

**JOURNAL***es*  
Govt. City College, Chattogram  
*A peer-reviewed journal*  
Volume 03, December 2023



**Govt. City College, Chattogram, Bangladesh**

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*A peer-reviewed journal*

Volume 03, December 2023

*Date of Publication*

16 December 2023

*Published By*

Govt. City College  
Chattogram, Bangladesh

*Cover Design*

Dipok Dutta

*Printing*

The Ad Communication  
65 Jamal Khan Road, Chattogram  
Phone : 02 3333 54449 , E-mail : theadctg@gmail.com

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## শ্রদ্ধাঞ্জলি

যতদিন রবে পদ্মা যমুনা  
গৌরী মেঘনা বহমান  
ততদিন রবে কীর্তি তোমার  
শেখ মুজিবুর রহমান !



## Theme of the Journal's Cover Page



আমাদের জাতির পিতা বঙ্গবন্ধু শেখ মুজিবুর রহমানের  
দূরদর্শী নেতৃত্ব আর ত্রিশ লক্ষ শহীদের রক্তে অর্জিত স্বাধীনতার  
সুবর্ণজয়ন্তীতে বাংলাদেশের ঐতিহ্যবাহী শিক্ষাপ্রতিষ্ঠান  
সরকারি সিটি কলেজ, চট্টগ্রাম বৈশ্বিক জ্ঞানচর্চার  
উদগ্র বাসনা থেকে প্রকাশ করছে এই গবেষণা পত্রিকা;  
এর অর্জিত জ্ঞান মনুষ্যত্ববোধের আলোয় উদ্ভাসিত হয়ে  
চট্টগ্রামের সীমা ছাড়িয়ে দীপ্ত করুক বাংলাদেশ-সহ  
বিশ্ব সভ্যতার প্রতিটি অঞ্চলকে।

On the golden jubilee of independence of Bangladesh achieved under the visionary leadership of our Father of the Nation Bangabandhu Sheikh Mujibur Rahman and at the cost of supreme sacrifice of the three million martyrs, Govt. City College, Chattogram, a prestigious college in the country, is publishing this research journal with a strong desire for the pursuit of global knowledge. May the knowledge achieved from it with the bright light of humanity transcending the border line of Chittagong illuminate every region of world civilization including Bangladesh.

## Patron's Note

Volume 03, December 2023

Research, a touchstone of creating and disseminating knowledge, advances society through the development of theories, ideas and concepts found in an extended form. It demonstrates humans' instincts to explore new windows of knowledge and validate the findings as sign of authenticity and accuracy. It certainly stimulates the critical and analytical nerves a curious mind holds by nature. This is how a civilization flourishes.

Assimilation of a large masses information to make a finished product from scattered sources is always a painstaking process. As well as involving widening out the narrow trench of knowledge, research work ultimately validates the truth and acceptability of knowledge. It embodies a researcher's sheer tenacity to extend knowledge in diversified fashion and to transform the society with the research findings. In fact, research work paves a new way of intellectual development and critical reasoning of a researcher.

[27/02, 15:57] PRABHAT: THERE is no alternative to creation and application of high quality knowledge through research for a nation to progress and prosper.

[27/02, 15:59] PRABHAT: Over the years, Govt. City College has been fostering a research culture with a commitment to publishing an issue annually so as to create a knowledge-based society.

It has created a literary platform for the aspirants to excavate the depth of knowledge. I reaffirm that pursuit of knowledge is our top priority.

**Professor Dr. Sudeepa Dutta**

Principal

Govt. City College, Chattogram



# Chief Editor's Note

Volume 03, December 2023

Govt. City College, Chattogram has materialized its promise given in the first issue that their publication would be done on a regular basis. So just a few months after the publication of the first issue of their first-ever journal from the College, they (the authority and the teachers) are timely bringing out the second issue which is praiseworthy as it does not often happen with busy institutions like the City College. My role as the Chief Editor has only been to facilitate the desire of the teachers by selecting the peer-reviewed scholarly articles submitted by them from various disciplines and getting them published.

An academic journal is supposed to bring to light new to newer findings in areas of human knowledge. This present issue is no exception from that noble goal, though with many of the articles, in places, the readers might feel that much is there in the want. Pursuing research-based knowledge is an arduous task, too arduous perhaps, for many of the uninitiated researchers, but those faculty members who have stuck to their research goals may have discovered that there is much pleasure to derive from one's painstaking pursuit of knowledge. And they will savor the joy of seeing their articles published in this issue. Another important perception having gained currency today is that research work is not a project but a process. The project implies a milestone indicating the end of the journey, but such is not the nature of scholarship, as it is rather a process, a continuous unending chain linking knot to knot and going beyond.

The present issue displays a wide range of knowledge areas covered, which surely will induce the other faculty members whose articles have not found a place in this issue to submit their articles for the next issue. So, I urge all enthusiastic teachers to participate in shaping this journal into a high-impact academic journal in course of time.

Best wishes

**Mohit Ul Alam**

Professor Dr. Mohit Ul Alam  
Dean, Arts and Social Science Faculty,  
Premier University, Chattogram  
and

Former Vice-Chancellor  
Jatiya Kobi Kazi Nazrul University, Trishal, Mymensingh





# JOURNAL<sub>es</sub>

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## **Survival Strategies of Poor Households in Recent Inflation in Bangladesh**

Prof. Dr. Sudeepa Dutta\*

### **Abstract**

Bangladesh has been experiencing the brunt of inflation since the outbreak of the COVID-19 pandemic. However, due to well-timed actions taken by the government of Bangladesh, the inflation rate within the country was under control till January 2022. Still, the global supply chain was disrupted by Russia's invasion of Ukraine and the economic sanctions that many Western countries placed on Russia. Food prices began to rise all over the world, as well as in Bangladesh. In addition, global fuel oil prices increased. The price level began to rise as a result. According to BBS, in May 2023, Bangladesh recorded a high inflation rate, which was 9.94%, the highest in 11 years. In August, Bangladesh saw the highest food inflation rate of 12.54% in 12 years. In the following months, the national inflation rate showed a tendency to decrease, but it was still at 9.1% in September 2023, and the respective food inflation rate was 12.37%. Initially, the inflation in Bangladesh was led by non-food inflation, but later both food and non-food inflation induced the national inflation to go up. Generally, mild inflation is necessary for the economic development of a country. If the inflation rate exceeds the GDP growth rate, it hinders economic development. We see that Bangladesh's inflation rate exceeds the GDP growth rate in FY 2019-20 and FY 2022-23.

One obvious effect of inflation is the loss of real income, especially of the lower-income group households that are the most vulnerable to the inflation effect. It should be noted that the purchasing capacity of poor households declines

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due to price hikes, and they have to adjust to inflation to meet the family expenses. In that process of adjustment, they have to adopt various coping techniques to survive, such as curtailing the expenditure on food as they lose the affordability of buying food, compromising food quality by switching to foods of inferior quality, and in some cases, reducing expenses on non-food items like clothing, children's education, health, utility services, etc. Many of them borrow from friends, relatives, money lenders, and others at high interest rates, while some use old savings to bear the family expenses. Poor households can easily adjust to inflation if wages increase faster than inflation. However, according to BBS data, during the last six months from March 2023 to August 2023, inflation has been higher than wage growth, and soaring prices of daily necessary goods eat away the benefits of wage growth. The nutritionists in Bangladesh fear that inadequate and low-quality food intake may pose the risk of less productive and undernourished future generations. Once there is an average price level increase, it hardly decreases. If the price spiral continues for a long time, it will bring disasters to the overall economy. Therefore, the continuous price rise in price has to be controlled by adopting sensible, vigorous, extensive, and multidimensional actions by the government of Bangladesh.

Keywords: Survival Strategies, Poor households, Inflation.

## **Introduction**

For some years, the Bangladesh economy has been experiencing a rising rate of inflation that poses a major threat to maintaining economic stability. Inflation now has become one of the major worries that Bangladesh is facing as rising inflation worsens inequality or poverty because it erodes the income and savings of the poorer households. The instability in the economy of Bangladesh started when the pandemic COVID-19 broke out all over the world in March 2020. The global supply chain was disrupted due to the pandemic and subsequent lockdown. The global market system was severely distorted, and due to supply chain disruption, the prices of commodities started to jump. In particular, food and fuel price hikes induced the general price level to increase all over the world.

The Bangladesh economy was also hit hard by the pandemic. Due to the worldwide supply chain disruption, the general price level began to increase within Bangladesh. The local economy was experiencing a severe demand and supply contraction. On the one hand, demand was declining due to the pandemic



and subsequent lockdown; on the other hand, producers responded by lowering output to minimise loss. As a result, the prices of everyday consumer goods such as rice, oil, lentils, vegetables, and so on, as well as non-food items such as medicines, rose. Panic buying of daily necessities and medicines during lockdown also pushed their price to increase. Fuel price hikes worsened the inflation situation. Many people working in the informal sectors lost their jobs and income. Many switched occupations, often finding whatever they could for survival, creating a risk of shifting to worse jobs. People, especially the poor, were largely affected by the pandemic due to income and employment uncertainties over 18 months. Unemployment and poverty among the people in both rural and urban areas throughout the country increased. According to SANEM, an estimated 42% of people are living in poverty, up from 21.6% before the pandemic in 2018. It was assumed that almost 24.5 million people became new poor at that time.

Bangladesh's government took various financial and operational measures to compensate for the economic losses during the coronavirus period. In particular, the social security programs had been strengthened to help the affected poor households. As a result, the stagnant economic activities started to revive. People began to return to normal life in January 2022. But when Russia attacked Ukraine on February 24, 2022, an acute fuel crisis occurred, and production costs increased. Again, the global supply of food grains, including wheat decreased due to the imposition of various economic sanctions on Russia by the Western world and Europe. Consequently, the world experienced demand pull and cost push inflation, which have never been seen in history.

Inflation is regarded as an economy's most dangerous foe because inflation reduces people's purchase power and worsens the sufferings of those on low and fixed incomes. Although inflation has increased since January 2022, the rate of increase over the previous 14 months is unbearable. According to BBS data, inflation exceeded 7% in July 2022, and then it jumped every following month. After six months, in December 2022, it was 8.71%, then it went up to 9.33% in March 2023, and in May 2023 the rate soared to a decade-high of 9.94%. The important feature of recent inflation was that it was mostly led by food inflation. The BBS report revealed that food inflation stood at 8.19% in July 2022; it gradually increased in 14 months and peaked at 12.54% in August 2023, which was the highest in the last 12 years. Non-food inflation also edged high since July 2022.

One obvious effect of inflation is the loss of real income due to general price increases. The lower-income group households are the most vulnerable to the inflation effect. It should be noted that, due to price hikes, the purchasing capacity of poor households declines, and they have to adjust to inflation to meet the family expenses. In that process of adjustment, many are forced to alter their consumption pattern and savings behaviour. They have to adopt various coping techniques to survive, such as curtailing the expenditure on food as they lose the affordability of buying food, compromising with food quality by switching to foods of inferior quality, and in some cases, reducing expenses on non-food items like clothing, children's education, health, utility services, etc. Many of them borrow from friends, relatives, money lenders, and others at high interest rates, while some use old savings to bear the family expenses. Poor households can easily adjust to inflation if wages increase faster than inflation. However, according to BBS data, during the last six months from March 2023 to August 2023, inflation has been higher than wage growth, and soaring prices of daily necessary goods eat away the benefits of wage growth. The nutritionists in Bangladesh fear that inadequate and low-quality food intake may pose the risk of less productive and undernourished future generations. Once there is an average price level increase, it hardly decreases. If the price spiral continues for a long time, it will bring disasters to the overall economy. Therefore, the continuous price rise has to be controlled by adopting sensible, vigorous, extensive, and multidimensional actions by the government of Bangladesh.

The Bangladesh economy is largely dependent on the world economy. Any distortion in the global supply chain rapidly affects the domestic supply chain and causes an increase in the prices of goods and services. According to domestic and international experts, the dollar crisis and devaluation of Bangladesh currency against the US dollar, global supply chain disruption, disbursement of too many bank loans, volatility in the international market, irregularity and lack of appropriate monitoring system in the domestic market, increase in prices of fuel oil in the domestic and international market, increase in prices of gas, electricity, and fertiliser in the domestic market, etc. are responsible for the recent price hike. As per IMF's 'World Economic Outlook April 2023', inflation for 2023 is projected at 4.7% in developed countries and 8.6% in developing countries (Bangladesh Economic Review, 2023). Global price inflation has begun to decline in recent times, but Bangladesh cannot get benefits due to domestic price rigidity.



## **Objectives**

Experience of high inflation is not new for Bangladesh. Since its independence, Bangladesh has experienced the brunt of inflation many times in many ways. So, the objectives of this study are to generate analysis and discussion about the historical trend of inflation and its causes in Bangladesh. The study has also tried to understand poor households' coping techniques to survive during inflation. So, the specific objectives are: 1) To present a scenario of inflation in Bangladesh through a review of 37 years of data on historical trends in inflation and a general discussion about the causes of inflation, 2) To understand the survival techniques of poor households in the process of adjustment to an inflationary situation.

## **Methodology**

This article has been prepared mainly based on secondary data. No survey has been conducted. Data has been collected from various published and unpublished articles, journals, research reports, monographs, and documents of different domestic and international organisations like BBS, SANEM, CPD, World Bank, ADB, and IMF that are pertinent to the study and all data have been used to gather relevant information. Suitable data have been extracted, organised, analysed, illustrated, and interpreted with proper reasoning. No mathematical or statistical method is used. Data have been presented in tabular and graphical form. To reveal the impact of inflation on poor households, 37 years of historical data on inflation have been collected and reviewed to explore the inflationary trend in Bangladesh during the time frame from 1987 to 2023. Also, information about the inflation rate, including food and non-food for the last 14 months, and the coping techniques of poor households in the process of adjustment to inflation have been collected and analysed in this paper.

## **Literature Review**

The major point of the paper is to understand the impact of inflation on poor households concerning their coping strategies to adjust to the rising price level. A review of relevant literature in this regard provides additional information and support to enrich the content. The research studies reviewed here are from different journals, articles, research works, reports, websites, etc.

Siddiqui (1982) found the rural poor in Bangladesh adopted various survival strategies sporadically to satisfy basic needs. The term survival pattern is more appropriate in analysing the adjustment pattern of poor households to the condition of perpetual deprivation and uncertainty. Dutta (2005) used the term

'Survival Pattern' to assert urban poor capability to achieve a minimum standard of living concerning food, clothing, housing, education, and health with their income and the capability of existence with minimum urban facilities. Islam (1995) tried to find out the skills or techniques adopted by the displaced due to riverbank erosion for managing their continual existence in terms of both physical and social environment. In that study, the term survival pattern is used to analyse the coping techniques of the displaced population in the face of catastrophic conditions induced by riverbank erosion. Hossen and Ahmed (2011) found that food inflation hurts poor households' consumption patterns, as they spend a lion's share of their budget on food items. Food inflation affects their welfare and purchasing capacity. They had to cut back the expenditure on food and reduce their food consumption both qualitatively and quantitatively. Rahman, Bhattacharya, Shahadat, and Deb (2008) investigated current trends in overall inflation levels and examined changes in the price levels of several basic consumer goods. Their work also examined inflation in Bangladesh from a regional comparative perspective, attempted to calculate the effect of inflation on poverty levels using the most recent data on household income, and reviewed several government initiatives to address both the causes and effects of inflation. In Bangladesh, the Consumer Price Index (CPI) is used to measure inflation, which is typically based on national-level price data reflecting the purchasing patterns of the average consumer, and two poverty lines, i.e., upper and lower poverty lines, are constructed using the cost of basic needs (CBN) method. The CPI is calculated by using a representative basket of goods and services. The basket is updated periodically to reflect changes in consumer spending habits. CBN method considers the changes in the cost to meet basic needs for adjusting the existing poverty line. However, the poverty line based on inflation allows the underlying basic needs consumer bundle to change over time while the consumer maintains a fixed level of utility. Gimenez and Jolliffe (2014) have tried to assess whether CPI or CBN is appropriate for measuring price changes in Bangladesh. According to them, CPI is not capturing inflation as experienced by the poor and it is not a good measure of price change. This method cannot reflect the fact that, as relative prices change, individuals will likely switch to relatively cheaper goods, and a constant bundle of goods is unlikely to maintain the same utility level. A similar critique can be made of CBN. When the basic needs are re-estimated, the bundle of goods can completely change. If everyone has become better off over time, the average cost per calorie is likely to increase even if prices of goods remain unchanged. In short, the changing bundle may reflect a higher level of well-being. They have concluded that the CBN method or poverty line



-implied inflation rate), compared to the CPI, is a more accurate measure of inflation for Bangladesh, and they recommend that the construction of the CPI basket and, in particular, the non-food component, be revised so that a more reliable measure of consumer prices can be formulated for Bangladesh. Karim and Yasmin (2023) tried to ascertain the causes of inflation in Bangladesh and learn about its impact on households. They also offered some suggestions for maintaining a low or moderate inflation. They reviewed inflationary data for the period from 2012-2022.

### **Inflation Scenario in Bangladesh**

Inflation is a continuous increase in the prices of all kinds of goods and services. It is one of the most closely watched economic indicators as it affects the purchasing power of a currency. Inflation can be caused by many factors, such as an increase in the money supply, a decrease in production, higher production costs, natural calamities, supply chain disruption due to war, epidemics, fuel oil price hikes, liberal credit policy of the government, political instability, and so on. In recent years, many countries have experienced inflationary pressures due to the COVID-19 pandemic, which has disrupted the global supply chain and caused a surge in demand for certain goods and services.

Inflation can have both positive and negative consequences for an economy. Moderate inflation, on the one hand, can stimulate economic growth by increasing consumer spending, encouraging investment, and lowering debt burdens. High or volatile inflation, on the other hand, can harm economic growth by reducing consumer purchasing power, creating uncertainty, and leading to higher interest rates. In extreme cases, hyperinflation can lead to a collapse in the value of a currency.

Modern economists always advocate a low but stable inflation rate. Generally, the inflation rate between 2% and 4% is comfortable. But if the inflation is 7% to 10%, the suffering of middle and low-income people will increase. Inflation more than this is catastrophic. However, it depends on the capacity of a country.

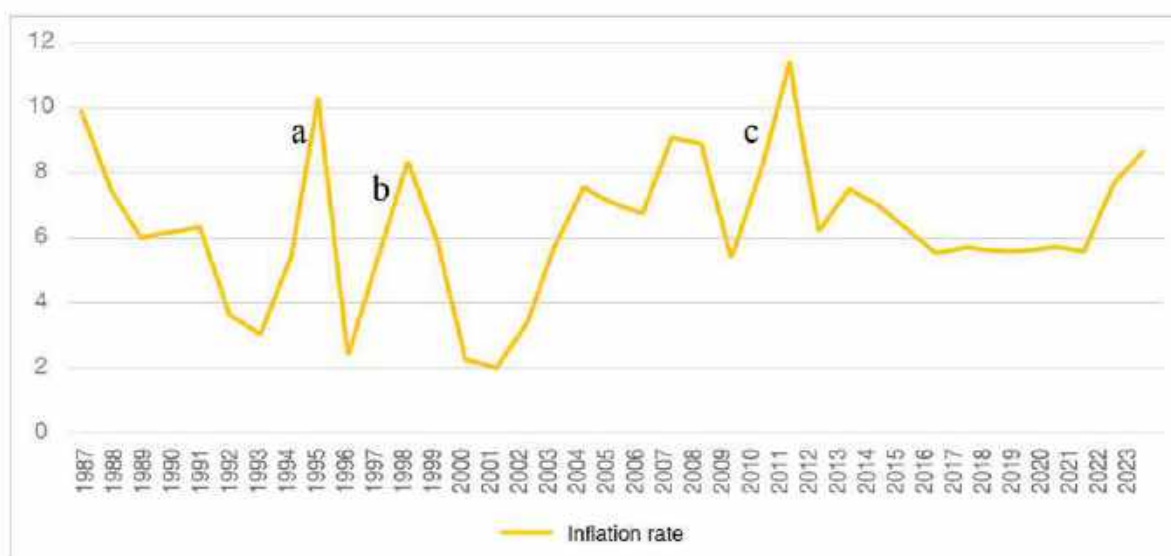
For the past few years, inflation has been accelerating at an alarming rate in Bangladesh. Generally, moderate inflation has a positive impact on the GDP growth rate. However, hyperinflation increases the incidence of poverty by reducing the GDP growth rate. To know the inflation trend in Bangladesh, the 37 years of data on inflation from 1987 to 2023 have been presented in Table 1 and reviewed.

