


MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN
FEDERATION
NATIONAL RESEARCH TOMSK STATE UNIVERSITY

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« 10 » 06 2023

GRADUATE QUALIFICATION WORK OF MASTER'S DEGREE STUDENT
(MASTER'S THESIS)

The Economic and Environmental impact of Globalization in Bangladesh and the zeal for
Sustainable Development Goals.

on the basis of the educational program for preparing master's degree students

38.04.02 – Management

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Tomsk-2023

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THE TASK

of completing the final qualification work of a bachelor / specialist / master to a student
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in the direction of training 38.04.02, main educational program (profile) "International
Management"

1 Topic of the thesis

"The Economic and Environmental impact of Globalization in Bangladesh and the zeal toward
Sustainable Development Goals"

2 The deadline for student to complete the thesis:

a) to the academic office /
dean's office –

21.06.2023

6) to State Examination
Commission –

26.06.2023

3 Initial data for work:

The object of the study –

Is to conduct a comprehensive investigation and research report
about Bangladesh and the factors that enhances its rapid economic
transformation.

The subject of the study –

The aim of the study –

Is to investigate the economic and environmental effects of
globalization in Bangladesh and sustainable development goals
initiatives implemented so far by the government and stakeholders' to
alleviate this impact in order to strike a balance between economic
development and sustainability development goals.

Tasks:

Is to apply critical analytical and statistical tools for the contexts and theories including
qualitative and quantitative data analysis for effective research report.

Research methods:

This include secondary research methods and useful information was sourced from the country
government website, Google Scholar, International Labor Organization (ILO) United Nations,
Academic literatures, related articles and journals.

The organization or industry on which the work is being carried out –

Economy of Bangladesh.

4 Summary of the work:

The researcher was able to establish fundamental factors that enhance the rapid economic transformations of this nation from Least develop Nation (LDN) to fast developing nation in less than two decades and with high optimism to be among the top global leaders in 2050. In addition, the researcher was able to identified inherent economic, environmental and ecological issues associated with his transformations that are impacting negatively on health and general well-being of the people. Finally, the researcher was able to analyzed strategies that were being implemented by the government to ameliorate these impacts and with high enthusiasm for sustainable development goals of the nation.

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AIM AND OBJECTIVES

This study was undertaken to investigate the Economic and Environmental impact of globalization in Bangladesh, the plausible solutions initiated by the nation's government, pro-globalization activists and other external environmental crusaders to enhance expedited sustainability development goals of the country. This investigation primarily is:

- To critically analyze the impact of globalization on trade and other economic activities in Bangladesh.
- To identified investment risk and financial opportunities associated when conducting and internalizing businesses in this country.
- To analyze the pattern of trade, the gains from trade and the growth rate (GDP per Capita) of this nation.
- To examine and analyze various effort, policies and procedures implemented by the government towards the economic development of the country.
- To examine different environmental factors at (micro and macro level) that may have impacted negatively on the industrialization and commercialization activities in this nation.
- To investigate the unethical activities of the multinational organizations, internal and external stakeholders in this region.
- To analyze the several sustainable development initiatives and strategies implemented so far in the country.
- To analyze the significance of business ethics and CSR, and its implementation towards building a strategic sustainable development goals in the country.

ABSTRACT

Bangladesh is located in the North-Eastern part of India Sub continent in the delta of Padma between river Ganga and Jamuna during the British colonial rule. But, during the partitioned in 1947, it became part of Pakistan and was popularly identified as East Pakistan. Consequently, they share no border or language with the West Pakistan and, in 1971; this led to a war of independence of which millions were killed. East Pakistan gained independence and became a nation named Bangladesh. The country economic mainstay after independence is predominantly on agriculture for subsistence and few exports which represent greater percentage of the country GDP per capita before globalization. The country is ranked as the 8th largest country in the world by population with the current population estimated to be above 170 millions. According to the World Bank statistics, this nation is classified among tenth Least Developed Countries (LDC) in the year (1971) by the world bank and by United Nations in (1974), but; since then, globalization has enhance the country positive transition from the level of Least Developed Countries (LDC) to Lower- Middle –Income status in (2015), and with high optimism to be excluded from United Nations least developed country in (2026).

However, the basis of this investigation is to examine the reasons for these sudden economic transformations and the aftermath. What are the reasons why this nation was being criticized by the Environmental Protection Agencies (EPA), International Labor Organization (ILO) and other environmental protection crusaders? Why is Bangladesh government spending billions of USD on environmental protection programs, strategic economic development and sustainability initiatives of this nation? These are questions that deserved reasonable answers.

- This investigation will be based on secondary research methods based on qualitative and quantitative analysis with most useful and updated information sourced from Google Scholar, Web of Science, related academic literatures and theories, World Bank website, UN website, International Labor Organization (ILO) website, Environmental Protection

- Agency (EPA) website, United State government website, Bangladesh governmental websites and related articles and journals.
- **Keywords:** Globalization, trade, investment risk and opportunities, strategies, economic growth, environment, business ethics, CSR and sustainability development goals.

