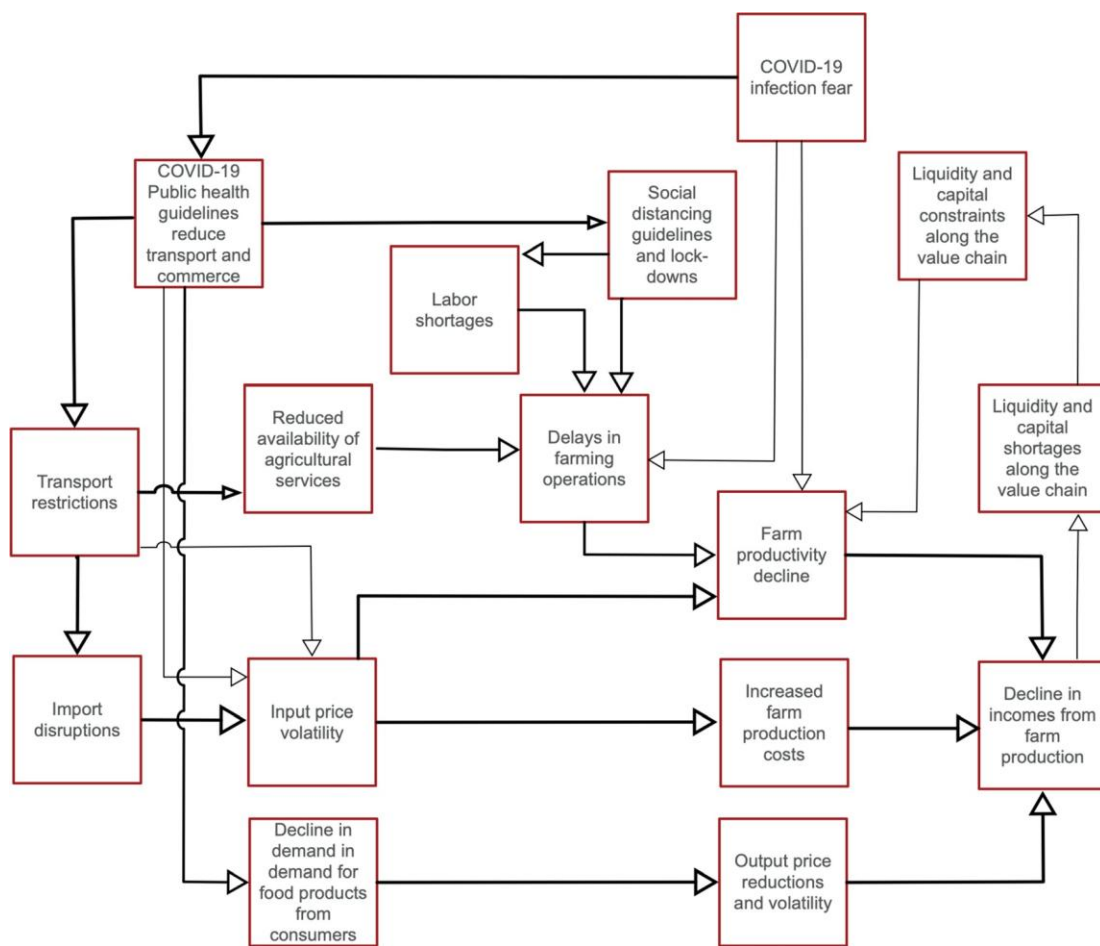


Fig 1: Flow chart depicting potential COVID-19 impact pathways that affect food production systems in South Asia ((Amjath-Babu et al., 2020). (Note: thickness of arrows shows strong relation as assessed by experts)