**Table 1: Historical Data of Inflation rate (in percentage) in Bangladesh from 1987 to 2023**

Year	Inflation rate	Year	Inflation rate	Year	Inflation rate
1987	9.87	2000	2.21	2013	7.53
1988	7.41	2001	2.01	2014	6.99
1989	6.04	2002	3.33	2015	6.19
1990	6.13	2003	5.67	2016	5.51
1991	6.36	2004	7.59	2017	5.70
1992	3.63	2005	7.05	2018	5.54
1993	3.01	2006	6.77	2019	5.59
1994	5.31	2007	9.11	2020	5.69
1995	10.30	2008	8.90	2021	5.56
1996	2.38	2009	5.42	2022	7.70
1997	5.31	2010	8.13	2023	8.61
1998	8.40	2011	11.40		
1999	6.11	2012	6.22		

Source- World Bank, IMF, and OECD.

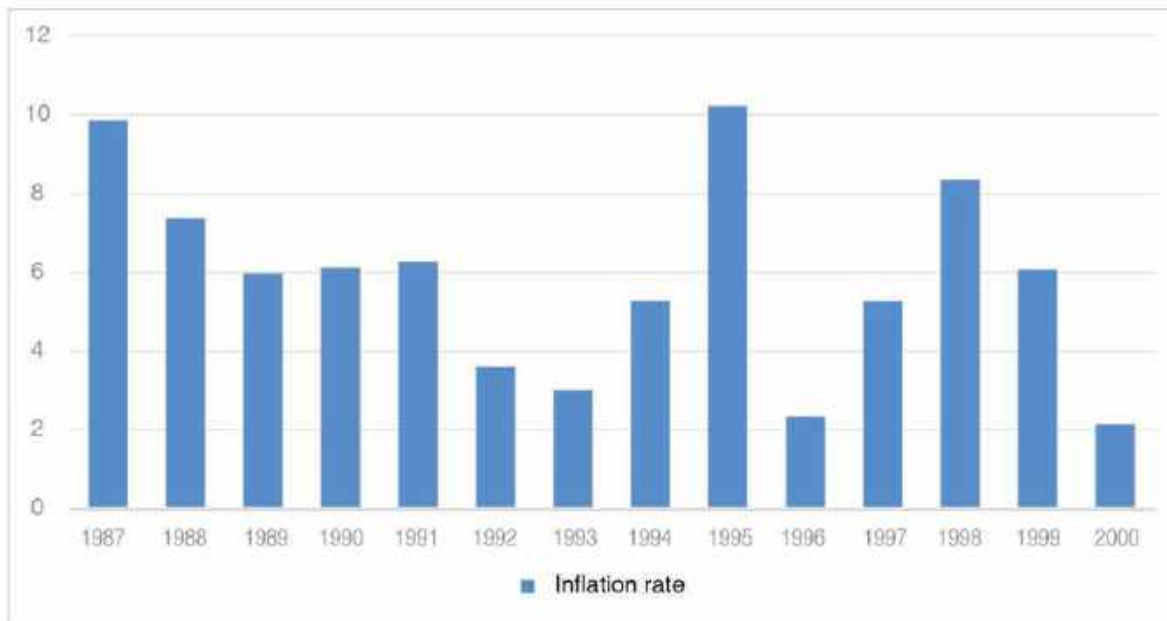
**Figure 1: Inflation Rates in Bangladesh (%)**





The historical inflation data from 1987 to 2023 have been divided into three segments for ease of review. The first segment covers the years 1987 to 2000, while the second covers the years 2001 to 2010, and the third covers the years 2001 to 2023. The logic behind such division is to understand the spike of inflation trends in different periods.

**Figure 2: Inflation Rates in Bangladesh from 1987 to 2000**

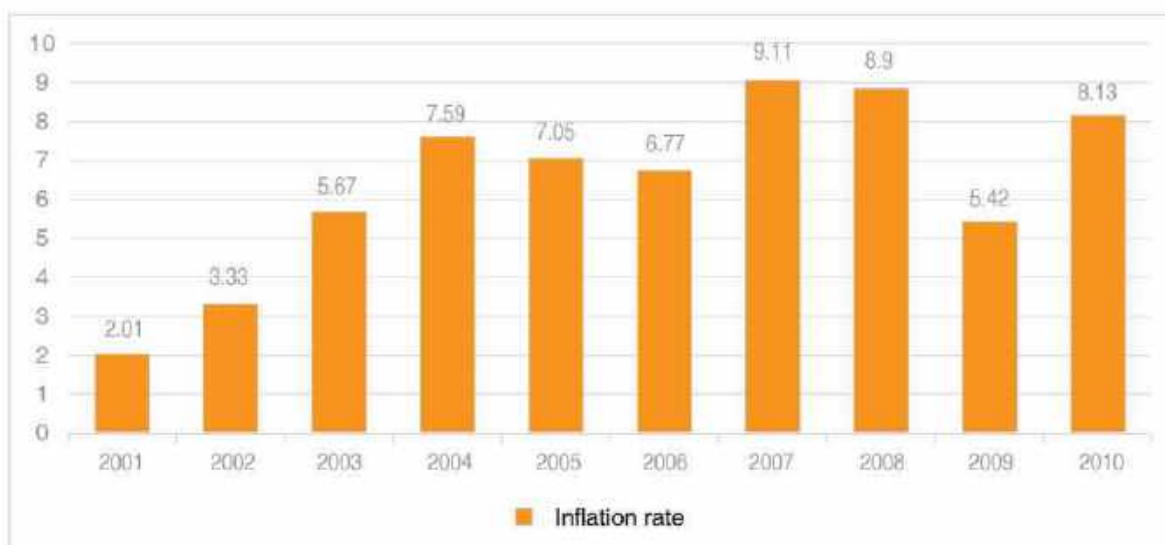


If we look at the first segment, we can see that, except for 1995 and 1998, Bangladesh had a fairly moderate inflation rate on average during these fourteen years. Bangladesh's inflation rate in 1987 was 9.87%, which was high enough. During this time, the economy's base year was changed from 1973-74 to 1985-86. The inflation rate then began to fall in the following years, from 1989 to 1994, and it stood at 5.31% in 1994. However, it peaked at 10.30% in 1995, owing to natural disasters and supply shocks. Figure 1 shows a spike(a) this year. In the following year, 1996, inflation fell to 2.38%, before rising to 5.31% in 1997 (Figure 1&2). However, from July to September 1998, Bangladesh experienced the most extensive, profound, and long-lasting flooding of the century. The flood damaged the main crop, rice, as well as other staple crops. As a result, the inflation rate rose to 8.40% this year but remained below the double-digit level, and we see another spike(b) in Figure 1. Then, in 1999, a declining trend was observed, and the inflation rate fell even further due to a record Aman harvest in 2000. Regional rice export bans, as well as procurement from domestic and



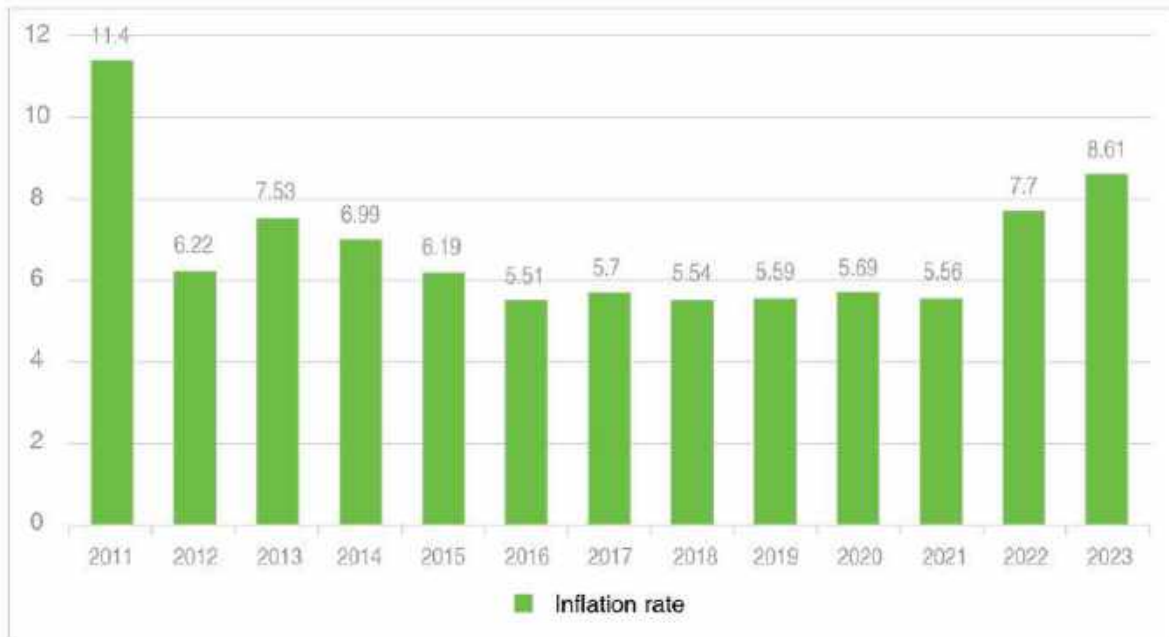
international markets and sales on the open market, allowed the government to manage the inflationary situation wisely (Sultana & Saif, 2013).

**Figure 3: Inflation Rates in Bangladesh from 2001 to 2010**



As a result, we observe a decline in the inflation rate to the lowest at 2.01% in 2001 in the inflation history from the 80s, and it was below 4% in 2002 because of low levels of prices of food grain ensured by successive good harvests in the previous few years (Sultana & Saif, 2013). Then, from the third year of the new decade, the annual inflation rate increased yearly. The government of Bangladesh wanted to encourage local investment and decreased the lending interest rates from 16% to 14.75% in 2004 and further to 14% in 2005. As a result, people started to take loans and use them for investment, and the inflation rate began to rise as people kept liquid money in their hands (Sultana & Saif, 2013). The government increased lending interest and deposit rates from 2006 to control inflation. So, we observe a declining trend in inflation in 2006, which was over 7% in the previous two years. In the year 2007, Bangladesh faced severe food inflation. According to BBS, food inflation hit 13.83% in 2007, pushing the overall inflation rate to 9.11% in that year (Figure 3). Apart from the global commodity boom, some internal factors, such as the drive against corruption, crop loss due to natural disasters, the Bangladesh Bank exchange rate policies, expansion of broad money (M3), etc., exacerbated the price hike of primary commodities and the last three years of the decade saw the inflation rate above 8%.

**Figure 4: Inflation Rates in Bangladesh from 2011 to 2023**



Bangladesh started another decade with double-digit inflation of 11.40% in 2011. According to BBS data, inflation hit 11.97% in September 2011. It was the highest in 20 years. This month, due to higher food and oil prices, food inflation jumped to 13.75%, more than policy analysts had forecasted (Sultana and Saif 2013). We see the third spike (c) in Figure 1. High food inflation contributed to pushing up the national inflation. Because of lower international food prices, food inflation remained lower for a considerable period. As a result, a declining trend in inflation was observed during that period. However, the energy price hike and Taka's devaluation against the US dollar combined pushed the non-food inflation to increase. Despite non-food inflation during the period from 2012 to 2015, the average inflation rate in Bangladesh was around 6%. However, according to BBS, a jump in prices of rice, pulses, flour, fish, and other items pushed food inflation higher, resulting in general inflation higher than 6%, i.e., 7.53% in 2013 (Figure 4). The average inflation rate in the latter half of the second decade of the 21st century was less than 6% and continued throughout 2021. The COVID-19 pandemic continued to spread since March 2020 and affected Bangladesh's economic and social well-being in various ways. These included a slow pace of economic activities, significant loss of jobs, sharp decline in export income and remittances, increase in the incidence of poverty, etc. The country's gross domestic product (GDP) growth sharply came down to 3.45% in fiscal year 2020 from 7.88% in fiscal year 2019. The growth rate in FY 2021 was 6.94% (ADB,



2021). However, the pandemic did not affect national inflation due to well-timed steps taken by the government. The food inflation rate was lowest in 2021, i.e., 1.9%, and non-food inflation was 5.29% (Karim & Yasmin, 2023). Bangladesh, however, managed to keep the inflation rate below 6% till the fiscal year 2021, although prices of daily necessities were high due to repeated lockdowns, panic buying, supply shortages, disruption of communication and transport systems, etc., during the pandemic. But again, supply chain disruption started when Russia attacked Ukraine in February 2022. The general price level skyrocketed because of the dollar crisis and devaluation of the Taka against the US dollar, soaring prices of food, fuel, electricity, gas, and fertilisers within the country. Since then, the inflation rate in Bangladesh has been increasing, and it rose to 8.61% in FY 2023, which was 0.91% higher than the previous FY 2022 (Figure 4). From last April 2023, BBS has made a change in the calculation of the inflation rate. The 2005-2006 base year has been changed to 2021-2022 as the base year according to the advice of the IMF, because lifestyle and consumer behaviour have greatly changed, and the existing base year may not accurately calculate the inflation rate.

### **Inflation Scenario of Last 14 Months from July 2022 to August 2023**

After the shock of the COVID-19 pandemic, the economic activities in the world including Bangladesh began to normalise from January 2022. However, due to low production and supply shortages, global inflation has been on the rise. Then, in February 2022, when Russia attacked Ukraine, there was a severe energy crisis, and production costs increased further. Again, the economic sanction against Russia reduced the global food grain supply, including wheat. Consequently, the world observed both demand pull and cost push inflation at the same time, which has not ever been seen in history. Global rising inflation also has an impact on Bangladesh's economy, and the inflation rate started to increase within the country. The monthly point-to-point inflation rates for the period July 2022 to August 2023 have been presented in Table 2.



**Table 2: Monthly Inflation Rates (Point to Point) from July'22 to Aug'23  
(In percentage)**

Level	Types of Inflation	Jul'22	Aug'22	Sep'22	Oct'22	Nov'22	Dec'22	Jan'23	Feb'23	Mar'23	Apr'23	May'23	Jun'23	Jul'23	Aug'23
National	General	7.48	9.52	9.10	8.91	8.85	8.71	8.57	8.78	9.33	9.24	9.94	9.74	9.69	9.92
	Food	8.19	9.94	9.08	8.50	8.14	7.91	7.76	8.13	9.09	8.84	9.24	9.73	9.76	12.54
	Non-Food	6.39	8.85	9.1	9.58	9.98	9.96	9.84	9.82	9.72	9.72	9.96	9.60	9.47	7.96
Rural	General	8.02	9.70	9.13	8.92	8.94	8.86	8.67	8.80	9.32	8.92	9.85	9.82	9.75	9.98
	Food	8.79	9.98	8.95	8.38	8.23	8.11	7.92	8.19	9.06	8.78	9.32	9.95	9.82	12.71
	Non-Food	6.58	9.18	9.48	9.98	10.31	10.29	10.21	9.98	9.82	9.33	9.83	9.52	9.48	7.38
Urban	General	6.51	9.18	9.03	8.90	8.70	8.43	8.39	8.75	9.36	9.68	9.98	9.45	9.43	9.63
	Food	6.84	9.87	9.36	8.75	7.95	7.45	7.41	7.98	9.14	9.10	9.13	9.26	9.63	12.11
	Non-Food	6.15	8.42	8.66	9.07	9.54	9.51	9.48	9.61	9.59	9.96	9.90	9.47	9.20	8.48

Source: BBS

Bangladesh's inflation rate was 7.48% in July 2022, rising to 9.52% in August 2022 before falling to 9.1% in September 2022. According to the statistical agency, food inflation was 8.19% in July 2022, 9.94% in August, and 9.08% in September, compared to the previous month. Concurrently, the non-food inflation rate increased to 8.85% in August and 9.13% in September, up from 6.39% in July 2022. When we look at Table 2 in terms of rural and urban areas, we see that general inflation in rural areas was higher than in urban areas in July, August, and September 2022. The food and non-food inflation rates were also higher in rural areas than in urban areas during those three months. The inflation rate then falls until February 23, but it remains above 8%. Non-food inflation remained above 9% until July 23, while food inflation remained above 8% in October, November, February, and April. Inflation was less than 8% in December and January. Rural people experienced greater inflationary pressure than urban people during the aforementioned months. In May 2023, the country recorded a decade-high inflation rate of 9.94%, up from 9.24% the previous month. According to the BBS report, food inflation was 9.24% in May, which was higher than the previous month's (8.84%). The non-food inflation rose to 9.96% in May up from 9.72% in the previous month April. The rural inflation rate reached 9.85% in May compared to 8.92% in April, while urban areas saw inflation rise to 9.98% in May,

up from 9.68% in the previous month. The important feature of recent inflation is that it was initially primarily caused by non-food inflation, but after February 2023, both food and non-food inflation caused the national inflation rate to rise. Overall inflationary pressures tended to fall in the months of June and July 2023. The inflation rate in July was 9.69%. Non-food prices also fell in June and July, even though food inflation remained high. In the aforementioned months, they were 9.73% and 9.76%, respectively. Bangladesh recorded a 12-year high food inflation rate of 12.54% in August 2023, pushing up national inflation. The national inflation rate was 9.92% this month, which was higher than the previous month. The corresponding inflation rates were also high in rural (9.98%) and urban (9.63%) areas. In August 2023, food inflation rates in rural and urban areas were 12.71% and 12.11%, respectively. Non-food inflation fell to 7.95% in August 2023. According to market experts in Bangladesh, the depreciation of the Taka, poor market management, and monitoring systems, the persistence of market syndicates, food supply chain disruption due to the long-running Russia-Ukraine war, the lack of accurate data on demand and supply, and other factors are to blame for the rise in food prices.

It is said that if the inflation rate is less than the GDP growth rate, then it does not have a negative impact. If we consider the situation in Bangladesh, we see that the GDP growth rate sometimes lags behind the inflation rate. So, the impact of inflation on the Bangladesh economy is not always negative. Let us review Table 3, which shows a comparative picture of the GDP growth rate and inflation rate from the fiscal year 2013-2014 to 2022-2023.

**Table 3: Comparison of GDP Growth Rates and Inflation Rates (Point to Point (In Percentage))**

Year	Inflation rate	GDP growth rate
2013-2014	6.99	6.1
2014-2015	6.19	6.5
2015-2016	5.51	7.11
2016-2017	5.70	6.59
2017-2018	5.54	7.32
2018-2019	5.59	7.88
2019-2020	5.69	3.45



2020-2021	5.56	6.94
2021-2022	7.70	7.2
2022-2023	8.61	6.03

Source: BBS

**Figure 5: Comparison of GDP Growth Rates and Inflation Rates (Point to Point (In Percentage))**

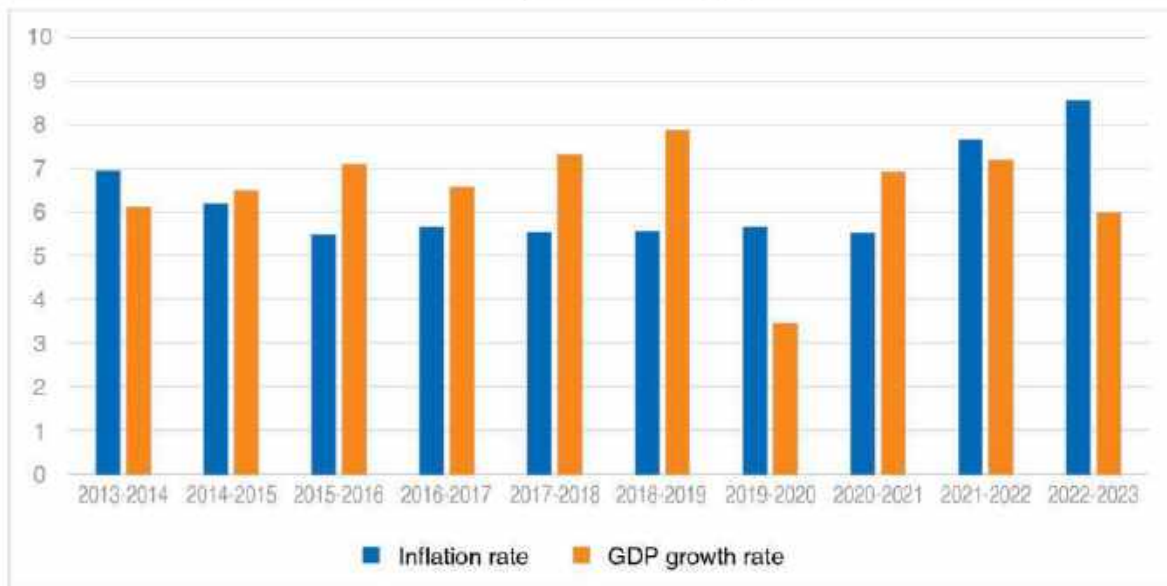


Figure 5 shows that the inflation rate exceeds the GDP growth rate in fiscal years 2013-14, 2019-20, 2021-22, and 2022-23. According to BBS, the overall inflation rate was high (7.53%) in FY 2012-13 due to a rise in food prices. Even though the rate of inflation fell slightly to 6.99% in the following fiscal year 2013-14, this effect persisted. The COVID-19 pandemic reduced GDP growth to 3.45%, while inflation was higher than GDP growth in FY 2019-20. The government was then able to keep the inflation rate behind the GDP growth rate in FY 2020-21 by taking adequate and timely steps. However, Russia's invasion of Ukraine impacted the global economy once more, and global inflation began to rise. Bangladesh's economy has also begun to bear the brunt of global inflationary pressure. Since then, the internal inflation rate has risen, reaching 7.70% in FY 2021-22 and 8.61% in FY 2022-23. GDP growth rates in those fiscal years were 7.2% in FY 2021-22 and 6.03% in FY 2022-23, respectively. The government has set a target of 7.5% GDP growth in FY 2023-24 and hopes to keep inflation



around 6.5%. However, according to BBS data, the inflation rate in September of FY 2023-24 was 9.1%.

### **Survival Strategies of the Poor Households**

Since the COVID-19 outbreak in early 2020, poor households and low-income people have faced challenges as the cost of living has risen. They are attempting to recover from income losses caused by the pandemic. However, their struggle has become more difficult due to higher commodity prices, which have been exacerbated by the Russia-Ukraine war, as well as several domestic factors such as price increases in petroleum, increases in dollar prices, and market distortion by a few dominant businesses. Inflation is, without a doubt, a cruel regressive tax instrument that disproportionately affects low-income households (SANEM, 2023). Rising inflation forces poor households to alter their expenditure pattern. Many of them reduce their expenditures on non-food items such as clothing, education, and housing rent to reduce their food expenditure. According to a CPD (2022) report, nearly 93% of those affected were forced to use at least one negative coping strategy, such as skipping meals, going into debt, or depleting productive assets, as a result of the sudden loss of livelihoods and food supplies.

The welfare of a household is greatly impacted by food insecurity. Karim and Yasmin (2023) found that the recent inflation is mostly caused by increasing food costs. As the poor spend a greater percentage of their income on food, the current inflation has a greater negative impact on them. SHOUHARDO (Strengthening Household Ability to Respond to Development Opportunities 111 Plus Program) funded by USAID conducted a Recurrent Monitoring Survey (RMS) with 450 randomly selected program households from July 2022 to February 2023 to understand the impact of price hikes on SHOUHARDO program participants and found that the rise in food commodity prices had affected people's access to sufficient and nutritious food and revealed that low-income households could barely afford healthy food. They had a poor diet with lower protein, iron, and vitamin- A compromising the quality and quantity of food. Most of their calorie intake came from rice. This report also revealed that a significant number of people failed to meet their expenses including food, non-food, medical, and education. In July 2022, 80% of people failed to meet food expenses, but in February 2023 the percentage increased to 82.2%. In July 2022, 11.9% of people suffered from nutritional deficiencies but in February 2023 it increased to 52.7%. The data from February 2023 reflected that 49.8% of respondents failed to meet their medical expenses, and 52.7% of respondents failed to meet educational

expenses. An increase in the cost of food commodities severely impacted poor households by reducing their purchasing power and negatively affecting their standard of living. Poor households adopted various negative coping mechanisms to survive the shock.

SANEM surveyed 1600 households across 8 divisions. Half of these were selected from urban slums while the other half was selected from rural areas to investigate the effect of inflation on the livelihoods of poorer households in Bangladesh alongside assessing the coping strategies of these people. The survey revealed that in the process of adjusting to inflation, many were forced to alter their consumption and savings behaviour. Their major coping strategies included changing food habits (90%), borrowing (74%), reducing non-food expenditures (56%), working overtime (39%), relying on aid, using savings (35%) etc. It was found that 77% to 97% of households reduced their protein consumption while 37% to 45% decreased the consumption of necessary food such as rice, and lentil. Additionally, they compromised food quality by switching to low-quality goods. In terms of non-food spending, 92% of households cut back on clothing, while 6% cut back on health care. In terms of children's education and utility services, 45% of households reduced their budget allocation for education, while 58% reduced their spending on utility services. From September 22 to February 23, 18.19% of respondents reported having to go without food for an entire day due to a lack of funds. Currently, 25.44% of households face severe food insecurity.

The poor people simply struggle to survive against insurmountable odds and uncertainties of daily life. So, they adopt various techniques to cope with odds and uncertainties. Under inflationary pressure, the coping techniques that come out from the SANEM study are stated below:

- a) Changing food habits; b) Borrowing from friends, relatives, and money lenders; c) Reducing non-food expenditure; d) Cutting food expenditure; e) Erosion of the saving opportunity; f) Using savings; g) Working overtime; h) Selling properties; i) Involving in secondary occupation; j) Selling of durable goods; k) Discontinuing children's education to reduce cost; l) Changing the job; m) Moving to cheaper rented house; n) Involving children into child labour; o) Relying on aid; p) Early marriage of daughter, etc. The other coping techniques adopted by poor households are: - a) Whole day starvation due to lack of affordability; b) Missing one or two meals; c) Eating less than required, d) Switching to inferior foods, etc.

In many cases, an increase in wages causes inflation. Because, if the wage rate increases, it increases the production cost, and higher production cost



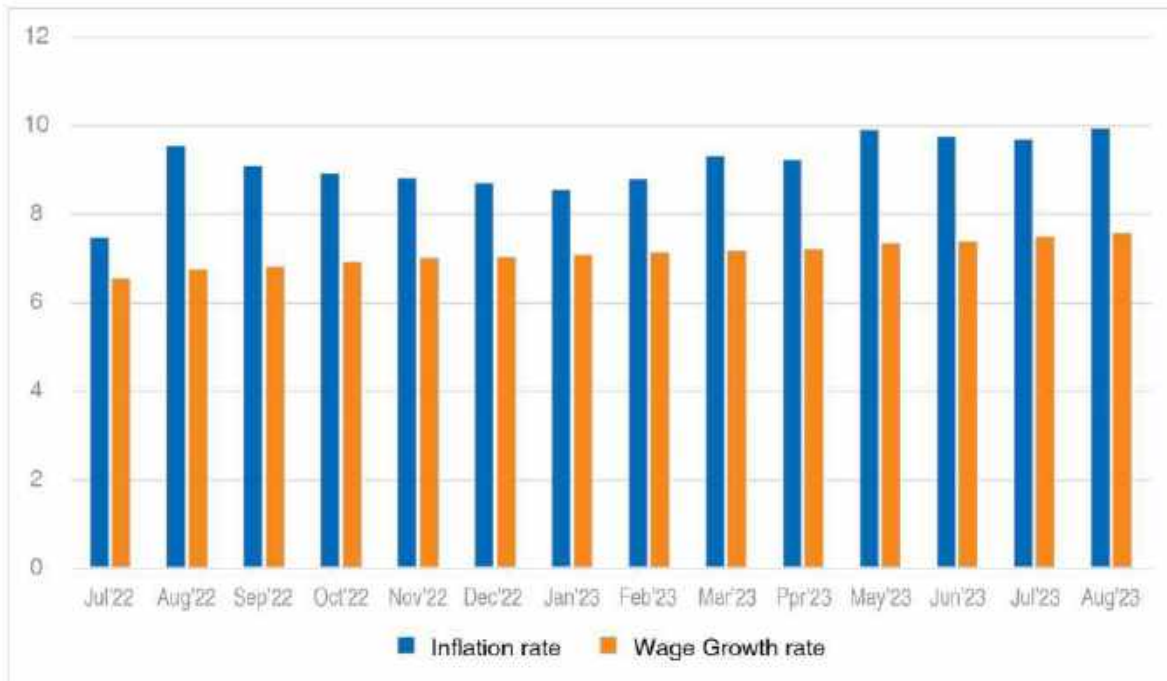
causes higher prices, resulting in inflation. During the pandemic, economic activities in Bangladesh slowed down. In the process of boosting trade and economy, wages have been increased. But, due to the continuous increase in the prices of daily necessities for the last 14 months, the benefits of the increase in wages are being lost. According to BBS, inflation has outstripped wage growth at the national level. The statistical agency has revealed that, from July 2022 to August 2023, the average inflation rate at the national level was between 7% to 9%, and the inflation rate reached an 11-year high at 9.94% in May 2023 (Table 4).

**Table 4: Monthly Wage Growth rate and Inflation rate from July 2022 to August 2023**

Month	Inflation rate	Wage Growth rate
Jul'22	7.48%	6.56%
Aug'22	9.52%	6.80%
Sep'22	9.10%	6.80%
Oct'22	8.91%	6.91%
Nov'22	8.85%	6.98%
Dec'22	8.71%	7.03%
Jan'23	8.57%	7.06%
Feb'23	8.78%	7.11%
Mar'23	9.33%	7.18%
Apr'23	9.24%	7.23%
May'23	9.94%	7.32%
Jun'23	9.74%	7.39%
Jul'23	9.69%	7.52%
Aug'23	9.92%	7.58%

Source- BBS

**Figure 6: Monthly Wage Growth Rates and Inflation Rate from July 2022 to August 2023**



In the next two months, the pressure eased slightly. But in August, the inflation rate again rose to 9.92%. Earlier in March 2012, Bangladesh observed a 10.10% inflation rate. On the other hand, wages have grown very slowly during the last 14 months. From July 2022 to August 2023, the average wage growth rate ranges between 6.56% and 7.58%. The average difference between the wage growth rate and the rate of inflation during those 14 months was 2% (Figure 6). According to the latest BBS data, the country's average food price inflation in August was 12.54%, the highest in the last 12 years. The rural areas saw a higher inflation rate than in urban areas (Table 2). But in August 2023, the wage rate growth was 7.58%, which lags behind the inflation rate. In this situation, the low-income groups, including the country's workers, are not able to enjoy the benefits of wage increase, because the increasing inflation eats away at the benefits of the wage increase. As a result, to survive they cut down the expenditures on both food and non-food items like clothing, education, health, etc., and eat less than required both qualitatively and quantitatively. According to nutritional scientists, an adult male needs 2000 to 3000 kcal, and an adult female needs 1600 to 2400 kcal daily to stay healthy. In the case of children, it is 1000 kcal, and for teenagers, it is 3200 kcal daily. We find from the above analysis that in the face of inflationary pressure, poor households lost their purchasing power and could not afford to take



the required food. Experts fear that inadequate and low-quality (in terms of food value) food intake may create the risk of less productive and undernourished future generations in Bangladesh in the long run.

### **Conclusion and Recommendations**

Policymakers and practitioners both at home and abroad have praised Bangladesh for its fighting spirit. Various natural disasters such as floods, cyclones, storms, and droughts have repeatedly devastated the Bangladesh economy, but the country has recovered successfully. According to the World Bank, Bangladesh has had one of the fastest-growing economies in the world over the last decade, and the country has made remarkable progress in reducing poverty. According to HIES 2022, the country's poverty rate is currently 18.7%, with 5.6% living in extreme poverty. According to HES 2016, poverty and extreme poverty were 24.3% and 12.9%, respectively. The eighth five-year plan (2020-2025) sets a goal of reducing poverty to 15.6% by 2025.

But the COVID-19 pandemic hit hard the Bangladesh economy. The pandemic pushed middle and low-income people down the poverty line. It was assumed that almost 24.5% million people became new poor. The pandemic and repeated lockdowns over 18 months since March 2020 induced the prices of daily necessities to increase. The 12-month average inflation rate remained at 5.5% to 6% while the point-to-point inflation only went over 6% twice in the last year. Bangladesh managed to control the inflation during the pandemic (Bangladesh Bank 2021a). After the shock of the COVID-19 pandemic global economic activities including Bangladesh began to regain normalcy from January 2022. However, due to low production and supply shortages, global inflation has been on the rise. The invasion of Ukraine by Russia has created a severe energy crisis increasing production costs. Again, the economic sanction imposed on Russia by the Western world and Europe has put fuel on the soaring prices of goods and services. The supply chain of food grains, especially wheat, was severely disrupted as Russia is one of the major wheat-producing countries in the world. Since then, the food inflation rate has been on the rise across the world as well as within the country which induced the overall inflation rate to increase. In July 2022, the inflation rate in Bangladesh was 7.48% and the respective food inflation rate was 8.19%, while the non-food inflation rate was 6.39%. But in May 2023, Bangladesh recorded an 11-year high inflation rate of 9.94% and the respective food inflation rate was 9.24% while the non-food inflation rate was 9.96%. In August, food inflation reached a record 12-year high at 12.54%. According to

Karim and Yasmin (2023), the food inflation rate was 1.9% in 2021, the lowest of the decade (2012 to 2022), while the non-food inflation rate was 5.29%. Food and non-food inflation rates in 2022 were 9.73% and 9.98%, respectively. Despite the COVID-19 pandemic, the study found that 21.19% of people in urban areas and 14.15% in rural areas experienced food insecurity in 2021. However, food insecurity in rural areas increased to 24% in 2022, while it decreased slightly in urban areas (21%). Again, according to SANEM, a survey conducted from September 2022 to February 2023 revealed that in February 2023, 30% of people in urban areas were severely food insecure, while 20.13% were in rural areas. Food insecurity affects the well-being of the household.

Under inflationary pressure, poor households are compelled to use various coping techniques, including cutting down expenditures on food items to meet family expenses. According to the current wage structure, the minimum wage for a worker is Tk 8000/-, which includes house rent and other expenses. According to BBS data, food inflation in Bangladesh reached a 12-year high of 12.54% in August 2023, and it remained high in September 2023 at 12.37%. As a result, food prices such as rice, pulses, oil, salt, fish, meat, vegetables, spices, and eggs have reached all-time highs in the last 14 months. In this situation, poor households have no choice but to reduce their food expenditures to survive. From the above discussion, we see that, due to lack of money, some people had to starve a whole day, some missed one/two meals, and some compromised food quality by switching to inferior foods. They could hardly afford protein due to the high price. Most of their calorie intake came from carbohydrates. Nutrition experts in Bangladesh fear that such inadequate and low-quality food intake may pose a risk of undernourished and less productive future generations.

- a) The poor and low-income people are still grappling with their limited budgets as the price hike continues to mount (Khatun, 2022). According to the result of the seventh round of FAO, 48% of households have considered food price hikes to be the biggest economic shock. As the causes of inflation are multifaceted, its remedy is not possible by changing one or two indicators. The government of Bangladesh must take sensible, vigorous, extensive, and multidimensional actions to stop the price spiral. As the recent inflation is triggered by both demand-side factors as well as supply-side factors, steps must be taken from both the demand and supply sides to control the upward trend in prices. Some specific suggestions are given below: - To combat inflation, the management of food grain stocks should be strengthened. Due to insufficient storage space and technology, a considerable amount of supplies has resulted in wastage. The government



should have enough food grain buffer stock, especially of wheat and rice. To maintain adequate food stock, special attention should be given to increasing agricultural production and importing food. The high fertiliser price would lead to higher production costs – resulting in higher prices of agricultural commodities, including rice. The govt. should also provide subsidies on various agricultural inputs, including seed and fertiliser.

- b) The market monitoring system should be strengthened to resist any attempt to manipulate the prices. A strong information centre should be formed which will record the weekly information about the price, demand, and supply dynamics of food items as well as non-food items in the domestic and foreign markets and will preserve these.
- c) The govt. can encourage the formation of producers' co-operatives, which will work to ensure fair prices for their products and help remove superfluous intermediaries in the supply chain.
- d) To increase market competition, the government should assist small and medium-sized traders in obtaining financing from commercial banks for imports.
- e) The Bangladesh Bank's last monetary policy was not consistent with the time. Interest rates were capped at 6% to 9%, falling short of inflation. As a result, monetary policy remained ineffective in controlling inflation. Bangladesh Bank has announced its new monetary policy for the first half of fiscal year 2023-24 (July to December). Bangladesh Bank increased the repo rate by 50 basis points, from 6% to 6.5%, and the reverse repo rate by 25 basis points, from 4.25% to 4.50%, to control the money supply. The decision to increase the policy rate is a positive step because it is a key tool for determining interest rates. A contractionary monetary policy is expected to bring inflation under control. However, this necessitates a successful implementation of monetary policy.
- f) Opposite to contractionary monetary policy, an expansionary fiscal policy is necessary to combat inflation. Due to the 25% to 30% devaluation of Bangladesh's currency against the US dollar, the prices of imported goods increased within the country. Therefore, the taxes on imported goods should be reduced or exempted to control the domestic price spiral. At the same time, the production of import substitute goods should be encouraged to reduce import dependency. The value-added taxes on some necessary food items like edible oil, sugar, lentils, rice, etc. need to be exempted.

- g) Domestic market surveillance systems need to be modernised and developed to prevent unscrupulous traders from creating artificial shortages to drive up product prices.
- h) The current Public Food Distribution System is insufficient to keep any significant impact on the costs of essential food items as it covers only about 7% of the total food required. The govt. should, therefore, extend public food distribution to include more people negatively impacted by the price spiral. The volume of sale of essential commodities such as rice, lentils, edible oil, sugar, etc. through the open market system (OMS) needs to be increased and expanded. The distribution system should be managed effectively without any corruption so that eligible persons get access to these items at low prices.

Unless inflation is negative, the average price or price level does not fall again. If high inflation persists and income does not rise proportionately, consumption and saving propensities will suffer, threatening the overall economy.