The COVID-19 pandemic has enhanced hunger and malnutrition, with greater numbers of young people and their families facing food insecurity. Food Insecurity Experience Scale (FIES) developed by FAO assessed that over a third (36.4%) of the respondents reported moderate or severe food insecurity, which is higher than the national average (31.5%)

before the COVID-19 pandemic. On the other hand, 9.1% of the respondents reported severe food insecurity, a decline of 1.5% from the pre-COVID-19 situation (10.6%). Moderate food-insecure adolescents and youths had insufficient money or resources to access a healthy diet, were uncertain about the ability to obtain food, had skipped meals or had occasionally

run out of food. Severely food-insecure young populations most likely ran out of food or had gone without eating for an entire day, or both. Moreover, compared with changes in income status due to COVID-19, the highest prevalence of “moderate or severe” (42.9%) and “severe” (11.8%) food insecurity were found in those who reported decreased income. With more than a third of adolescents and youths being food insecure and deprived of nutritious diets (FIES, FAO 2020). In response to the crisis, the Government of Bangladesh has provided food assistance to vulnerable populations. Food assistance most often includes staples and non-perishable items such as potatoes, rice, and oil. It is estimated that the government has subsidized food for around 50 million people and that 5 million poor households received BDT 2500 through mobile banking. However, the relief has not been sufficient for everyone, and Dhaka residents have noticed an increase in the number of beggars (Leah Rosen, 2020). In this backdrop, food insecurity is increased in society due to the COVID-19 pandemic.

4.2 Sources and Nature of Threats in Food Security

Food is the basic need for all living organisms to continue their life cycles. Food security achievement is the key development priority for all developing countries including Bangladesh. Bangladesh is an agrarian country where more than half of the population is engaged directly in agriculture for survival. Besides, 14.23% of GDP comes from the agriculture sector (BER, 2018). Over the last few years, there has been an increasing trend in food production. According to the BBS, in FY2017-18, food grains production stood at around 413.25 lakh metric tons (MT). In the same fiscal year (FY), the total internal procurement of food grains was 16.7 lakh MT, total import of food grains through public and private sectors was 83.8 lakh MT. Though producing food grains is more than three times than that of 1971, it's a matter of regret that ensuring food safety and access to safe food could not be achieved yet by our regulators, policy planners, and political leadership. Due to COVID-19 pandemic, Bangladesh is also facing several threats of food security.

Any type of threat may come from two types of sources, i.e., internal and external. For analyzing the threats in food security in Bangladesh, it's wiser not to be confined to the internal threats, but to concentrate on the external threats too. The internal threats in food security are those induced inside the country and the external ones are from outside the country i.e., foreign countries, foreign policies, export-import instability, etc. In Bangladesh, the internal threats are occurred by illegal businessmen, govt. policies, labor unrest, national poverty, socio-economic background of the country, etc. Moreover, the threats may be covert or overt in nature. That is, the threats being manifested and visible are considered as overt threats and those being invisible are covert threats. However, the current status of the food security of Bangladesh falls under four predominant dimensions i.e. availability, accessibility, utilization, stability. This study is focused on these four dimensions. Food and Agriculture Organization

(FAO) presented a set of determinants of the four dimensions of food security (Table 1). These dimensions are analyzed to assess the sustainable food security in post-pandemic situation in Bangladesh.

Table 1: Four dimensions of food security and its determinants (FAO)

Availability	Accessibility	Utilization	Stability
Domestic production	Income, purchasing power, own production	Food safety and quality	Weather variability, seasonality
Import capacity	Food distribution	Clean water	Price fluctuations
Food stocks	Transport	Health and sanitation	Political factors
Food aid	Market infrastructure	Care, feeding and health seeking practices	Economic factors

4.2.1 Food availability

The availability of food means having a sufficient amount of food available. It comprises domestic production, import capacity, food stocks, and food aid. The major food crops are quite available in Bangladesh, especially rice, which is considered as the main food grain of Bangladesh. But still, a notable portion of the total demand needs to be imported. Besides, a large number of people in Bangladesh need to be dependent on foreign and national aid. According to Bangladesh Economic Review, 2018 (BER, 2018), the internal food grain procurement target was 17.3 lakh MT in FY 2017-18 against that 16.7 lakh MT was procured. Rice production has been increasing over the last few fiscal years. Unfortunately, wheat as the second food grain of Bangladesh had a decreased level of production though maize production has been increased (BER, 2018). This trend shows the sole dependency of Bangladesh people on rice and indicates the lack of production of different foods to ensure complete food security. Besides the crop sector, Bangladesh has made noticeable progress in fish and livestock production. Bangladesh ranked 3rd in fish production in 2018 (FAO). Production and supply of rice, wheat, maize (table 2), and fish, meat, milk, and egg (table 3) contributes to the availability of food to the general people (BER, 2018).