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Manuscript received on 12 October 2023 and revised on 20 November 2023

## Pollination Efficiency of Flower Flies (Syrphidae)

Dr. Nilakshi Didar\*

### Abstract

Close observation of pollination activity of pollen collecting Syrphid flies reveals foraging on flowers, eating pollens and nectar. Similar results were found for total 7 species (*P serratus*, *S balteatus*, *D fasciata*, *E arvoram*, *E obscuritarsis*, *E obliquus*, and *Palpada sp.*) by observations in few fixed spots. Each spot was sampled monthly. The duration of each Regular observation lasted for ½ to 2 hours, in each spot, depending on the availability of the samples. For the study of anatomical variation of pollinating Syrphids measurements of body parts like abdomen, thorax, wing, head, face, and scutellum were made. Maximum length and width of body parts were used for measurements. Morphological features of the flowers those visited and pollinated by Syrphid flies were done minutely. Significant variations were found in the different parts of the body of syrphids. An adequate number of morphological variety were also detected in the visiting flowers.

**Key words:** Syrphids, Pollination, Anatomical variation, Morphological features.

### 1.0 Introduction

Pollination is the transfer of pollen grains that leads to the germination of the pollen grain on a stigma and fertilization of a plant ovule resulting in seed/fruit set.

Pollination is the process whereby plants receive pollen from other plants of the same species so that they can reproduce by forming seeds. (Scheibner, 1999)

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Insects pick up pollen from the male anther of a flower. When they visit a flower with a stigma (female reproductive part of a flower) the pollen is transferred from the insect to the sticky surface of the stigma. This results in fertilization and the formation of a seed. Pollen is the vector in the sexual reproduction of flowering plants as well as a floral reward for pollen eating insects. Plants that are pollinated by insects also exhibit special adaptations – for example, their flowers are brightly colored, with bold and conspicuous patterns which lead the insects to the pollen (and nectar). Some plants also attract insects by producing pheromones which mimic insect pheromones. Such plants are called entomophilous plants. (Biju's, 2023) explained although the plant and the insect may benefit because of their relationship with each other, the insect visiting a flower usually does not purposefully pollinate the flower. The relationship between plants and their pollinators is an ancient one. Plants provide sweet nectar and pollen for pollinators. In return, pollinators move pollen from one flower to another, fertilizing the plant so it can produce seeds.

The list of insect pollinators is long and includes many different species of bees, flies, wasps, beetles, butterflies and moths. Even species with a bad reputation such as houseflies and mosquitoes are important pollinators. Syrphid is one of the largest and most sharply defined families of flies. They are mostly recognized as pollinating agents of many plants after the well-known group of bees. Adult Syrphids visit flowers to forage for nectar and pollen and to search for mates. Their importance as pollinators is second only to that of bees (Curran, 1938; Keven and Baker, 1983).

Syrphid flies are a very important group of insects for pollination and biological control. Adult Syrphids frequently visits flowers and feed upon nectar and pollen. Very little work has been done as a whole on fly as pollinators (Ssymank et al., 2008; Shahjhan, 1968; Heimpel and Jervis, 2005; Colley and Luna 2000). Therefore, this study is an important addition of knowledge that explored following research questions:

1. How do plants attract pollinators?
2. How does flower colour and shape affect pollinators?
3. As a pollinator is there any variation in the anatomical features of Syrphid?
4. What is the different in the Morphological structure of Syrphid visiting flowers?

## 20. Literature review

(Biology Liber Texts, 2023) noted that many flies are attracted to flowers that have a decaying smell or an odor of rotting flesh. These flowers, which produce nectar, usually have dull colors, such as brown or purple. They are found on the corpse flower or voodoo lily (*Amorphophallus*), dragon arum (*Dracunculus*), and carrion flower (*Stapleia*, *Rafflesia*).

More specialized flies like syrphids can visit more advanced blooms, but their purpose is to nourish themselves, and any transfer of pollen from one flower to another happens haphazardly. (From Wikipedia, the free encyclopedia 2023)

Just under 90% of all plants are angiosperms (flowering plants) that reproduce via pollen. Of those, most depend on other organisms to help them achieve pollination. (Harvey & Zundel, 2023).

(Harvey, 2023) observed that nearly all pollinating organisms are insects. One of the most important methods of pollination plants utilize is insect pollination. Insect pollination occurs when an insect visits a flower.

The pollinated flowers are often green or pale-colored, and heavily scented, often with fruity or spicy aromas, but sometimes with odors of decaying organic matter. Some, like the giant water lily, include traps designed to retain the beetles in contact with the reproductive parts for longer periods. (From Wikipedia, the free encyclopedia 2024).

According to Askham and Hendry (2021) Pollinators spread the love. Flowers abound in spring and summer. Their generous offerings of colour, smell and nectar are all on show for one reason - to seduce a pollinator to pay them a visit.

They also described that Hoverflies are prolific pollinators. They are known to visit at least 72% of global food crops and over 70% of animal-pollinated wildflowers.

Dicks et al. (2021) observed more than 80% of flowering plants and 75% of food crops are at least partially dependent on insect pollinators for sexual reproduction.

The Australian museum, (2018) estimated that 65% of all flowering plants and some seed plants such as Cycads and Pines require insects for pollination. This percentage is even greater for economically important crops that provide fruits, vegetables, textile-related fibers and medicinal products.

Flowers are modified in many ways, chiefly because many of them coevolved with pollinating insects. (Lopez & Barclay, 2017) If the parts in each whorl of a flower are all the same size and shape, the flower will display radial or



actinomorph (multilateral) symmetry.

Bartomeus, (2014) Insect pollination enhanced average crop yield between 18 and 71% depending on the crop. Yield quality was also enhanced in most crops.

Foraging in pollinating insects has a highly regular sequential structure (Handbook of behavior neuroscience, 2013).

Insects, particularly pollinators, are critical components of most terrestrial ecosystems, this decline poses a major challenge to the conservation of ecosystem functions and to the sustainability of the human food supply (Gallai et al., 2009).

Pollinators move pollen from the stamen, the male part of the flower, to the stigma, the female part of the same flower. Pollinator Insects have segmented bodies, legs with joints, and external skeletons, called exoskeletons. They are the only winged invertebrates (animals without backbones), though not all insects have wings. Flight helps ensure success in colonizing, creating new habitats and pollinating. (Willemstein, 1987).

Marmalade hoverflies (*Episyrphus balteatus*) can be found across the UK in gardens, parks and sunny woodland. They are able to fly extremely long distances, including from the UK to continental Europe. (Ortiz, 1976).

### 3.0 Methodology

For the study of pollination behavior of some Syrphids throughout the year. Adult Syrphid flies were observed and few of them collected in different spots of Chittagong region. The areas were selected under consideration of four conditions. If they were: 1) hilly place, 2) ground leveled garden; if their natural site was located in urban or rural area. The spots that were chosen for regular collection from Chittagong city were: All the samples collected for this study were identified in the laboratory with the available literatures and taxonomic keys. (Brunetti, 1923& Z.S.I, 1997) and from internet information. Most of the flies were collected by placing the insect net over the flies where they were either in resting or in feeding position. Sometimes flies were caught by sweeping the net when they were hovering or were in swiftly moving state throughout the year hover flies were regularly observed and collected in the morning as well as in the afternoon for regular collection and sometimes at night for odd observation. The duration of each collection lasted at least for ½ to 2 hours in each spot depending on the availability of the samples. During the collection period all available plant species (crops, trees, shrubs, bush and weeds) that were flowering in the surrounding of the spot, during the course of study were thoroughly surveyed.

To accomplish the process and investigation the materials needed and methods followed are described below...

### **3.1. Measurement of collected sample:**

All the samples were measured by Vernier caliper and following body parts were measured.

B = Body, H = Head, T = Thorax, S = Scutellum, W = Wing, A = Abdomen,  
L = Length, W = Width.

#### **Measurement by Vernier Caliper**

Morphological measurement up to a millimeter can be done with a regular scale which is graduated in millimeters, whereas with a vernier calipers with 10 equal divisions on the vernier scale it can be measured up to 1/10(0.1)mm accurately

V.S. = Vernier Scale

M.S. = Main Scale

20 equal divisions in V.S.=1 mm in M.S.

=1/20 mm in M.S.

Therefore,

Length,  $L = M.S. + V.S.$

$V.S. = vd \times vc$

vd= The 'n' the division of V.S. which exactly match with M.S.

Length  $L = M.S. + V.S.$

M.S. =5mm

$V.S. = vd \times vc$

$vc = 1/20 = 0.05 \text{ mm}$

$L = M.S. + V.S. \{V.S. = vd \times vc\} \quad \{vc = .05\}$

### **3.2. Detecting the morphology of flowers:**

All the samples of flowers visited by the experimented flies, were collected for this study, were identified and morphological descriptions ( such as their color ,shape structure )were made with the available literatures and taxonomic keys (Mukherjee, 1967) and from internet information.



## 4.0 Results

### 4.1. Morphological variation of Syrphid flies:

Some variations were found in different specimen in the present study. The variations detected, which are different from the descriptions of the earlier workers are recorded.

***Paragus serratus*:** One variation found in the color of hind Meta tarsi it was orange when generally yellowish in all other cases.

***Syrphus balteatus*:** In case of one ♀ the whole abdomen was fully yellow, bands were missing.

***Didea fasciata*:** Scutellum color in one male blackish in the centre while missing in rest of the cases Presence of yellowish thin band in 5<sup>th</sup> and 6<sup>th</sup> abdominal segment in one male only.

***Eristalis arvorum*:** Thorax without stripes in one ♂ (usually 4 stripes) (Fig.1)

***Eristalis obscuritarsis*:** Thorax stripes missing in two ♀ (usually 3 stripes) Scutellum color varied in one that was blackish while honey yellow in others. Presence of orange tinge in abdomen in one ♀

***Eristalis obliquus*:** Color varied in 3<sup>rd</sup> and 4<sup>th</sup> abdominal segment in one .Big size variation mostly found.

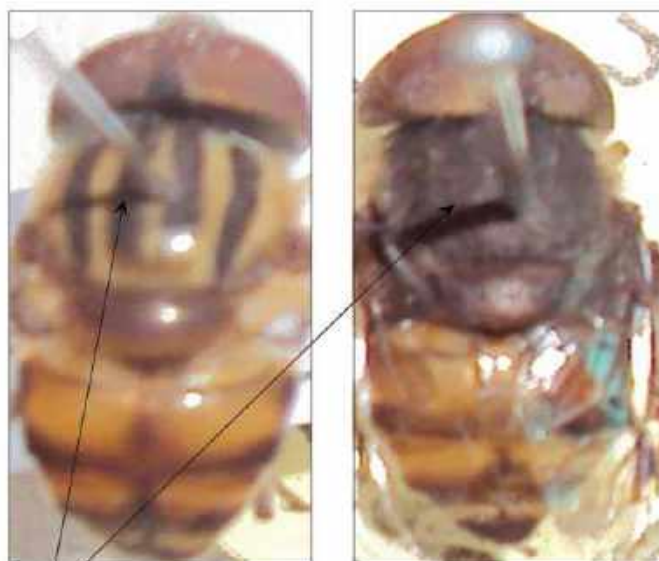


Fig.1 Variation in thorax in the same species (*Eristalis arvorum*)

**4.2. Modification of body parts for pollination :( fig 2-5)**

The variation in the body parts of Syrphidae were observed in the study process-

1. Syrphidae has got long proboscis. The longer tongued representatives, can be considered having elongated to long mouth parts. .
2. The proboscis of the Syrphidae varies in size but can reach considerable length up to 19 mm.
3. Syrphidae has not got as many cross veins at the tip of the wing.



**Fig.2 Pollen collection by Syrphid fly (*E. obscuritarsis*)**



**Fig.3 Syrphid fly (*Palpada* sp.) on pollen grain**





**Fig. 4 Lack of cross vein in Syrphid**



**Fig. 5 Long proboscis of Syrphid fly**

#### **4.3. Plant Preferences of Syrphid Fly**

Visual characteristics of plants may influence host selection behaviour: spectral quality, dimension (size), pattern (shape). Visually guided behavior is also influenced by odor perception. Chemosensory basis of host plant odor function (Willemstein, 1987). 122 Syrphid flies were observed in various flowers or plants during the study period. Those flowers were Marigold, lantana, Rangan, Tagor, Mushuri, Nayantara, *Chrysanthemum*, Jarvera, Panika, Cosmos, Landlily, Rose, Kata begun, Destrous, Dumur, Musaenda, Shondhya Maloti, Ornamental plants, Newly grown green weed, Jungle flower, Grass, Tree's flower, Small herbs, Weeds, Assamlata, Guava plants, Mango plant and Green bushes. The presence of various flowers and plants in at the collection time of Syrphid flies are described below and is shown by a flow chart.

Lantana>Marigold>Assamlota>Chrysanthemum>Tagar>Cosmos>Weeds>Destrous>Jarvera>Rose>Rangan>Panika>Mushuri >Bush> Kata begun>Guava plant>Mango tree>Shandhya Maloti

#### 4.4. Color (of pollinated flowers) preferences of Syrphid fly:

Freshly emerged flower visitors exhibit color preferences prior to individual experience with flowers. The understanding of innate color preferences in flower visitors requires a detailed analysis, as, on the one hand, color is a multiple-signal stimulus, and, on the other hand, flower visits include a sequence of behavioral reactions each of which can be driven by a preferential behavior. (Lunau, 1995)

Syrphid flies showed distinct preferences for visiting certain flower species. In present study, focusing on petal color, 11 tests with different combinations of flower species were made. 13 Syrphid species were found and collected from different colored flowers and plants. Those flowers were of various colors. Marigold, Cosmos, Lantana, Jarvera and some wild flowers were yellow in color. The flowers of kata begun, Chrysanthemum, Tagar, Lantana, land lily were white in color. Zinnia, Rose, Rangan, Mussaenda had red colour. Panika, Jarvera, Lantana, Destrous, Nayantara and some wild plants were in violet color. Lantana and Mussaenda were multi colored as well. The guava plant's weeds, Grass, Mango tree, Bushes and many wild plants and herbs were green in color.

#### 4.5. Statistical analysis on the color attraction of Syrphid flies:

Ho: There is no significant difference among the Syrphid flies in the attraction of 11 shades of colour

HA: There is a significant difference among the Syrphid flies in the attraction of 11 shades of colour

**Table- 1. Analysis of variance test on colour preferences of Syrphid flies**

ANOVA TABLE

	Sum of squares	df	Mean squares	F	Sig
Between shades of colour	1970.678	9	218.964	2.188	.031
Within shades of colour	8005.111	80	100.064		
Total	9975.789	89			



To assess the Syrphids' preferences on different types of colors Analysis of variance test has been performed. Table-1 shows the results that P value is .031 which is less than 5% level of significance and null hypothesis is rejected. It can be concluded that there is significant differences among the population of Syrphids on the preferences of t 11 shades of color.

>Dumur>Mushanda>Land lily.



**Fig. 6** *Palpada* sp. on yellow colored flower



**Fig. 7** Syrphid on white color



**Fig. 8** Syrphid on green color



**Fig. 9** Syrphid on purple color

#### **4.6. Morphological structure of Syrphid visiting flowers:**

In the present study flowers of different types those were visited by Syrphids were observed. Their shapes, sizes, colors, number of petals, number of corolla, and size of calyx were detected. Flowers were identified up to family level and observed if they were single or blossoms. The kinds of inflorescences were also observed.

- i. **Lantana camara** : 1. Inflorescence racemose 2. small flowers 3. Centripetal 4. Zygomorphic 5. Bisexual 6. tubular or bell shaped.
- ii. **Mari gold (*Tagetes patula*)** 1. Single flower 2. inflorescence capitulum. 3. Bisexual, 4. Tubular, ligulate, bilabiate or valvate.
- iii. **Sunflower (*Helianthus annus*)** 1. Single flower 2. inflorescence capitulum. 3. Bisexual, 4. Tubular, ligulate, bilabiate or valvate.
- iv. **Rose (*Rosa centifolia*):** 1. Single regular flower 2. Inflorescence cymose, 3. Petals imbricate 4. bisexual, 5. perigynous or epigynous.
- v. **Chrysanthemum (*Chrysanthemum coronarium*):** 1. Single flower, 2. inflorescence capitulum, 3. Capitulum large showy on long peduncles, 4. Bisexual, 5. Tubular, ligulate, bilabiate or valvate.
- vi. **Tagar (*Ervatamia divaricata*)** : 1. Single flower 2 . inflorescence cymose, 3. Flower regular bisexual, 4. hypogynous, 5. Corolla salver-shaped with cylindrical slender tube
- vii. **Cosmos : (*Cosmos sulphureus*)** 1. Single flower 2. inflorescence capitulum, 3. Bisexual, 4. Petals of ray florets united, linguat
- viii. **Rangan (*Ixora coccinea*), Gandharaj (*Gardenia florida*), and Mussaenda (*Mussaenda frondosa*)** 1. Inflorescence dichasial cymes, 2. Corolla lobes twisted, 3. Flower regular bisexual, 4. Epigynous 5. petals funnel shaped twisted
- ix. **Assamlota (*Eupatorium odoratum*)** 1. Single flower 2. inflorescence capitulum. 3. Bisexual, 4. Tubular, ligulate, bilabiate or valvate.
- x. **Nayan tara (*Catharanthus roreus*)** 1. Single flower 2. inflorescence cymose, 3. Flower regular bisexual, 4. Hypogynous, 5. Corolla salver-shaped with cylindrical slender tube
- xi. **Dahlia (*Dahlia tuberosa*) and Zinnia (*Zinnia eligens*)** 1. Single flower 2. inflorescence capitulum. 3. Bisexual, 4. Tubular, ligulate, bilabiate or valvate.
- xii. **Jaba (*Hibiscus rosa- sinensis*) and Land lily (*Hibiscus mutabilis*)** 1. Single flower 2. regular, bisexual, 3. Hypogynous showy 4. Inflorescence cymose
- xii. **Beli (*Jasminum sambac*)** 1. Inflorescence cymose, 2. Flower regular, bisexual, 3. Hypogynous 4. Valvate
- xiii. **Kata begun (*Solanum xanthocarpum*), Jungle flower Brihoti (*Solanum indicum*) and Dhutura (*Datura stramonium*)** 1. Inflorescence cymose,



2. Flower regular, bisexual, 3. Zygomorphic 4. Hypogynous

**xiv. Guava plant (*Psidium guavum*)** 1. Flower regular, bisexual, 2. Epigynous, 3. Inflorescence cymose, 4. Calyx imbricate

**xv. Mango plant (*Mangifera indica*)** 1. Inflorescence cymose, 2. Regular, bisexual, 3. Cup shaped

**xvi. Shandhya Maloti (*Mirabilis jalapa*)** 1. Terminal inflorescence cymose, 2. calyx with limb forming colored flag, 3. Regular, hypogenous one, 4. Funnel shaped

**xvii. Dumur (*Ficus carica*)** 1. Inflorescence cymose, 2. Regular unisexual, 3. Hypogenous

**xviii. Grass (*Achantherum hymenoides*)** 1. Inflorescence spikelet, 2. Flowers bisexual, 3. Sessile

## 5.0 Discussion

In the present study, most of the Syrphid flies' species were found foraging on flowers, eating pollens and nectar. Out of the 14 species most of the species of subfamily Syrphinae and Eristalinae were found in pollinating. Their pollinating behavior depends on variation in anatomical features as a pollinator, attachment of pollen into different body parts, like the pile (hair) on the head, thorax and abdomen. By close observation, it was seen (Fig.6-9) Syrphidae pollinated mostly yellow colored flowers, has got long proboscis and has not got as many cross veins at the tip of the wing which were considered as modification of body parts as pollinating agent. Similar finding was claimed by Wilemestein , (1987).

U .S. Forest Service Rangeland Management Botany Program, (2006) explained some flies, such as Syrphids, however, the pollinating flies can be distinguished with a sharp eye. Some with tongues as long as their bodies, which agree with present findings.

Han et al. (2011) reported *Paragus serratus* was among the very few species of flies such as capable of crushing pollen grains and feeding on them. In the present work this species was found during pollination.

Heinrich, (2010-2013) suggested that the yellow pollen probably was the first advertising signal of early insect-pollinated flowers. The yellow color of pollen was caused by carotenoid pigments shielding the pollen against ultraviolet radiation.

Askham & Hendry, (2021) explained that Pollinators spread the love .Flowers abound in spring and summer. Their generous offerings of color, smell and nectar are all on show for one reason - to seduce a pollinator to pay them a visit. In the present work all pollinators showed color preferences.

Similar report by Kegler, (1970) on Syrphidae was that medium sized to fairly large flies with an elongated to long proboscis are anthophilous feeding on nectar and pollen. The proboscis of the Syrphidae varies in size but can reach considerable length after feed on pollen flowers.

Presence of nectar is a floral adaptation to insect pollination. In nectar presence the beetle and fly-pollinated flowers do not differ. Both more often have free nectar and half concealed nectar. Flower morphology affects the time needed to find & collect the nectar or pollen. The flower may compensate the pollinator for increased investment in time and effort by providing a rich nectar award. (Louis, 2005).

In the present study syrphid fly were mostly found on Lantana (*Lantana camara*), Mari gold (*Tagetes patula*) and various wild plants bearing yellow colored flowers. So it can be argued that syrphids visited those plants to fulfill their essential nutrition. Therefore these plants may be considered as nutritious plants for them. Similar findings was obtained by Heimpel & Jervis,(2005) .They reported the nutritional dependence on floral resources suggests that artificial planting of the most attractive nutrition plants, might help to conserve hover flies for the better biological control of herbivorous pests.

Colley & Luna, (2000) indicated it as “beneficial insectaries planting” when they intentionally introduced flowering plants into agricultural ecosystems. From the present observation it can be concluded that by the more production of those plants that were mostly visited by Syrphids can be used as beneficial insectaries plants there by increasing the pollen and nectar resources required for Syrphid. Therefore, the effective biological control by using beneficial insectaries plants can be planned.

In the present study Syrphid visited most of the flowers that belongs to the family Compositae, 2nd largest family Apocynaceae and Rubiaceae, Solanaceae was in third position.

A particular aspect of flower shape is the perfection of its symmetry, whether it is radial or bilateral. As perfectly symmetrical flowers seem to produce more nectar than flower with high levels of fluctuating asymmetry, pollinators exert selection pressure on flowers for shape regularity (Kughen, 1970). In the present work



most of the flowers being attracted by Syrphids was Zygomorphic or actinomorphic that had bilateral or radial symmetry which agrees with the earlier findings.

Blossom regular, simple, no depth effect colors generally light, dull; nectar guides frequently present; odor imperceptible; nectar open and easily obtainable, sexual organs well exposed; anthesis day and night. Outside Central Europe the Diptera developed more specialized mouthparts along with flowers in correspondence with the length of the proboscis (Willemstein, 1987). This blossom pollinator relationship was also found in the present work. Chowdhury (1996) observed insects on flowers and flower inflorescences that agreed with the findings of present study.

In the present study Syrphid flies with longer proboscis were mostly found, in the bell shaped or funnel shaped or tubular flowers, similar findings were reported by Louis, (2005). Bell to funnel shaped blossoms, are mainly found among the flowers pollinated by longer tongued insects. The Diptera visit more blossom classes with depth effect, bell to funnel trumpet and the tube shaped blossoms, but the differences are small.

Flowers are modified in many ways, chiefly because many of them coevolved with pollinating insects. (Lopez & Barclay, 2017) If the parts in each whorl of a flower are all the same size and shape, the flower will display radial or actinomorphic (multilateral) symmetry which agreed the present study.

Syrphidae may play a role in Malvaceae family in pollination (Louis, 2005). Similar findings were seen in the present work. In Land lily (*Hibiscus mutabilis*) and Jaba (*Hibiscus rosa-sinensis*), solitary flowers which are mainly pollinated by long tongued insects like Syrphidae.

## 6.0 Conclusion

The evolutionary developments of pollination are essentially the result of co-evolution of anthophilous insects and entomophiles flowers. The term co-evolution demotes the complex of reciprocal adaptive developments favored by the complex of reciprocal selective pressure or reciprocal restrictions to variation. In general it can be said, that initially adult insects are less dependent on flowers or certain forms of flowers, than are entomophilous flowers on insects for cross pollination. Many nectrivorous insects can also feed on non-floral honey dew. Within authophily long -tongued insects in many cases also can feed on short-tubed flowers. This difference in absoluteness of dependence is caused by

the fact that insects and free living organism and plants in adult state are sessile and means that the insects form an essential part of the environment of entomophilous flowers. In the evolution of pollination this indicates that the developments of floral structures run (somewhat) after the developments in insect morphology.

## Acknowledgement

Author acknowledge Professor Dr, Qamar Banu for her valuable suggestion and continuous support in this research work.

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Manuscript received on 12 October 2023 and revised on 20 November 2023

## ‘তলাবিহীন ঝুড়ি’ থেকে ‘উন্নয়ন বিস্ময়’ : একজন নাগরিকের চোখে স্বাধীনতার সুবর্ণজয়ন্তীতে বাংলাদেশ

মোহাম্মদ ইলিয়াছ\*

### সার-সংক্ষেপ

স্বাধীনতার মহান স্থপতি, জাতিরপিতা, বঙ্গবন্ধু শেখ মুজিবুর রহমানের ঐতিহাসিক ঘোষণার মধ্যে দিয়ে ১৯৭১ সালের ২৬ মার্চ যাত্রা শুরু করে বাংলাদেশ।

৩০ লক্ষ শহীদের বুকের তাজা রক্ত, ২ লক্ষ মা-বোনের সম্রমের বিনিময়ে দীর্ঘ নয় মাসের রক্তক্ষয়ী মহান মুক্তিযুদ্ধের মধ্য দিয়ে ১৯৭১ সালের ১৬ ডিসেম্বর পৃথিবীর মানচিত্রে স্বাধীন সার্বভৌম রাষ্ট্র হিসেবে বাংলাদেশ তথা লাল সবুজের পতাকা উড়তে শুরু করে।

বিশাল জনসংখ্যা আর প্রাকৃতিক দুর্যোগ কবলিত বাংলাদেশ রাষ্ট্রের সীমাবদ্ধতা ছিল কৃষি নির্ভর বৈচিত্র্যহীন অর্থনীতি, শিক্ষার অভাব, শিল্পের পশ্চাদপদতা, দুর্বল অবকাঠামো ও যোগাযোগ ব্যবস্থা। এই পরিস্থিতিতে যুদ্ধ বিধ্বস্ত দেশকে এগিয়ে নিতে ১৯৭৩ সালে প্রথম পঞ্চবার্ষিকী পরিকল্পনা প্রণয়ন করেন বঙ্গবন্ধু। জনগণকে সাথে নিয়ে সীমিত সামর্থ্যের মধ্যেও বঙ্গবন্ধু ও তাঁর সরকার উন্নয়নের সূচনা করেন।

১৯৭৫ এ জাতির পিতার নির্মম হত্যাকাণ্ডের পর সামরিক শাসনের জগদল পাথর জাতির উপর ভর করে। তারপর ’৯০-এর দশক থেকে পরিস্থিতি ধীরে ধীরে ইতিবাচকভাবে বদলে যেতে থাকে। এদেশের সাধারণ মানুষের লড়াই করে জীবনযুদ্ধে টিকে থাকার মানসিকতা আর নানামুখী সংস্কার প্রক্রিয়ার মধ্য দিয়ে সঠিক পথে ফিরতে শুরু করে বাংলাদেশ।

তারপর বঙ্গবন্ধু কন্যা মাননীয় প্রধানমন্ত্রী শেখ হাসিনার দৃঢ়, সাহসী, দূরদর্শী নেতৃত্বে দীর্ঘ মেয়াদি সরকারের সুবিধা কাজে লাগিয়ে গত দেড় দশকে উন্নয়নের অপ্রতিরোধ্য অগ্রযাত্রায় এগিয়ে চলেছে দেশ।

মূল শব্দ : তলাবিহীন ঝুড়ি, স্বাধীনতার সুবর্ণজয়ন্তী, উন্নয়ন বিস্ময়

\* সহকারী অধ্যাপক, রাষ্ট্রবিজ্ঞান, সরকারি সিটি কলেজ, চট্টগ্রাম।

মোবাইল : ০১৭১৭-৬৮৭২১৩, ই-মেইল : md.ilias.education@gmail.com



“তলাবিহীন বুড়ির গল্প :

৬ ডিসেম্বর, ১৯৭১

সকাল ১১.০০টা

ওয়াশিংটন, ইউএসএ

Washington Special Action Group Gi mfv

আলোচ্য বিষয় : দক্ষিণ এশিয়া পরিস্থিতি (আলোচনা মূলত বাংলাদেশ নিয়েই)

সভাপতি : হেনরি কিসিঞ্জার (নিরাপত্তা উপদেষ্টা, ইউএসএ সরকার)

উপস্থিত সদস্যবৃন্দ :

১. ডেভিড প্যাকার্ড (ডেপুটি সেক্রেটারি অব ডিফেন্স, USA)
২. জেনারেল উইলিয়াম ওয়েস্টমোরল্যান্ড (চিফ অব আর্মি স্টাফ, USA)
৩. রিচার্ড হেলমস (পরিচালক-CIA, USA)
৪. ইউ এলেক্সিস জনসন  
(আন্ডার সেক্রেটারি অব স্টেট ও জাপানে সাবেক মার্কিন রাষ্ট্রদূত)
৫. মরিস উইলিয়ামস (উপ-প্রশাসক, USAID) ও
৬. ক্রিস্টোফার ভ্যান হোলেন (ডেপুটি অ্যাসিস্ট্যান্ট সেক্রেটারি অব স্টেট)
৭. অন্যান্য সদস্যবৃন্দ।”

“সভায় আলোচনা হচ্ছিল মূলত পশ্চিম ও পূর্ব পাকিস্তান নিয়ে। বিশেষ করে মার্চে যে বাংলাদেশে বড় ধরনের খাদ্যসংকট হবে, দুর্ভিক্ষও হবে- এ বিষয়গুলো নিয়ে। একপর্যায়ে বৈঠকের কথোপকথন ছিল এ রকম-

“কিসিঞ্জার: পূর্ব পাকিস্তানে কি দুর্ভিক্ষ হওয়ার আশঙ্কা আছে?

মরিস উইলিয়ামস: সেখানে কিছুদিনের মধ্যে ফসল সংগ্রহের মৌসুম শুরু হতে যাচ্ছে, তাদের প্রচুর ফসল আছে।

কিসিঞ্জার: তাহলে কি আগামী বসন্তের পরে?

উইলিয়ামস: হ্যাঁ, যদি না তারা মার্চের মধ্যে নিজেদের আগের অবস্থায় ফিরিয়ে না নিতে পারে।

কিসিঞ্জার: আমাদের তখন খাদ্যসহায়তা পাঠাতে হতে পারে?

উইলিয়ামস: হ্যাঁ।

কিসিঞ্জার: তাহলে এ ব্যাপারে এখনই চিন্তাভাবনা শুরু করা উচিত।

উইলিয়ামস: মার্চের মধ্যে বাংলাদেশের আরও অনেক ধরনের সহায়তা প্রয়োজন হতে পারে।

জনসন: সেটা হবে একটা ইন্টারন্যাশনাল বাস্কেট কেস।

কিসিজ্জার: হ্যাঁ, তবে শুধু আমাদের বাস্কেট কেস না।

বলা যায়, সেই থেকেই বাস্কেট কেস বা তলাবিহীন বুড়ি কথাটা বাংলাদেশের হয়ে যায়। অর্থাৎ, দেশটিতে যে সাহায্য দেওয়া হোক, তা বুড়ির ফুটো দিয়ে পড়ে যাবে।”<sup>২</sup>

যদিও কথাটি বলেছিলেন জনসন কিন্তু কিসিজ্জার এতে সায় দিয়েছিলেন।

এরপর প্রায় তিন দশক বাংলাদেশ প্রসঙ্গে এ কথাটি শুনতে হতো। যেমন- “১৯৭২ সালের ৮ অক্টোবর নিউইয়র্ক টাইমস বাংলাদেশের খাদ্যসংকট ও খাদ্য সাহায্য নিয়ে যে সম্পাদকীয় লিখেছিল তার শিরোনাম ছিল “Basket”।”<sup>৩</sup>

তলাবিহীন বুড়ি কথাটির উৎস :

প্রথম বিশ্বযুদ্ধের সময়ে “Basket case” শব্দ দুটির প্রথম প্রচলন। আহত যেসব সৈনিকের পা কাটা গিয়েছিল, হাত ছিল না, আরেকজনের কাঁধে ছাড়া চলার শক্তি ছিল না, তাদের বলা হতো বাস্কেট কেস।

দ্বিতীয় বিশ্বযুদ্ধের সময় বা পর এটি পুনঃব্যবহৃত হতো। তারও পরে সেটি আহত সৈনিকদের বদলে ব্যর্থ প্রতিষ্ঠানের ক্ষেত্রে বলা শুরু হয়। আর ১৯৭১ সালে বাংলাদেশের জন্য বরাদ্দ হয় এই নেতিবাচক শব্দগুচ্ছ।

অপবাদ থেকে মুক্তির পথে এগোনোর গল্প :

বাংলাদেশের অর্থনীতি চোখে পড়তে শুরু করে গত দেড় দশকে। সমৃদ্ধি ও সম্ভাবনার পথে পরিশ্রম করে ছুটে থাকা একটি রাষ্ট্রের এই অর্জনের পিছনে আছে আরো হাজারো গল্প।

বাংলাদেশকে আর তলাবিহীন বুড়ি বলার উপায় নেই এ কথাটি প্রথম উঠে আসে যুক্তরাষ্ট্রের অত্যন্ত গুরুত্বপূর্ণ দৈনিক World Street Journal এ।

“২০১০ সালের ২৯ সেপ্টেম্বর দৈনিক World Street Journal-এ বাংলাদেশ নিয়ে যে প্রতিবেদন প্রকাশিত হয়, তার শিরোনাম ছিল ‘Bangladesh, “Basket Case” No More’।”<sup>৪</sup>

প্রভাবশালী ম্যাগাজিন দি ইকোনমিস্টের ২০২০ সালের এক প্রতিবেদন অনুযায়ী, ৬৬টি উদীয়মান সরল অর্থনীতির দেশের তালিকায় বাংলাদেশের স্থান নবম।

হেনরি কিসিজ্জার কথা গিলতে বাধ্য হলেন :

২০০৮ সালে সুইজারল্যান্ডের দাভোস শহরে World Economic Forum এর বার্ষিক সম্মেলনে হেনরি কিসিজ্জারের সাথে বাংলাদেশের কয়েকজন সংবাদকর্মীর দেখা হয়। প্রত্যক্ষদর্শী



সাংবাদিক শওকত হোসেন এর ভাষ্য-

“সেই সাংবাদিক দলে আমিও ছিলাম। সম্মেলনের প্রথম দিন। মাত্রই সম্মেলন কেন্দ্রে পৌঁছেছি, ঢুকেই দেখি দাঁড়িয়ে চেরি রেয়ার, সাবেক ব্রিটিশ প্রধানমন্ত্রী টনি রেয়ারের স্ত্রী। হঠাৎ দেখি বার্তা সংস্থা ইউএনবির শামীম আহমেদ (বর্তমানে ওয়াশিংটনে বাংলাদেশের প্রেস মিনিস্টার) উল্টো দিকে হেঁটে যাচ্ছেন। লিফটের ঠিক সামনে তখন হেনরি কিসিজ্জার। সুযোগটি ছাড়লেন না শামীম আহমেদ। সামনে দাঁড়িয়েই হেনরি কিসিজ্জারকে তিনি প্রশ্ন করলেন, ‘বাংলাদেশকে মনে আছে আপনার? সেই যে আপনি বাস্কেট কেস বলেছিলেন। এখন কী বলবেন?’ প্রশ্নটি শুনে বেশ গম্ভীর হয়ে কিসিজ্জার উত্তর দিয়েছিলেন, ‘বিশেষ এক সময়ের পরিস্থিতিতে এ কথা বলেছিলাম। এখন আর সে বিষয়ে কোনো কিছু বলতে চাই না।’ কথা আর সেদিন এগোয়নি।”<sup>৫</sup>

কতোটা এগোলাম জনোর পর থেকে :

১৯৭৩-৭৪ সালকে ভিত্তি বছর, ২০০৫-২০০৬ সালকে উন্নয়নের পথে হাঁটার বছর ধরে যদি তুলনা করি তাহলে ২০২১সালে এসে যা দেখি-

ক্রম. নং	শিরোনাম	১৯৭৩-৭৪	২০০৫-০৬	২০২০-২১
১	মাথাপিছু আয় (ইউএস ডলার)	১২৯	৫৪৩	২০৬৪
২	দারিদ্র্যের হার (শতাংশ)	৮২%	৪১.৫%	২০.৫%
৩	জিডিপির আকার (কোটি টাকা)	৭৫৭৫	৪৮২৩৩৭	২৮০০০০০
৪	বৈদেশিক মুদ্রার রিজার্ভ (ইউএস ডলার)	০০	০.৭৪৪	৪৪ বিলিয়ন
৫	বাজেটের আকার (কোটি টাকা)	৯৯৫৬	৬১০০০	৫৬৮০০০
৬	গড় আয়ু (বছর)	৪১ (১৯৭১)	৫৯	৭২.৬
৭	শিশু মৃত্যুর হার (প্রতি হাজারে)	--	৮৪ জন	২৮ জন
৮	মাতৃমৃত্যুর হার (প্রতি লাখে)	--	৩৭০	১৬৫
৯	সামাজিক নিরাপত্তা খাতে বরাদ্দ (কোটি টাকা)	--	৩৭৩	৯৫৫৭৪
১০	দানাদার শস্য উৎপাদন (মেট্রিক টন)	--	১.৮০ কোটি	৪.৫৩ কোটি
১১	বিদ্যুৎ উৎপাদন (মেগাওয়াট)	--	৪৯০০	২৪৪২১
১২	বিদ্যুৎ সুবিধাভোগী (জনগণ )	--	৪৭%	৯৯%

(তথ্যসূত্র-১)<sup>৬</sup>

বাংলাদেশ কতোটা এগিয়ে পাকিস্তানের চেয়ে :

২০২০-২১ সালকে ভিত্তি বছর ধরে কয়েকটি সূচক যদি আমরা বিবেচনায় নিই তাহলে দুদেশের পার্থক্যটা স্পষ্ট হয়।

ক্রমিক নং	সূচক	বাংলাদেশ	পাকিস্তান
১	মাথাপিছু আয় (ইউএস ডলার)	২০৬৪	১১৩০
২	বৈদেশিক মুদ্রার রিজার্ভ (ইউএস ডলার)	৪২০০ কোটি	২০৮০ কোটি
৩	গড় আয়ু (বছর)	৭২.৬	৬৮
৪	শিশু মৃত্যুর হার (প্রতি হাজারে)	২৮ জন	৫২.১ জন
৫	প্রাথমিক শিক্ষা	৯৮%	৭২%
৬	কর্মমুখী নারীর সংখ্যা	৩৩.২০%	২৫.১০%

(তথ্যছক-২) ৭

স্বল্পোন্নত দেশ থেকে উন্নয়নশীল দেশে উত্তরণ :

জাতিসংঘের নিয়মানুযায়ী পরপর ২টি ত্রি-বার্ষিক পর্যালোচনায় উত্তরণের মানদণ্ড পূরণে সক্ষম হলে স্বল্পোন্নত দেশ থেকে উত্তরণের সুপারিশ করা হয়।