Table 2: Food Grains Production (In lakh MT.) (BBS, BER, 2018)

Food Grains	2014-15	2015-16	2016-17	2017-18
Rice	347.10	347.10	338.06	362.79
Wheat	13.48	13.48	13.12	11.53
Maize	23.61	27.59	35.78	38.93
Total	384.20	388.17	386.96	413.25

According to the data estimated by BBS, in FY2017-18, total food grain production stood at 413.25 lakh MT of which rice 362.79 lakh MT, wheat 11.53 lakh MT and maize 38.93 lakh MT. It shows a gradual increase in food grain production

(BER, 2018). The production of animal protein like milk, meat, and eggs has also been increased in the past few years.

For this reason, the per capita availability of animal protein is increasing (BER, 2018).

Table 3: Production of Livestock, Poultry, Milk, Meat and Eggs (DLS, MoFL, 2019; BER, 2018)

Products	2014-15	2015-16	2016-17	2017-18	2018-19
Livestock (in lakh number)	3662.65	3749.90	3839.45	3931.31	4025.63
Poultry (in lakh number)	3122.93	3206.33	3292.00	3379.98	3470.35
Milk (lakh metric ton)	69.69	72.75	92.83	94.06	99.23
Meat (lakh metric ton)	58.62	61.52	71.54	72.60	75.14
Eggs (crore number)	1099.52	1191.24	1493.31	1552.00	1711

Production of different necessary goods has also been increased with the passage of time (table 3). Livestock and poultry production has been increased in 4025.63 lakh and 3470.35 lakh in FY2018-19 from 3662.65 lakh and 3122.93 lakh in FY2014-15 respectively. Moreover, milk and meat also has been increased in 99.23 lakh MT and 75.14 lakh MT in FY2018-19 from 69.69 lakh MT and 58.62 lakh MT in FY2014-15 respectively. Besides, egg production has also been gradually enlarged from 1099.52 crore in FY2014-15 to 1711 crore in FY2018-19 (DLS, MoFL, 2019; BER, 2018).

Table 4: Demand, production, availability and deficiency of milk, meat and eggs (2018-19) (DLS, MoFL, 2019)

Products	Demand	Production	Availability
Milk	152.02 Lakh Metric Ton (250 ml/day/head)	99.23 Lakh Metric Ton	165.07 (ml/day/head)
Meat	72.97 Lakh Metric Ton (120 gm/day/head)	75.14 Lakh Metric Ton	124.99 (gm/day/head)
Egg	1732.64 Crore number (104 numbers/year/head)	1711 Crore numbers	103.89 (numbers/year/head)
Estimated population of the country: 16 crore 66 lakhs (30 June, 2019)			

The availability of milk (165.07 lakh MT), meat (124.99 lakh MT) and egg (103.89 lakh MT) is now in surplus in the context of Bangladesh (table 4). The demand of milk is 152.02 lakh MT where the production is 99.23 lakh MT. Besides, the demand of meat and egg is 72.97 lakh MT and 1732.64 crore where the production is 75.14 lakh MT and 1711 crore respectively in FY2018-19 (DLS, MoFL, 2019). However, according to the UN World Food Program (WFP), nearly 32% of Bangladeshis still live below the national poverty line and approximately 25% of the population in Bangladesh remains food-insecure and 36 percent of children less than five years old suffer from stunting, a common measure of chronic malnutrition (WFP, 2020). WFP contributed about 135,671 MT of food worth \$165.4 million in the FY2019. Many foreign organizations are aiding the Rohingya refugees to balance the food security in Bangladesh.

4.2.1.1 Existing threats in food availability

Major food shortages have not occurred, but supply chain disruptions have modified the usual food-scape. In different

districts of Bangladesh, including Dhaka and Mymensingh, the diversity of fresh produce such as fish, fruits, and vegetables available in the market has decreased significantly, and items appear less fresh and appealing than usual. The transportation disruptions and shortages of workers have caused supply issues for certain food items (Leah Rosen, 2020). Only some selected foods are available during the over two months of "general holiday" (lockdown) and people could not afford these foods who are not employed. Covid-19 has affected the economy hard this year. According to the Centre for Policy Dialogue, the poverty rate has risen at 35% in June 2020, compared to 24. 3% in 2016 due to the lockdown (CPD, 2020). The Covid-19 pandemic has potentially reduced average monthly income of lower income groups from Tk 15,000 per month to Tk 3,700 per month (Joynul Abedin, 2020). A study by Khaddo Odhikar Bangladesh found that, 87% of the poor (50 million) people of Bangladesh are already in a chronic food crisis for the COVID-19 situation. Movement restrictions associated with the COVID-19 pandemic has derailed agricultural input supply chains at critical times in the season, reduced informal laborers' access to farmlands and therefore both their wages and the area of land cultivated, and constrain transport of goods to processing facilities and/ or markets. Livestock supply chains has also been hit by the pandemic, with significant implications for pastoralist households, while vulnerable fishing communities have found access to markets particularly difficult (FAO, 2020). A key informant of Bangladesh Food Safety Authority (BFSA) opined:

"Bangladesh has adequate food capacity to feed the people even during the natural disasters like COVID-19 pandemic. Food availability is ensured by the authority taking necessary steps every year".

The primary data source shows a number of internal and external threats. Internal threats in this section for those the availability of food is hampered are- natural disaster like flood that can decompose the crops and hamper the production, COVID-19 pandemic, unsecured market supply due to lockdown, loss of cultivable land, less price of crops and discourage of cultivation, agricultural backwardness, lack of owned land, Lack of cultivable land, deforestation, landslide, declining soil fertility, low land utilization, low and declining

farm size, Natural hazards, etc. The external threats regarding the availability of food are sudden stop of supply rising the price, instability of world-wide grain supplies, shrink in export volumes, decrease of food production in developed countries, growing global population, water scarcity, lack of access to water during the dry season and flood in cropping season for India's enemy-like treatment regarding water of Ganges through Farakka barrage, climate change impacts, etc.

4.2.2 Food Accessibility

Ensuring availability all over the country to every citizen is a challenge and this sector is full of a number of threats. To prevent the food from going to a certain place or a certain hand and make it accessible to all is a great challenge for several reasons. For this reason, food must be made available and affordable besides producing food. Access to food denotes physical and economic access to food which comprises purchasing capacity, income, transportation, and market infrastructure. The government of Bangladesh provides assistance for the distribution of food to the fixed-income public servants and low-income people through various channels of the Public Food Distribution System (PFDS). This system of the channel includes subsidized distribution program such as- Open Market Sale (OMS), Fair Price Card (FPC), Essential Priority (EP), Food for Work (FFW), Test Relief (TR), Vulnerable Group Feeding (VGF), Vulnerable Group Development (VGD), Gratuitous Relief (GR) and others.

COVID-19 has severely disrupted critical food supply chains, including between rural and urban areas. Movement or import/export restrictions also has created a limited food access to the consumers (FAO, 2020). With regards to the access dimension of food security, the government took some commendable steps to solve the problem temporarily. Although the planning was done before the pandemic hit Bangladesh, the steps were improvised during the COVID-19 crisis. Through its local administration, the government provided food and assistance to poor people. It is estimated that more than five million ultra-poor people got support from this initiative. The government requested that the rich people in society help the needy people, and a lot of rich people responded to this urge and helped needy people by providing food and essentials. Further, the government has taken a hardline stance to control prices in the food market so that people can buy necessary foods for a fair price. The government also launched a web portal, named Food for Nation, which was created solely to deal with food supply and customer access. The website is the first of its kind in Bangladesh, creating an open, web-based agricultural marketplace and making a direct connection between producer and customer. Besides this, another web portal, named Corona Info, also provides services related to food relief. The government listed all of the contact numbers for online food delivery services and essential food suppliers in this web portal so that people can easily access them. Another admirable attempt at increasing food security, through Corona Info, was opening a simple online application system for food

relief where poor people, or their neighbors on their behalf, can request emergency food supplies. However, it is unclear whether online platforms are helping the food security cause in Bangladesh, as most of the needy and food-insecure people are not able to connect with such platforms (Dev, D. S., & Kabir, K. H., 2020).