বাংলাদেশ ১৯৭৫ সালে জাতিসংঘের স্বল্পোন্নত দেশের তালিকাভুক্ত হয়। স্বল্পোন্নত হতে উন্নয়নশীল দেশে অন্তর্ভুক্তির জন্য ৩টি শর্ত রয়েছে। ২০১৮ সালে বাংলাদেশ প্রথমবারের মতো তা পূরণ করে। ২০২১ সালেও বাংলাদেশ তা পূরণ করেছে।

ক্রমিক নং	সূচক	টার্গেট	বাংলাদেশের অবস্থান
১	মাথাপিছু আয়	১২৩০ মার্কিন ডলার	২০৬৪ মার্কিন ডলার
২	মানবসম্পদ	৬৬ পয়েন্ট	৭৩.২ পয়েন্ট
৩	অর্থনৈতিক ভঙ্গুরতা	৩২.২ পয়েন্ট	২৫ পয়েন্ট

(তথ্যছক-৩)

যে বিষয়গুলো সম্ভাবনাকে বাস্তবায়ন করেছে :

১. কৃষিখাতঃ শুরু থেকে আজ পর্যন্ত, ৭ কোটি থেকে ১৭ কোটি জনগণের খাদ্যশস্য যোগান দিয়ে চলেছে।
২. পোশাকশিল্পঃ রপ্তানী আয়ের ৮৩% আসে তৈরি পোশাক খাত থেকে।



৩. রেমিট্যান্সঃ ১৫৭টি দেশে প্রায় ৯০ লক্ষ প্রবাসীর কষ্টার্জিত অর্থ।
৪. অপরাজেয় বাংলাঃ জীবন সংগ্রামে জনগণের হার না মানা মনোভাব।
৫. দীর্ঘমেয়াদী সরকার ও নেতৃত্বঃ মাননীয় প্রধানমন্ত্রী শেখ হাসিনার দৃঢ়, সাহসী ও দূরদর্শী নেতৃত্ব।

ব্র্যান্ডিং বাংলাদেশ :

১. জাতিসংঘ শান্তি মিশন :
২. MDG ও SDG অর্জন :
৩. পদ্মা বহুমুখী সেতু :
৪. তৈরি পোশাক শিল্প :
৫. ডিজিটাল বাংলাদেশ :
৬. Blue Economy :
৭. বঙ্গবন্ধু স্যাটেলাইট :
৮. নারীর ক্ষমতায়ন :
৯. ক্রিকেট :

প্রতিবন্ধকতাসমূহ :

১. যুদ্ধবিধ্বস্ত অর্থনীতি :
২. ১৯৭৫ এ বঙ্গবন্ধুর নির্মম হত্যাকাণ্ড :
৩. প্রাকৃতিক দুর্যোগ :
৪. অসহনশীল রাজনীতি :
৫. ব্যাপক জনসংখ্যা :
৬. শিক্ষার গুণগতমান :
৭. বৈশ্বিক মন্দা ও অতিমারী :

“উন্নয়ন ব্যাঘ্র” বাংলাদেশ :

বাংলাদেশ পৃথিবীর ১৩৬তম স্বাধীন দেশ। বর্তমানে স্বাধীন দেশের সংখ্যা ১৯৫। তন্মধ্যে জাতিসংঘভুক্ত দেশ ১৯৩। (পৃথিবীতে মোট রাষ্ট্র ২২৮/২৩৩ এই হিসাব আমলে নিইনি।)

আয়তনে বাংলাদেশের চেয়ে বড় ৯০টিরও বেশি দেশ।

জনসংখ্যা বাংলাদেশের চেয়ে কম প্রায় ১৮৫টি দেশের। কিন্তু সেসব দেশকে পেছনে ফেলে বাংলাদেশ এখন “উন্নয়ন ধাঁধা”।

বাংলাদেশ গত একদশক ধরে যে উচ্চ প্রবৃদ্ধি ধরে রেখেছে তার কারণ হলো অভ্যন্তরীণ ভোগ-চাহিদা, সরকারি ব্যয়, প্রবাসী আয় ও রপ্তানি।

২০১৯ সালে (স্থির মূল্যে) জিডিপি ছিল ১১ লাখ ৩০ হাজার ৬০০ কোটি টাকা

আর ২০৩৩ এ গিয়ে তা দাড়াবে ২৯ লাখ ১৫ হাজার ৩০০ কোটি টাকায়।

“সীমিত আয়তন, ব্যাপক জনসংখ্যার চাপ সামলে ১৩৫টি দেশের পরে জন্ম নিয়েও বাংলাদেশ আজ জিডিপির হিসেবে ৪১তম।

বর্তমানের ধারাবাহিকতায় প্রবৃদ্ধি ধরে রেখে এগোতে পারলে

২০২৩ সালে ৩৬তম, ২০২৮ সালে ২৭তম আর ২০৩২ সালে বিশ্বের শীর্ষ ২৫ অর্থনীতির একটি হতে যাচ্ছে বাংলাদেশ। প্রকৃত অর্থে তা হবে ২৪ তম।

সম্ভবত ২০৩৩ সালে আমাদের পেছনে থাকতে যাচ্ছে মালয়েশিয়া, সুইডেন, সুইজারল্যান্ড, সিঙ্গাপুর, ভিয়েতনাম, দ. কোরিয়া।”<sup>৮</sup>

যুক্তরাজ্য ভিত্তিক গবেষণা প্রতিষ্ঠান Center for Economics and Business Research (CEBR) প্রকাশিত প্রতিবেদনে এ কথা বলা হয়েছে। World Economic League টেবিল ২০১৯ শীর্ষক এই প্রতিবেদনে ১৯৩ টি দেশের অর্থনৈতিক অবস্থা, প্রতিবন্ধকতা ও সম্ভাবনার কথা বলা হয়েছে।

গণমাধ্যম ও বিশেষজ্ঞদের মতামত :

১. “আমি তখন নিউইয়র্ক টাইমসে লিখেছিলাম, ‘বাংলাদেশ অত্যন্ত দুর্ভাগ্য দেশ।’ তখনকার প্রেক্ষাপটে আমি ঠিকই লিখেছিলাম। এ ধরনের প্রাকৃতিক বিপর্যয় ছাড়াও বাংলাদেশকে তখন অনেক বড় বড় চ্যালেঞ্জ মোকাবিলা করতে হচ্ছিল। কিন্তু গত তিন দশকে আমার সব অনুমান ভুল প্রমাণিত করে বাংলাদেশ অসাধারণ অগ্রগতি অর্জন করেছে।

দারিদ্র্য নির্মূলে মার্কিন প্রশাসন বাংলাদেশকে অনুসরণ করতে পারে।”<sup>৯</sup>

নিকোলাস ক্রিস্টফ

২. বারের পুলিৎজার পুরস্কারপ্রাপ্ত

New York Times

১০ মার্চ ২০২১

২. বাংলাদেশের অর্থনীতি এখন দক্ষিণ এশিয়ার সবচেয়ে “তেজি ষাঁড়”।<sup>১০</sup>

The Daily World Street Journal, ২০২১, মার্চ।



৩. একসময় দক্ষিণ কোরিয়াকে উন্নয়নের মডেল হিসেবে উদাহরণ দেয়া হতো। এখন সেই স্থান বাংলাদেশের।<sup>১১</sup>

মাইক বার্ড,  
Washington Post

বিশুদ্ধবাদীতার গল্প :

শাসনব্যবস্থায় শতভাগ নিখুঁত কিছু বাস্তবতার নিরিখে অসম্ভব। তবু চেষ্টা চালিয়ে যেতে হবে। আমার কাছে সুশাসনের যে বৈশিষ্ট্যগুলো গুরুত্বপূর্ণ কয়েকটি হলো—

১. স্বচ্ছতা;
২. জবাবদিহিতা;
৩. ন্যায়পরায়ণতা;
৪. আইনের শাসন;

• “অবসরপ্রাপ্ত ব্রিটিশ স্থায়ী সচিব Sir keneth Stowe সুশাসনের নির্দেশক হিসেবে কয়েকটি বিষয়ের ইঙ্গিত করেছেন—

১. রাজনৈতিক স্বাধীনতা, বাক স্বাধীনতা এবং একটি অবাধ নির্বাচিত আইনসভা।
২. ব্যক্তিস্বত্তার অধিকার সংরক্ষণে সংবিধান ও বিচার বিভাগের শ্রেষ্ঠত্ব।
৩. স্থিতিশীল মুদ্রা ব্যবস্থা এবং অর্থনৈতিক ও সামাজিক উন্নয়নের পদক্ষেপ।
৪. শিক্ষা ও স্বাস্থ্য সেবার মাধ্যমে সমাজের উন্নয়ন।
৫. একটি স্বাধীন নির্বাচিত আইনসভার কাছে নির্বাহী কর্তৃপক্ষের জবাবদিহিতা”<sup>১২</sup>

জানা থাকার পরও প্রায়োগিক ক্ষেত্রে কিছু সীমাবদ্ধতা থাকে। সেটা মেনে নিয়ে চলতে হয়। কারণ উন্নয়নের ক্ষেত্রে প্রসব বেদনার ভাগটাও নিতে হয়।

• “২০০৫ সালে গ্যালাপ ইন্টারন্যাশনাল বিশ্বের প্রায় সব দেশকে নিয়ে বেশ বড় একটি সমীক্ষা করে। সারাবিশ্বের নানা প্রান্তের অংশগ্রহণকারীদের ৮০% মানুষই বলেছিল, গণতন্ত্র তুলনামূলক বিচারে সবচেয়ে ভালো শাসন ব্যবস্থা। তবে, অংশগ্রহণকারীদের ৪৮% বলেছিল, তাদের দেশে যে নির্বাচন হয়, তা সুষ্ঠু ও অবাধ হয়েছে কি না, এ নিয়ে তাদের প্রশ্ন রয়েছে। কেবল ৩০% বলেছিল, তারা গণতন্ত্র থেকে কাম্বিত ফল পাচ্ছে।”<sup>১৩</sup>

বিশ্বের নানা প্রান্তের মানুষজন যেভাবে ভাবে আমিও সেই জায়গা থেকে বলতে চাই শাসনকার্যে পরিপূর্ণ বিশুদ্ধতার জন্য আরো কাজ করার সুযোগ আছে। এসব সাথে নিয়েই পূর্ণতা পাবে আমার বাংলাদেশ।

পাকিস্তানিদের দৃষ্টিতে বাংলাদেশের অগ্রগতি :

বাংলাদেশের ব্যাপারে একসময় পাকিস্তানিরা ঠাট্টা বিদ্রুপ করতো। তাঁদের একজন হলেন আকবর এস. আহমদ। তিনি একসময় নড়াইলের এস.ডি.ও ছিলেন। সে সময়ের অভিজ্ঞতা উল্লেখ করে তিনি লিখেছেন, তখন স্কুলের পরীক্ষায় ছাত্রদের নকল ঠেকাতে গিয়ে শিক্ষকেরা নাকাল হতেন। জিন্নাহ পাকিস্তান এন্ড ইসলামিক আইডেন্টিটি গ্রন্থে আকবর দাবি করেছেন, পাকিস্তান হলো মহামূল্যবান এক চিনা মাটির পাত্র। আর শেখ মুজিব হলে সেই পাত্রের গায়ে উড়ে এসে বসা এক মাছি।

আকবরের সেই কথার বিশ বছর পর আরেক পাকিস্তানি বুদ্ধিজীবী পারভেজ হুদোবয় পাকিস্তানের ডন পত্রিকায় নিজের কপাল চাপড়ে বলেছেন, একসময় বলা হতো দরিদ্র ও দুর্যোগকবলিত বাংলাদেশ ‘লাইফ সাপোর্ট’-এ রয়েছে। কিন্তু আজকের বাংলাদেশ এক ভিন্ন দেশ, তাকে বলা হচ্ছে পরবর্তী ‘এশিয়ান টাইগার’।<sup>১৪</sup>

প্রতিবেশী ভারতের সাথে তুলনা :

ভারতের প্রাক্তন স্বরাষ্ট্র বিষয়ক প্রতিমন্ত্রী জি কিষান রেড্ডি মন্তব্য করেছিলেন, “এই দেশটা (বাংলাদেশ) এতটা গরীব যে সেখানকার মানুষদের যদি ভারতীয় নাগরিকত্ব দেওয়া হয়, তাহলে সে দেশের অর্ধেক মানুষ ভারত পাড়ি জমাবে।” তাঁর সে কথার জবাব দিয়েছেন ভারতেরই খ্যাতনামা সাংবাদিক কারান থাপার। হিন্দুস্তান টাইমস পত্রিকায় তিনি লিখেছিলেন, এই লোকটি (অর্থাৎ রেড্ডি) বাংলাদেশ কোথা থেকে কোথায় গিয়ে পৌঁছেছে তার বিন্দুবিসর্গ জানেন না। তিনি এ কথাও জানেন না যে বাংলাদেশ জীবনের গুণগত মান বুঝায় এমন প্রায় সব সূচকেই ভারতকে পিছে ফেলে দিয়েছে। বন্ধুত্ব থাপারের কথায়, ভারতের তুলনায় বাংলাদেশ অনেক বেশি আকর্ষণীয়।<sup>১৫</sup>

কিষণ রেড্ডি এবং থাপারের মত ভিন্নতার নিরপেক্ষ সত্যতাও মিলেছে World Street Journal-এর প্রতিবেদনে। ২০২১ সালের ২৫শে মার্চ বিশ্বের সেরা ডানপন্থি পত্রিকা World Street Journal বলেছে, “...Bangladesh will surpass India in output per capita in 2021.”<sup>১৬</sup>

রূপান্তরের চিহ্নসমূহ :

সত্তরের দশকের শুরুর দিকে যখন কেউ বিদেশ যেত তখন বাংলাদেশ ব্যাংকের অনুমতিক্রমে সঙ্গে নেওয়া যেত পাঁচ পাউন্ড (ব্রিটিশ মুদ্রা)। প্রত্যেকের পাসপোর্টে সেই অর্থের পরিমাণ লিখে দেওয়া হত যাতে বিমান বন্দরে কোন ঝামেলা না হয়। প্রমাণ হিসেব যথাযথ কর্তৃপক্ষের স্বাক্ষর ও সরকারি সীলমোহর সঁটে দেওয়া হতো। আর এখন পঞ্চাশ বছর পর, বিদেশ যাওয়ার সময় যে কেউ যথাযথ কর্তৃপক্ষের আইন মেনে ১০,০০০ হাজার ইএস ডলার সঙ্গে নিয়ে যেতে পারেন। বিমান বন্দরে ইমিগ্রেশন কর্তৃপক্ষ এ নিয়ে কোন প্রশ্ন করে না।<sup>১৭</sup>



বিগত বছরগুলোতে বাংলাদেশ কিভাবে বদলে গিয়েছে তা যদি মনোযোগের সাথে খেয়াল করি দেখা যায় আশির দশকেও বাংলাদেশে বস্তুগত বিনিময় মাধ্যমের প্রচলন ছিলো। অর্থাৎ ধান বা অন্য কোন কৃষি পণ্যের বিনিময়ে সেবা গ্রহণ করা হতো বা সেবার মূল্য প্রদান করা হতো। নিত্যপ্রয়োজনীয় দ্রব্যাদি, তেল, সাবান, লবণ ইত্যাদি মিলতো ধানের বিনিময়ে। গ্রামে পণ্য দ্রব্য ওজনের চেয়ে সংখ্যা বা আয়তন অনুযায়ী বিক্রি হতো। ধীরে ধীরে সে বিশাল বাজারে প্রভাব বিস্তার করতে শুরু করে মুদ্রার বিনিময় প্রথা।

“এই সব সূচককে যদি আমরা বৈশ্বিক অগ্রগতির সঙ্গে, কিংবা আরও ভালো হয়, আমাদের কাছাকাছি দশায় যারা ষাট, সত্তর ও আশির দশক কাটিয়েছি, তাদের সঙ্গে তুলনা করলে চিত্রটা অত উজ্জ্বল থাকে না। দ্বিতীয় বিশ্বযুদ্ধে ইউরোপে যত বোমা পড়েছিল, তার চেয়ে বেশি বোমা পড়েছিল ভিয়েতনামে। সেই ভিয়েতনামের সঙ্গে তুলনা করতে পারেন। দেশটিতে বাংলাদেশের পোশাকশ্রমিকদের তুলনায় কয়েকগুণ বেশি বেতন পান এবং তার গণিত ও বিজ্ঞান শিক্ষার বন্দোবস্ত দুনিয়ার যে কোনো উন্নত দেশের সমতুল্য। দেশটির বিনা মূল্যের চিকিৎসাব্যবস্থার সঙ্গে তুলনা করার মতো কিছু বাংলাদেশে নেই। বাংলাদেশের উন্নয়নকে ১৯৬০ দশকের কোরিয়ার সঙ্গে তুলনা করতে পারেন। কোরিয়া এখন প্রায় উন্নত দুনিয়ার স্তরে চলে গেছে, অথচ খুব এগিয়ে ছিল না দেশটি আমাদের চেয়ে। ১৯৭০ দশকের মালয়েশিয়ার সঙ্গেও তুলনা করতে পারেন। দেশটিতে তখনো বিশ্ববিদ্যালয় শিক্ষার, প্রযুক্তি ও বিজ্ঞান শিক্ষার দিক দিয়ে ঘাটের দশকের বাংলাদেশ থেকেও পিছিয়ে ছিল। এখন বাংলাদেশের অজস্র ছেলেমেয়ে সেখানে উচ্চশিক্ষার জন্য যেমন যায়, বাংলাদেশের অজস্র কর্মী সেখানে শ্রমবাজারে প্রবেশ করে।”<sup>১৮</sup>

The New York Times ২০২১ সালের ১০ই মার্চ শিরোনাম দিয়েছে, ‘What can Biden’s Plan Do for Poverty? Look To Bangladesh,’ এই প্রতিবেদনে প্রতিবেদক নিউইয়র্ক টাইমসের নামজাদা কলাম লেখক নিকোলাস ক্রিস্টফ মার্কিন প্রেসিডেন্ট পরামর্শ দিয়েছেন, দারিদ্র্য কাটাতে কী কী করা উচিত, তার শিক্ষা বাংলাদেশের কাছ থেকে নিতে। কোভিডের কারণে যুক্তরাষ্ট্রের অর্থনীতি মন্দাবস্থার শিকার। এখানে দারিদ্র্য বাড়ছে, বাড়ছে অনাহার ও অপুষ্টি। সবচেয়ে ক্ষতিগ্রস্তদের মধ্যে রয়েছে নারী ও শিশু। ক্রিস্টফ লিখেছেন, এই সব সমস্যা একসময় বাংলাদেশেরও ছিলো। দেখে নাও দেশটি কিভাবে সে সংকট থেকে বেরিয়ে আসতে পেরেছে।<sup>১৯</sup>

নিজের গল্প :

১. ১৯৮৮ সাল। বাড়ি (বড় কবরস্থান, বাকলিয়া, চট্টগ্রাম) থেকে যখন চকবাজার রিকশায় যেতাম তখন এককভাবে গেলে ৩/৪ টাকা আর ভাগাভাগি করে ২+২=৪ টাকা ভাড়া পড়ত। এখন একক বা ভাগাভাগি যা-ই হোক ৪০ টাকা। বহন করতে পারছি।
২. আগে বাড়ি (বড় কবরস্থান, বাকলিয়া, চট্টগ্রাম) থেকে নিউমার্কেট বা জিপিও বা রেলস্টেশন