4.2.2.1 Existing threats in food accessibility

Food accessibility is significant for all. If available food has no accessibility to the people it is meaningless. There are several threats of food accessibility in Bangladesh. These threats has been seen in different areas during the pandemic situation. Bangladesh has sufficient food but people had no access to these food during the lockdown period in 2020. Hamper of food supply in the lockdown due to transport restriction was the most important reason of the inaccessibility. However, the price of food determines access to food and the patterns of global food price indicate the trends of food availability. Constant increase in food prices hampers food security since increased price decreases access to food especially of those who are of below income (Pingali, Raney, & Wiebe, 2008). In the pandemic situation, poor people did not have the access to proper nutritious food due to the hamper of informal economy and their unemployment status. Only salaried people can afford the food even in the pandemic situation. Poverty and household food purchasing disability are the major threats of food access to the poor people in Bangladesh. There are also several additional threats of food security such as poor governance, competition for resources, gender inequalities, and unequal land distribution and so on. A key informant opined on the threats of food accessibility in the post-pandemic situation as:

"Foods for all but is it visible in the society? The answer is 'no'. Most of the people have less access to food and nutritious foods are the daydream to them. The lack of proper distribution of foods and income inequality are the major threats to food access in our society".

The internal threats are insufficient stocks, poor income, corruption of the people dealing with food, illegal storage of food for more profit, frequent price hike, unemployment and underemployment, poor and marginalized portion of the population, decreasing remittances during COVID-19, price hike especially in onion business, occupational changes, middle man's role in the market, social discrimination, low per capita income etc. Recent news about embezzling the food items by the strong local political leaders given to the poor people affected by COVID-19 period joblessness astonished the whole country. It's a common phenomenon in Bangladesh to cheat the food aid of poor people by the local leaders. On the contrary, the external threat in this regard is basically the worldwide lockdown to protect from the COVID-19 pandemic. Moreover, foreign exchange earnings, poor buying capacity, decline of international food aid, rising income inequality over the world, increase in global market prices etc. are the other threats of food accessibility. The external threats in this regard are foreign exchange earnings, poor buying

capacity, decline of international food aid, rising income inequality over the world, increase in global market prices etc. A farmer pointed on some threats as:

“We do not get access of all the foods though we are farmers of Bangladesh. We cultivate crops but do not get enough price, but businessmen earn more by selling the crops in high price. We also have to buy crops with high price from other businessmen when we need”.

4.2.3 Food Utilization

Another dimension of food security in Bangladesh is deficiency in proper nutrition and utilization of food. Utilization includes enough dietary consumption and nutrients using ability in the body. It comprises food safety and hygiene in terms of energy, macro and micronutrients. Although food consumption has been increased in the last few decades, adequate uptake of nutritious food is far below the standard. Available food was not properly utilized during COVID-19 pandemic due to the countrywide lockdown. Green vegetables were rotted and other crops were stacked in several areas of Bangladesh due to restrictions of transports. People had to buy these crops and vegetables paying high. In the post-pandemic situation, utilization of food is significant to ensure food security.

4.2.3.1 Existing threats in food utilization

Food utilization is under threat in post-pandemic situation. Bangladesh has enough available food to properly utilize. But the process of food supply and the access to food is not equally maintained. That's why a certain class of people sleep without having their next day food. Besides, certain restrictions in the food consumption due to cultural and social norms, food contamination, food adulteration, post-harvest food processing, use of formalin and different types of chemical, unhealthy environment possess a great threat to proper utilization of food in Bangladesh. Food loss and wastage is also a threat of food utilization. When there is no surety of food, which is especially the case during the pandemic, it is expected that many people will not have proper food utilization nor nutrition.

4.2.4 Food Stability

Stability of food security covers stability in food availability, food access, and food utilization including nutrition, food safety and quality. Trade is an important instrument to stabilize food supply i.e. check downward movement of consumption and ensure food security. Stability denotes consistency in supply and access. It comprises weather variability, price fluctuations, political factors, economic factors etc. Therefore, it is very much important to retain the stable condition in food market chain and food supply (Nath, 2015).