- যেতে লাগতো ১ ঘন্টা। এখন লাগে ২৫/২৬ মিনিট। সময় সাশ্রয় হচ্ছে। কারণ উড়াল সড়ক, সংযোগ সড়ক, অতিরিক্ত সড়ক প্রধান সড়কের সাথে যুক্ত হয়ে সময় সাশ্রয় করছে।
৩. ২০০০-২০০১ সালের দিকে চট্টগ্রাম-ঢাকা যাতায়াত করতাম নূন্যতম ৮+ ঘন্টায়। এখন ৫.৩০/৬ ঘন্টায়। জীবন গতি পেয়েছে। কারণ ঢাকা-চট্টগ্রাম জাতীয় মহাসড়ক ছয় লেনে উন্নীত হয়েছে। সড়ক বিভাজকের কারণে গাড়ি একমুখী হওয়ায় দুর্ঘটনা কমেছে এবং গতি বেড়েছে। তাছাড়া আগে সাধারণত হিনো গাড়ির কদর ছিলো। এখন ভলভো, মার্সিডিজ বেঞ্জ, স্ক্যানিয়া ইত্যাদি নামী এবং গতিসম্পন্ন গাড়ি রাস্তায় চলছে।
৪. আগে টিনের বাসনে খেতাম। তারপর মেলামাইন এখন কাঁচের বাসন। চায়ের কাপ, পানির গ্লাসের ক্ষেত্রেও অনুরূপ। জীবনযাত্রার মান বেড়েছে।
৫. আগে সকালে একটা পরোটা বা নানরুটি, বিকেলে মুড়ি বা বিস্কুট দিয়ে নাস্তা সারতাম। এখন প্রায় প্রতিদিনই সাথে আরো নানাপদ যোগ হয়। এখন স্বাদ ও সামর্থ্যের ব্যবধান অনেকটাই কমেছে।
৫. আগে জামাকাপড় খুবই সীমিত সংখ্যক ছিল আর বৈচিত্র্য ছিল না। এখন নিজের বা সন্তানের ক্ষেত্রে তার ইতিবাচক পরিবর্তন হয়েছে।

ব্যতিক্রমকে উদাহরণ ধরি না। অনেকের অনেক সীমাবদ্ধতা আছে, থাকবে। তবুও বলি, এগিয়ে যাচ্ছে আমার দেশ, আমার সোনার বাংলা।

#### ইউটোপিয়া :

স্বাধীনতার হীরক জয়ন্তীতে (২০৪৬) থাকবো কি না জানি না। ততদিনে বাংলাদেশ উন্নত রাষ্ট্রে পরিণত হবে। ভিশন-২০৪১ ততদিনে অনুদিত হয়ে সৌন্দর্য ছড়াবে।

কিন্তু নিশ্চিত বাংলাদেশের শতবার্ষিকীতে (২০৭১) থাকছি না। পরম করুণাময় আমার সন্তানকে যেন ততদিন বাঁচিয়ে রাখেন। দূর আকাশের তারা হয়ে যেন দেখি, বঙ্গবন্ধুর সোনার বাংলা, মাননীয় প্রধানমন্ত্রী জননেত্রী শেখ হাসিনার দৃঢ়, দূরদর্শী, গতিশীল নেতৃত্ব ও সঠিক নির্দেশনায় দেখিয়ে দেয়া পথে হেঁটে আমার সন্তানের জন্য, তাদের সন্তানের জন্য, এদেশের জনগণের জন্য একটি সমৃদ্ধ সুন্দর বাসযোগ্য রাষ্ট্র হিসেবে গৌরবের সাথে ছুটে চলছে।

এদেশের জনগণের হার না মানা মানসিকতা আর জীবনযুদ্ধে টিকে থাকার লড়াই এর প্রতি শ্রদ্ধা।

#### উপসংহার :

বাংলাদেশের উন্নয়নের অগ্রযাত্রা দৃশ্যমান হতে শুরু করে গত শতকের শেষের দিকে। পরবর্তীতে বঙ্গবন্ধু কন্যা মাননীয় প্রধানমন্ত্রী শেখ হাসিনা-র ধারাবাহিক নেতৃত্বে যোগাযোগ ব্যবস্থা, বিদ্যুৎ খাত, তথ্য প্রযুক্তি খাত এবং রপ্তানি খাতে ব্যাপক পরিবর্তন সাধিত হয়।



বাংলাদেশ তলাবিহীন বুড়ির অপবাদ থেকে মুক্তি পেতে শুরু করে ২০১০ সালের শেষের দিকে যুক্তরাষ্ট্রের প্রভাবশালী দৈনিক World Street Journal-এ ২০১০ সালের ২৯ সেপ্টেম্বর বাংলাদেশ নিয়ে যে প্রতিবেদন প্রকাশিত হয় তার শিরোনামটিই ছিল 'বাংলাদেশ, "বাস্কেট কেস" নো মোর'।<sup>২০</sup>

প্রাতিষ্ঠানিক সুশাসনের কাম্য মান অর্জিত না হওয়া, উন্নত গণতান্ত্রিক সংস্কৃতির চর্চা পুরোদমে না হওয়াসহ এসব বিষয়ে হয়তো সমালোচনা নিশ্চয়ই আছে। তা সত্ত্বেও বাংলাদেশের এই বিন্ময়কর উত্থান তথা অর্থনৈতিক অগ্রগতি বিশ্বে নতুন করে বাংলাদেশকে চেনাচ্ছে। দারিদ্রের বিরুদ্ধে অমিত সাহসে লড়াই করে টিকে যাওয়া, বদলে যাওয়া দেশ এখন বাংলাদেশ। পৃথিবীর নানা প্রান্তের উন্নয়ন গবেষকরা আজকের বাংলাদেশকে দক্ষিণ এশিয়ার 'তেজি ষাঁড়', 'এমার্জিং টাইগার', 'উন্নয়নের রোল মডেল' এরকম নানা অভিধায় ভূষিত করছেন।

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## **Sex ratio and Fecundity of Freshwater Prawn *Macrobrachium lamarrei* (H. Milne Edwards, 1837) (Palaemonidae: Decapoda) from the Kaptai Reservoir, Rangamati, Bangladesh**

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### **Abstract**

*Macrobrachium lamarrei* has a high food value to all level peoples in Bangladesh for its easy growing in small and shallow wetlands throughout the south-east Asia. Present study was conducted from January to December, 2022 in three distinct sampling sites in Kaptai reservoir in Rangamati, Bangladesh. The average sex ratio was found 1:1.578 ( $X^2 = 14.964$ ,  $p < 0.05$ ,  $df = 11$ ,  $n = 386$ ). Total 84 ovigerous female were examined to determine the fecundity of *M. lamarrei*, having total length of 5.2 cm with a carapace length of 1.7 cm and a body weight of 0.929g had fecundity of 50 eggs, but a prawn with a total length of 6.1 cm, a carapace length of 1.9 cm, and a body weight of 1.576 g had 230 eggs. Fecundity was shown to be linearly correlated with total length, carapace length, body weight, and egg weight. Regression equations show that fecundity relates to total length, carapace length, body weight, and egg weight.

**Keywords:** Fecundity, Sex ratio, fresh-water Prawn (*Macrobrachium lamarrei*), Kaptai Reservoir, Rangamati, Bangladesh.

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## Introduction

Bangladesh being an agro-based economic country, its extensive inland water resources in the form of rivers, brooks, and tributaries are very much potential for capture and culture fishes including the crustacean fisheries development. It has a total inland water area of 4.7 million ha, of which 83.1% is used for open-water capture fisheries and 16.9% used for closed-water culture fisheries FRSS (2015). As a fresh-water resource, Kaptai reservoir is very much known for occupying about 46.8% of the total inland waters in the country (Ahmed, 1999). Fernando (1980) reported the reservoir as an artificial (man-made) lake in south-east Asia and accordingly most significant fresh-water body in turn of significant source of protein and fish resources in Bangladeshi peoples (Halder *et al.*, 1991). Ahmed *et al.*, (2001) stated that its fisheries contribute annually around 6,000 MT – 8980 MT in the form of fin and non-fined fishes (FRSS, 2012). Moreover, the research conducted by Aquatic Research Group (ARG) in 1986 recorded five exotic fishes and 49 indigenous fish species, while Halder *et al.*, (1991) documented 71 fish species, including 5 exotic fish species and 2 crustacean fish species.

In the available crustacean fishes, *Macrobrachium lamarrei* (H. Milne-Edwards, 1837), commonly known as Indian whisker shrimp or Kuncho river prawn, which all over in Bangladesh popularly known as Kuncho Chingri, Gura Ichha. The species is also distributed in several South Asian countries, including India (H. Milne-Edwards, 1837), Pakistan (Kazmi and Kazmi, 1979), Bangladesh (Ali *et al.*, 1980), Myanmar (Cai and Ng, 2002), and Nepal (Sharma and Subba, 2005). Where most of the cases, *M. lamarrei* is commonly available in shallow waters like- beels, freshwater ponds, and also in shallow parts of the river throughout the year in north-western districts of Bangladesh (Ali *et al.*, 1980; Ara *et al.*, 2014). Because of easy availability and harvesting, the species is popular among the low-income population of the country to supplement their daily nutritional requirements at low cost. Its rapid growth, brief life span even in shallow wetlands, stimulated scientists for further research on the species for the sake of economic and nutritional help of the country (Ara *et al.*, 2014).

Thus, the objective of present study was to analyze the sex ratio and fecundity as a part of reproductive biology of Freshwater prawn *M. lamarrei* from Kaptai Reservoir, Rangamati, Bangladesh. It is realized that many of such research needs repetition to provide up to date information on the species sex ratio and fecundity, which could be imitate later in the artificial captive propagation and rearing for commercial basis in the country.

Nikolsky (1963) used the term fecundity as number of eggs in the ovary of a fish

is vital for comprehending population dynamics (Lagler, 1956), assessing reproductive potential, and reproductive capability of a species (Hussain and Manohar, 2016; Sabbir *et al.*, 2021). At the same time, the reproductive biology of fish is significant for assessing commercial viability, life history, cultural practices, and fisheries management (Doha and Hye, 1970).

Therefore, a thorough study on the sex ratio and fecundity on certain fish species after certain periods of duration, necessary to realize actual number of ripe eggs prior to spawning, clue about ripeness, and also in successful management and exploitation of the fish. Determination of maturity and ripening by gonad somatic index has proved its significant role in the life of fishes as well helpful in successful artificial fish breeding too.

### Materials and Methods

**Sampling area, time, and period:** The samples were collected from two fish markets: Banarupa Bazar, Reserve Bazar, and the fish landing center of Bangladesh Fisheries Development Corporation (BFDC) at Rangamati, close to Kaptai reservoir area. Sampling of *M. lamarrei* was performed on a monthly basis from January 2022 to December 2022 at about 10:00 a.m. to 12:00 noon.

**Collection of samples, preservation and sexing:** *M. lamarrei* samples were collected from the commercial fishermen at the market places, where they used to harvest these species during daytime using a fine-meshed pushed net (2 mm). After collection, the samples were immediately placed in ice and preserved in 10 % buffered formalin after transferring to the laboratory for further study. At the laboratory, first of all the males were identified and separated by appendix masculine on the endopod of their second pleopod as well as by their larger, stronger and larger spines in chelipeds (Sandifer and Smith, 1985). Then, the sex ratio and fecundity were studied and statically analyzed in the following methods.

**Statistical analysis:** To study the sex ratio, 386 *M. lamarrei* were used of which 231 berried females. The ratio was analyzed by “Chi-square” test for the hypothetical ratio 1:1, using the Formulae -

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where,

$X^2$  = Chi-square, O = Observed Value, E = Expected Value

The reproductive period and fecundity were determined based on the presence of ovigerous females in preserved samples throughout the year. The eggs were



carefully removed from the brood pouch and kept in a petri dish. The eggs were washed and cleaned with distilled water with greatest efficiency and then fecundity was estimated by the counting method. The egg were weighed using the nearest 0.001 g accuracy on an electronic weight balance (Model no. EJ-323A; HANDK; TAIWAN).

The relative fecundity was calculated as the ratio of total number of eggs to total body weight, which was also determined with electronic precision balance (0.001g precision). The co-efficient of correlation between total weight, body length, carapace length, body size, and fecundity were analyzed using linear line regression, specifically Pearson's model using the formula –

$$F = a + bX;$$

Where,

F = fecundity, X = TL/ CL/ BW/ EW; (TL= total length, CL= carapace length, BW= body weight, EW=egg weight), a = constants, b= slope.

The values of the two constants, namely the regression co-efficient "b" and the intercept "a," were computed using the least square method. The coefficient of correlation (r) of each of the relationships was also assessed. In addition to the above studies, the relative fecundity was also calculated by using the following formula:

$$\text{Relative Fecundity} = \frac{\text{Total number of eggs in the brood pouch}}{\text{Total weight of prawn}}$$

## Results and Discussion

### Sex ratio

Among 386 prawns, 40.16% of them were males and 59.84% were females showing significance imbalance in sex distribution. Most of the month's females were predominant than males particularly in June (60%), July (70%), August (71.15%), September (76.74%) and October (65.71%). But the percentage of males were higher in May (60%) and December (52.50%) as shown in Fig. 1. Chi square values in monthly ratio between males and females as 1:0.667 to 1:3.3. The average ratio 1:1.578 ( $X^2 = 14.964$ ,  $p < 0.05$ ,  $df = 11$ ,  $n = 386$ ) showed that the sex ratio does not match the predicted 1:1 ratio. The results indicate statistical significance for the months of August ( $X^2 = 9.308$ ,  $p < 0.05$ ) and September ( $X^2 = 12.302$ ,  $p < 0.05$ ). September showed the highest deviation ( $X^2 = 12.302$ ,  $p =$

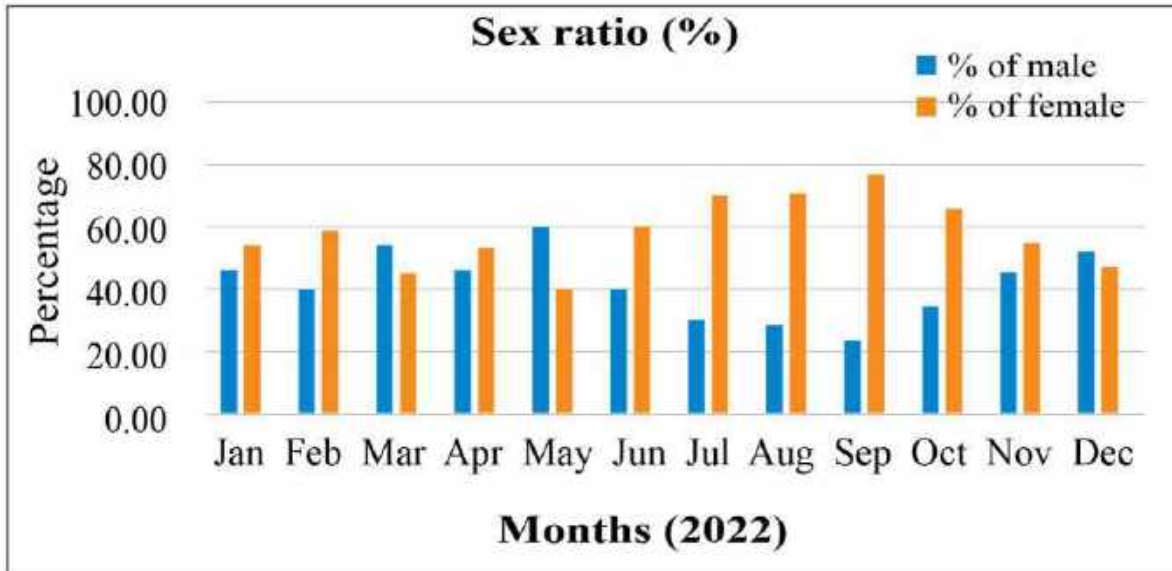


Fig. 1 : Monthly percentage distribution of male and female *Macrobrachium lamarrei* from the Kaptai reservoir

0.0005), indicating a substantial skew towards females in these months. The remaining months did not show any significant difference. Similar findings were reported by Hussain and Manohar (2016) on *M. lamarrei* of Upper Lake, Bhopal, India. Table 1 presents monthly percentages and sex ratio of males and females of *M. lamarrei*.

**Table 1. Sex ratio of *M. lamarrei* from the Kaptai reservoir**

Months	No. of prawns	No. of males	No. of females	Ratio (Male: Female)	X <sup>2</sup> (Male + Female)	Significance level
Jan.	48	22	26	1:1.182	0.333	P>0.05
Feb.	32	13	19	1:1.462	1.125	P>0.05
Mar.	22	12	10	1:0.833	0.182	P>0.05
April	30	14	16	1:1.143	0.133	P>0.05
May	15	9	6	1:0.667	0.600	P>0.05
June	20	8	12	1:1.5	0.800	P>0.05
July	20	6	14	1:2.333	3.200	P>0.05
Aug.	52	15	37	1:2.467	9.308	P<0.05



Sep.	43	10	33	1:3.3	12.302	P<0.05
Oct.	35	12	23	1:1.917	3.457	P>0.05
Nov.	29	13	16	1:1.231	0.310	P>0.05
Dec.	40	21	19	1:0.905	0.100	P>0.05
Total	386	155	231	1:1.578	14.964	P<0.05

### Fecundity

The study on the fecundity of *M. lamarrei* involved analyzing 231 female specimens, distinguishing between ovigerous (84) and non-ovigerous (147) individuals. As shown in Table 2, where the fecundity ranged from 50 to 230 eggs, with the highest recorded in specimens with total length of 6.1 cm, carapace length of 1.9 cm, and body weight of 1.576 g respectively. The findings align with

**Table 2. Total Length, Carapace length, Body weight, Egg weight, Fecundity and Relative Fecundity of *M. lamarrei***

No.	Length group	Average TL (cm)	CL (cm)	BW (g)	BW (without egg) (g)	Egg weight (g)	Total no. of eggs	Relative fecundity
1	5.0-5.4	5.2	1.7	0.990	0.869	0.121	85.8	86.6667
2	5.5-5.9	5.7	1.8	1.105	0.983	0.122	95.425	86.3575
3	6.0-6.4	6.1	1.9	1.606	1.469	0.137	120	74.7314

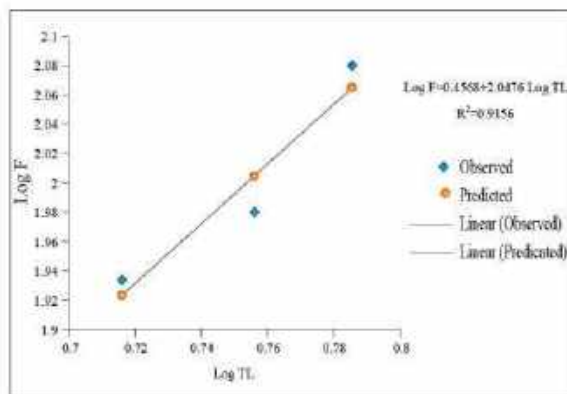


Fig. 2: Relationship between fecundity and total length of *M. lamarrei*

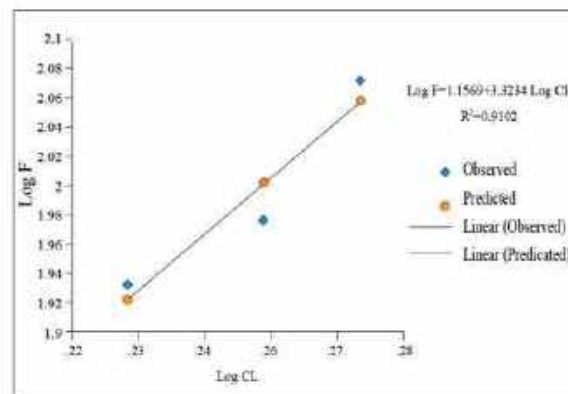


Fig. 3: Relationship between fecundity and carapace length of *M. lamarrei*

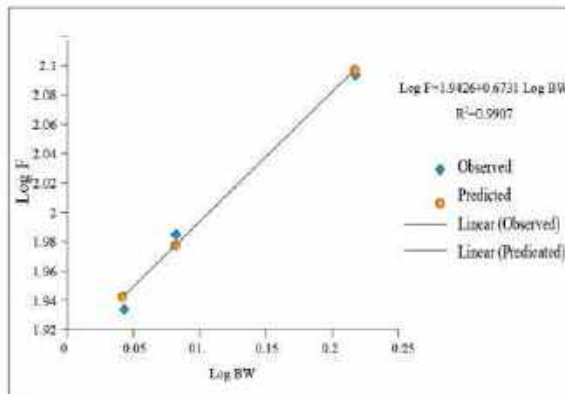


Fig. 4: Relationship between fecundity and body weight of *M. lamarrei*

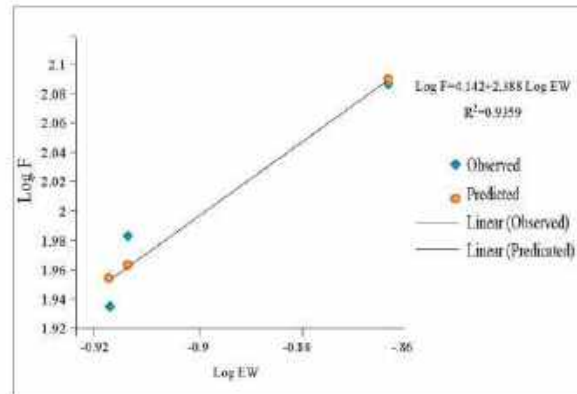


Fig. 5: Relationship between fecundity and egg weight of *M. lamarrei*

Hussain and Manohar (2017), where some of the specimens carried different number of eggs in their brood pouch having the same total length. Thus, the obtained fecundity value for *M. lamarrei* was highly variable. Similar condition had also been reported by Khmeleva and Golubev in 1986, while studying the fecundity of *Macrobrachium vollenhovenii*. These researchers observed that many crustaceans have highly variable fecundity, but the correlation in between the fecundity and total length, carapace length, body weight and egg weights were linear as shown in (Fig. 2, 3, 4, 5).

Table 3 presents the monthly percentage of ovigerous and non-ovigerous female *M. lamarrei*. Maximum ovigerous females were observed in July (85.71%), suggesting *M. lamarrei* as a continuous breeder. Two peaks in matured females occurred in March-July and August-September. Ovigerous females were present every month except December, and the eggs were described as oval, greenish, and macroscopic.

**Table 3. Monthly percentage of ovigerous and non-ovigerous female *M. lamarrei***

Months	Total female	No. of non-ovigerous	No. of ovigerous	% Of non-ovigerous	% Of ovigerous
Jan. '22	26	25	1	96.15	3.85
Feb. '22	19	17	2	89.47	10.53
Mar. '22	10	4	6	40.00	60.00
April '22	16	8	8	50.00	50.00



May '22	6	3	3	50.00	50.00
June '22	12	9	3	75.00	25.00
July '22	14	2	12	14.29	85.71
Aug. '22	37	12	25	32.43	67.57
Sep. '22	33	17	16	51.52	48.48
Oct. '22	23	19	4	82.61	17.39
Nov. '22	16	12	4	75.00	25.00
Dec. '22	19	19	0	100.00	0.00
Total	231	147	84	63.04	36.96

### Conclusion

The fecundity and sex ratio study are important in maintain and determine the population in natural environment for a particular species. Present baseline study on fresh-water prawn *Macrobrachium lamarrei* (H. Milne Edwards, 1837) (Palaemonidae: Decapoda) from the Kaptai Reservoir, Rangamati, Bangladesh will estimate the reproductive potential of brood, which in turn helps management strategies in hatcheries, estimating the number of spawners required for producing a desired quantity of seeds (Rashid *et. al.*, 2013). Present study, on sex ratio and fecundity suggest that the females dominates male in natural population and the fecundity varied between 50 – 230 eggs. Moreover, it has observed that *M. lamarrei* reproduced twice in a year during monsoon and immediate post-monsoon periods, such as 1st time in March-July, and 2nd time during August-September. It can be concluded that future researches are important for the detection whether any environmental and availability of foods are responsible in bi-modal breeding as well as on the fecundity.

Hopefully, such a gradual step by step improvement in research findings will make the species more interesting to farmers and sustainability of trade.

### Acknowledgement

The authors express their sincere gratitude to the head of the Department of Zoology for furnishing the essential academic, laboratory, and comprehensive library resources throughout the research. Additionally, they acknowledge the College Education Development Project (CEDP) for supplying the required research instruments.

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Manuscript received on ----, revised on ----, 2023

## Little Magazine in Bangladeshi Literature: An Overview

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### Abstract

'If I am a writer, it is for the little magazine,' said Sandipan Chatterjee (1933-2005). This saying by a maestro like Sandipan reminds us of the importance of little magazines in Bangla literature. Little Magazine came into being in the 19th century when Indians first saw the running of the printing press. In mainstream literature, mainly in the first half of the 19th century, Bangla literature saw the emergence of a good number of remarkable little magazines. Biddyadorshon (1842) by Axoy Kumar Dutt, Bangadorshon (1872) by Bankim Chatterjee, Probashi (1901) by Premendra Mitra, Sabujpatra (1914) by Promath Chowdhury, and Kollol (1923) by Dineshranjan Das are the pioneering little magazines. To name more, Kali O kolom and Bichitra are to be mentioned must. Shikha, a little magazine published from Dhaka in the then age, is noteworthy to be mentioned also. In the Second half of the above-mentioned century, we see the presence of a good number of Calcutta-centered little magazines; among them, Jiggasa by Shiv Narayan and Krittibas by Sunil are best to be considered. After 1947, in the Pakistan regime, some influential little magazines came into being. Among them, Samakal by Sikandar Abu Jafor, Kanthashwor by Abdullah Abu Sayeed, and Swadesh by Ahamed Sofa are worth mentioning. After 1971, a great number of little magazines were seen in print in Dhaka and even in several district towns. In recent years, the Bangla Academy allots a separate yard for the little magazines to be displayed and sold to the readers during Ekushey Book Fair. This trend focuses on familiarity among the readers, large-scale publications, and varieties of our little magazines. To focus on the present scenario of little

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magazines in Bangladesh, it is necessary to mention the leading names which are as follows: Lyric, Charzapada, Nirikh, Ghunghur, Tattatalash, Mononrekha, Shaluk, Zogazogh, Aronika, Nirantar, Nandipath, etc. This article aims at discussing the subject matters, nature, and variety of publications and the present status of the above-mentioned and a few other little magazines that are published by individual enterprises without any institutional patronization.

**Key-Words:** Little Magazines, Bangla Literature, Wide-scale readers, institutional patronization.

“Little Magazine is a literary usually noncommercial magazine that features works, especially of writers who are not well known.” (2010: 850). By explaining the above definition of little magazines, it can be said that these publications play a vital role in spreading literature and it introduces the less or little-known authors with their publications to the readers which, in the end, will inspire them in becoming authors. Long away, one of the five pioneers of Bangla literature Bankim Chatterjee in his essay “Bangalar Nobyo Lekokdiger proti Nibedon”, “Requests to the New Writers in Bengal” writes:

“Do not write for cash. Many in Europe write for cash and they write and earn well too. But, we are yet to reach those days. If you want to write for cash, the pursuit of entertaining people becomes quite prevalent. And while attempting to please the needs of our people, our writings deviate and get destroyed.”

We believe, most of the editors of Little Magazines in Bangladesh abide by these suggestions of Mr. Chatterjee. This study will show how a great number of little magazines without any patronization under the entrepreneurship of individuals have been/ are published and, their contributions to Bangladeshi literature. Buddhdev Bose evaluates the role of little magazines saying;

“Whatever its contributions maybe, those who aim high, for those the American has coined a term Little magazine. Why is it called little? Is it for its small in size or won't exist long? All of these are true, but these are not words at all; this little adjective has multiple meanings. Firstly, this is a protest; within a pair of covers protest against importing of everything. Little Magazine itself denotes

that it won't be stained by the reward of familiarity, it won't get commercialized its standard in the cash markets, but it can happen that in search of one of its old issues, the advanced section of society becomes highly interested. It will be possible because it never aimed at satisfying others, it wanted to speak with newness. In a critical period when the consistent ones fail to enlighten our ways, it circulated new spirits in the realm of literature ignoring every possible obstacle. This devotedness and waywardness in spirits, trying to create a new era instead of serving the existing—this is the religion of Little magazine.” (2017: 1)

The notable little magazines in Bangladeshi Literature are: Ghunghur, edited by expatriate writer Humayun Kabir, Nirikh, edited by Shafiqunnabi Samadi, Tottwotalash, edited by Mohammad Azam, Mononrekha, edited by Mizanur Rahman, Zogazog, edited by Fahmidul Hoque & Abdullah Al Mamun, Ushalokh, edited by Mohammad Shakerullah, Boiyer Jagat, edited by Ahmad Mazhar and many more.

One of the prominent literary critics in recent times Mohammad Azam, a professor at Dhaka University publishes Tottwotalash, a little magazine with uniqueness in presentation and content. Although it is a new magazine in terms of the number of volumes it has been successful in getting the attention of the readers and critics in a comparatively wider range. It has a richness of writings in Arts and Social Sciences, yet writings on mathematics and law appear in its issues at regular intervals. In the introductory words the editor puts;

“For the construction of a knowledge-based society and for the collective practice of common sense academic skills are very much necessary. But, it is frustrating to see there is every absence of creating newer knowledge in academia and even we do not come to know about any specialty in the dissemination of the existing knowledge. Under these circumstances, we have a deficit of skilled people in our professional world and we are absorbed in chit-chat, discrete comments, and instant opinions like ‘I think...’ in reality reflect the poorness of our university at its peak.” (2021:04)

To get rid of the ‘Poorness of the Universities’ it needs the cultivation of knowledge and arduousness for creativity. It can be done individually or collectively. We think Tottwotalash has undertaken this enterprise which in the words of its editor read: “To face this challenge is not the objective of



Tottwotalash. The only way left is the improvement of the cultivation of knowledge. Of course, we can make people remember that what is expected to be done is not done. This is not less important.” (2021: 05)

Having a look at the Second Volume October 2021 Issue of Tottwotalash one can infer the vastness of its readers’ familiarity and wide publication. Essays on contemporary issues such as Mathematics, Politics, Social Sciences, Cinemas, and Corona are meticulously presented. Fahmidul Hoque, an eminent scholar in Cinema and Communication Studies in his seminal essay “The Beginning of the Cinema Theory” has vividly portrayed the picture of the pre-stage of cinematic theory and cinematic criticism in the academic world. “The Minds of the Bengali Muslims: The Crisis of the Bengali Muslims in Making History” is a close study of the above-said essay by Ahmed Sofa. In the writings of the popular writers there are myths regarding the Bengali Muslims and most of them are notably imaginary and over-generalized. Professor Azam in this essay has rightly pointed out the vagueness of historical imagination and deviation of Mr. Sofa’s one.

Eminent Translator and Professor of Bangla at Rajshahi University Safiqunnobi Samadi publish Nirikh, a Journal of Society and Art. Its first issue came out in December 2007. This little magazine publishes writings on art, culture, society, and so on. Nirikh arranges an international seminar every year followed by its regular publication. The slogan of their first conference was “Bangla Literature, Literature of Bangladesh”. Nirikh believes, “The language of the majority in Bangladesh is Bangla. Bangla Literature, despite being the main one, is not the sole one. The literature of the people belonging to the periphery, the unique language of the indigenous people, and nearly dying Urdu literature too are in practice.” (2007: 2) Variety in contents is one of the key characteristics of Nirikh. The Editor of its Volume 13 published on 13th June 2021 wishes the Covid-affected world to move on in the new normal winning all the hassles both natural and man-made. This issue covers a good number of worth-reading essays and some of them are worth mentioning here.

One of the most significant articles on this topic is “Operation Searchlight and Bangabandhu in the Novels of Bangladesh”. In this article, Nur Salma Khatoon highlights the connection between Bangabandhu and Bangladesh. By enduring prolonged oppression and suppression, Bangladesh achieved independence under the leadership of Bangabandhu. On the 25th of March in 1971, the Pakistani military launched a brutal attack on the defenseless and unarmed Bengalis. They mercilessly killed thousands of innocent people in the country. “In the literature of any age, there are generally found two distinct tendencies. The first expresses

the dominant spirit of the times; the second, the secret or an open rebellion.” (William J. Long, p. 88)

The description of the brutal events of 1971 and Bangabandhu's contribution in gaining independence of Bangladesh has been vividly portrayed in Bangladeshi War novels. Anwar Pasha's *Rifle, Roti, Aorat, Jibon Amar Bon Khelaghar, Ashariri* by Mahmudul Hoque, *Zatra* by Shawkat Ali, *The Farewell from Hell* by Shawkat Osman Jahanam, Rizia Rahman's *Bong Theke Bangla* and *Ferari Surya* by Rabea Khatun are remarkable war novels in Bangladesh which depicted the war atrocities vividly. The explicit depiction of Bangabandhu and Operation Searchlight can be found in these novels. In the same context, in Muhammad Azam's article titled “The Theory of Bakhtin's Novel,” the definition of a novel in the light of Bakhtin's recommendation, comparative analysis of the novel and epic, the historical background of the novel, the purpose of the novel, limitations of reading popular novels, the crisis of language in terms of its nature and prevailing aesthetics, and various aspects of artistic expression are beautifully presented. Alongside these descriptions, the author presents three critical comments at the end of the article.

The name of a nearly extinct river in the Cumilla region is Ghungur, which is also the name of a publication called Ghungur Patrika. It is edited by expatriate writer Humayun Kabir. Ghungur publishes works by both renowned and emerging writers from various parts of the world. Since 2007, this magazine has been publishing two special issues annually. It has also been participating in the New York Book Fair for the past thirty years. In addition to the New York Book Fair and the Ekushey Book Fair, Ghungur publishes a separate issue for the Kolkata Book Fair as well. Apart from these special issues, they regularly publish their writings online.

One notable aspect of the publications based on Ghungur Magazine is that there is always a guest editor collaborating with the regular editor. For the 2020 New York Book Fair edition, the guest editor was the renowned researcher and writer Azfar Hossain. In the analysis of the published works from this edition, we can observe the diversity of topics. The articles on Bengali language, literature, and culture include Muhammad Azam's “Jibonander Kobiswabhav o Kobibhasha: ‘Banglar Mukh Ami Dekhiyachhi’,” Ahmad Mazhar's “Durdesh: Bangla Sahitya Charcha o Bangla Boier Sanskriti,” Faruq Wasef's “Gilgamesh Mahakavya: Bishader Jonmo, Stabder Uday,” Nuruddin Jahangir's “Debshishu,” Afsana Begum's “Deyal,” Masud Khan's “Abhibyakti,” poetry by Sohel Hasan Galib and Gultekin Khan, a single poem by Maruf Rayhan, Raju Alauddeen's “Upekshit



Kafir Arjun o Amra,” Taukir Ahmed’s “Golper Cinema ba Cinemar Golpo,” and memoirs by Sanghamitra Ghosh, “Shantiniketaner Rojonamcha,” among others.

Ushalok is a literary quarterly magazine edited by Mohammad Shakerr Ullah. The ninth issue of this magazine is significant for the literature of Bangladesh. It contains an in-depth analysis of the days of the Liberation War, focusing on the poignant teachings of Shahid Janani Jahanara Imam. The editor mentions in his statement, “The significance of these days is undeniable. Each word and sentence carries the author’s rich emotions, which captivate readers through colors, lines, scents, and touches. The extraordinary language diversity of this remarkable book has been highlighted in most of the articles and those are our achievement” (2014: 1).

In the article “The Middle Classes’ Liberation War,” Md. Mehadi Hasan discusses the need for sacrificing oneself for the country and the nation to attain a place in history. In this context, he presents a comparative picture of Rumi, the central character of Mahmudul Haq’s novel *Jibon Amar Bon*, and Shahid Janani Jahanara Imam’s eldest son. Although Rumi had the opportunity, he did not dedicate himself to the cause of the country. On the other hand, Rumi of Mrs. Imam sacrifices himself for independence. Mehadi Hasan’s discussion will assist readers in understanding the role of the middle class in Bangladesh’s Liberation War.

In the article “Rumi” literary critic and Bangla Academy Laureate Zakir Talukdar converses about why Rumi is different from other middle-class youth. Or, one can consider the thoughts of middle-class parents. Can parents of this era arrive at a decision to neglect their children’s carefree lives and beautiful futures to allow their children to make independent decisions during critical moments for the country? Rumi is an ideal child of an ideal mother. Jahanara Imam introduced Rumi to the world through his courageous personality. She did not restrain Rumi from going to war and, even after learning about the terrifying consequences of war; she encouraged young people to participate in the War of Liberation and wholeheartedly supported them. Rumi and his mother are extraordinary in this regard.

Mizanur Rahman Nasim edited Monon Rekha is a contemplative literary and cultural monthly magazine and it started its journey in 2017. This magazine is now primarily published as a ‘Special Edition.’ The notable publications in this magazine include the Urdu-speaking Bangladeshi poet Naushad Noori, women poets, Ahmed Elias, journalist Monajat Uddin, and the history of Chilmari, as well as an extraordinary number of other topics. The editorial of Monon Rekha,

primarily focuses on subjects that have not received adequate attention despite being well-written. The magazine aims to work on authors who may not have reached the readers despite their good writings. The women poets featured in *Monon Rekha* serve as evidence of their presence in the literature of Bangladesh. The specialty of *Chilmari* issue is its focus on regional-based history, which no other literary magazine in Bangladesh has done before. This magazine is a collection of promising writers from Bangladesh and West Bengal.

Ahmad Mazhar publishes book reviews in *Boiyer Jagat*. The journey of this magazine began in 2009. There is a unique pleasure in reading books and sharing that reading experience with others. Only loyal readers want to share their thoughts on the books they have read with other readers. These sharing results in two consequences: gaining popularity for the book and increasing the interest of many people to read it. Let's highlight the words of the editor of *Boiyer Jagat* in this regard. "In our society, amidst various forms of progress, the possibility of fostering culture through intellectual discussions has almost come to an end due to excessive commercialization. The world of books wants to resist it, even if it has limited capabilities." (2013: 1)

Fahmidul Haque and A-Al Mamun edited the magazine *Zogazog* focuses on communication and culture. It is the result of significant research on the importance of global and interconnected communication. The editorial reflects the initiative taken by the two editors to publish this magazine, considering it as a significant effort towards the liberation of the Universities from their poorness as mentioned in John Webster's definition of Little Magazine. This magazine is published with some commercial objectives, although it primarily aims to serve self-realization. The majority of the articles published in the eighth issue, released in February 2007, are notable translations of renowned essays on film, literary theory, and communication by the eminent local writers.

In addition to the discussions mentioned above, there are many other Little Magazines regularly published or in circulation, even though their names are not mentioned. Their significance will not diminish in any way. Furthermore, numerous Little Magazines are being regularly published online by individual initiatives. *Tirandaz* edited by Masuduzzaman, *Bindu* edited by Samya Raiyan, *Torko Bangla* edited by Sakwat Tipu, *Somonwoy* edited by Sohel Hasan Galib "Purbaksha.com," edited by Main Uddin Jahed, and *Feminist Factor* edited by Munmun Sharmin are worth mentioning.

In the literature of Bangladesh little magazines are playing a key role and in the recent years they have proved their worth in attaining the trust of the readers. In



the last few years, separate places have been allotted for little magazines in the Amar Ekushey Book Fair. In creating spirits of creativity, making the readers acquainted with their writings, and making a connection among the readers little magazines are playing a vital role. Little magazines that are published in individual patronization, if given institutional recognition, are expected to add more spice to Bangla Literature.

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