4.2.4.1 Existing threats in food stability

The secondary data provides with some threats to the stability of the food sector in Bangladesh affecting the food security. World Bank data shows that, the threats to the stability of the food are fluctuating prices of certain foods due to the changes

in demand of urban populations create a barrier to people in food consumption, low and unequal distribution of income are considered as internal threats while year-to-year variations in international food prices, lack of international regulations, world market instability, market disintegration, temporal market situations etc. are considered as external threats.

Bangladesh has experienced some hiccups in efforts at food stability. At the very beginning of the lockdowns, we observed an upsurge in the purchase of essential goods, and food products were the main target for people. Before announcing the lockdown, the government failed to plan how people would lead their lives under these new guidelines, and this is reflected in the price hikes and the frequency that essential food products were out of stock at the beginning of the pandemic. After the lockdown was put in place, the poor bore the brunt of the hardship; daily wage laborers, in particular, suffered, given that their income source was gone. These people are always at risk for food insecurity, and the pandemic further exacerbates their situation. This exemplifies that the government's system to maintain food stability is flawed (Dev, D. S., & Kabir, K. H., 2020). A retail businessman opined as a key informant that:

“Food price is not stable in the pandemic due to frequent lockdown and transport restriction. The food supply and demand are also fluctuating in the nationwide crisis in a moment. The major threat of food security is to tackling food stability during this pandemic situation.”

4.3 Discussion

COVID-19 pandemic created a vulnerable situation with regards to food security all over the world. Currently, sustainable food security is the main concern in post-pandemic situation in Bangladesh. Food security is ensured by four dimensions of foods such as food availability, food accessibility, food utilization and food stability. This study analyzed these dimensions in different ways to assess sustainable food security in Bangladesh. Though this is not possible to make rigorous comparison with the pre-COVID studies, but, from the literatures published during the COVID year and in the pre-COVID years, this study found that food security is not sustainable in Bangladesh. Though food availability is adequate in Bangladesh with comparison to pre-COVID years, food accessibility and food utilization is under threat due to proper distribution of food. The food supply was hampered due to restriction of transports and the wastage of foods in the local markets during lockdown. Proper distribution of food is not ensured due to imbalanced economic hierarchy and that's why the under-class/lower class people go to sleep thinking about their next day food. Available foods are not accessible to all the citizens of Bangladesh and properly utilized. This assessment study found the available foods are also not stable in the unstable society. COVID-19 pandemic gradually hampering more in the food security due to its second waves in Bangladesh and the Govt. is also taking the necessary steps tackling sustainable food security.

V. CONCLUSION

Food security is the prime concern as it has become a critical issue recently due to COVID-19 pandemic all over the world. Due to lockdown and restrictions of transportation, the food supply and wastage is hampered in Bangladesh. Socio-economic factors are mostly responsible for food insecurity in Bangladesh. The pandemic situation slightly made the critical situation to the consumers due to the price hike. Improper utilization of available food and unstable market situation moves to food insecurity in Bangladesh. The alarming thing is the unethical activities of unscrupulous businessmen storing foods to make money during this pandemic situation. The revelation of the threats to sustainable food security in this post-pandemic assessment study is expected to have contribution to the policy formation and gain an overall picture of available threats in the food sector of Bangladesh. This study recommends some measures that can help the administrators, law enforcement personnel, and others to take timely and suitable decisions about ensuring sustainable food security in post-pandemic situation in Bangladesh.

1. All the four pillars of food security (food availability, food access, food utilization and food stability) need to be looked into in integrated way.
2. A body of monitoring personnel may be formed to keep eyes over the irregularities in food production, distribution, marketing and consumption all over the country.
3. A technical monitoring cell may be formed to monitor the market price, and propagation in electronic, print and social media.
4. A complimentary central storage may be formed to stock food to mitigate any type of deficiency at any time and it must be controlled by highly reliable authority.
5. Necessary subsidy has to be given to the food items bought by the people living below the poverty line.

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