Аннотация

Бангладеш – страна, расположенная в северо-восточной части индийского субконтинента. Во время британского колониального правления границы государства приходились на дельту Падмы, между реками Ганг и Джамуна. Но во время политического и географического передела в 1947 году страна стала частью Пакистана и в народе назывался Восточным Пакистаном. Как следствие у Бангладеш нет границ или языковых барьеров с Западным Пакистаном. В 1971 г. это привело к войне за независимость, в которой погибли миллионы человек, и после которой Восточный Пакистан получил независимость и стал известен под названием Бангладеш.

После обретения независимости и до начала основательного влияния глобализации, основой экономики страны являлось преимущественно сельское хозяйство и небольшой экспорт, который составлял большую часть ВВП на душу населения. Страна занимает 8-е место в мире по численности населения, нынешнее население оценивается более чем в 170 миллионов человек.

Согласно статистике Всемирного банка 1971 года и Организации Объединенных Наций 1974 г. эта страна входила в десятку наименее развитых стран (НРС). С тех пор многое изменилось, и глобализация ускорила позитивный переход страны с уровня наименее развитых стран (НРС) к статусу с доходом ниже среднего в (2015 г.) и с большой долей оптимизма страна будет исключена из НРС в 2026 г.

В основе данного исследования лежит изучение причин внезапных экономических трансформаций в Бангладеш и их последствий для населения, экономики, экологии.

В работе будут исследованы причины:

- которые привели к осуждению и критике политиков и компаний Бангладеш со стороны Агентства по охране окружающей среды (EPA), Международной организации труда (МОТ) и других международных организаций.

- которые заставляют правительство Бангладеш тратить миллиарды долларов США на программы охраны окружающей среды, стратегическому экономическому развитию и устойчивому развитию страны.

Данное исследование основано на вторичных методах исследования, на качественных и количественных показателях, с опорой на обновленную информацию, полученной от Google Scholar, статьях Web of Science, соответствующую научную литературу, современные теории глобализации, веб-сайт Всемирного банка, Веб-сайт ООН, Веб-сайт Международной организации труда (ILO), Защита окружающей среды (EPA), веб-сайт правительства США, правительственный веб-сайты правительства и организаций Бангладеш.

• Ключевые слова: глобализация, торговля, инвестиционные риски и возможности, стратегии, экономический рост, окружающая среда, деловая этика, корпоративная социальная ответственность и цели устойчивого развития.

INTRODUCTION

Bangladesh is a country in South Asia, and it is among the most populous country in the world with over 163million people covering a land mass of about 148,000 square kilometers. The country share geographical boundary in the North, South East and on the West with India, Myanmar, Bay of Bengal and China respectively, through the India state of Sikkim. The economic mainstay of this nation is predominantly on agriculture for subsistence and export which contributed to the total GDP per capita for each fiscal year. Other forms of revenues are generated from garments exports, taxes from indigenous companies and multinational corporations. The geographical location of the country enhanced easy accessibility to sea ports which served as catalyst for speedy transformation of Dhaka as the most populated region and the capital city of Bangladesh while Chittagong is the country's largest seaport.

Globalization has impact positively towards the economic growth of this country through rapid agglomeration of isolated factories and warehouses by the multinational organizations such as Gap, Reebok, Nike, Timberland, Puma , H & M , Adidas, Versace and other multinational corporations who moved their production zone and operational offices from their home countries to Bangladesh for production efficiency (Resource dependent Theory) lower labor-cost, proximity to cheap raw materials and government policies which encouraged Foreign Direct Investment (FDI), partnership, strategic alliance, Foreign Portfolio Investment (FPI) and other form of business alliance and arrangements. These facilitates increase in employment opportunities, rural-urban drift (Cluster Theory) , increasing infrastructural facilities, education , social facilities, increasing emerging markets, increasing economic and commercial activities (Trade Theory) and increase in profit maximization for respective organizations (Stakeholders Theory). These factors can be identified among other reasons for rapid transformation of this nation, most especially; two regions of Dhaka and Chittagong from rural dispersed settlements to industrial zone and cities.

However, there is no way for a nation to experience expedited economic growth without

environmental consequences. There are serious negative effects, attributed to these sudden transformations. This include increasing massive landfills and dumpsites, pollution, deforestation, climate change, devastating ecology , unethical use of child labor by the multinationals organizations, the collapse of garment factory in Dhaka killing over 1,500 workers and other prominent casualties. These triggered the Intervention of International Labor Organization (ILO), GreenPeace, Bill and Melinda Gates foundation, World Trade Organization (WTO), Environmental Protections Agency (EPA) and the anti-globalization and pro-globalization crusaders. -

This generated mixed reactions and feelings Disney's decision to pull out of Bangladesh as the communities maintained that they don't have other means of livelihood and that, working at sweatshops is better than back-breaking tasks such as agriculture, thrash picking and prostitution.

There are reactions especially by pro-globalization crusaders such as Jagdish Bhagwati, Milton Friedman, Tony Blair, Bangladesh government and host of concerned advocacies groups that emphasized explicitly on the understanding and practice of business code of ethics and Corporate Social Responsibilities (CSR) for the sustainability development goals of this country.

Literature review

There have been numerous conflicting definitions, mixed reactions and diverse opinions about globalization by different academic institutions, authors, professors and publishers. Globalization according to Harvard Business School, is the increase in the flow of goods, services, capital, people, and ideas across international boundaries. Frieden (2007) opined that, globalization is a choice of policy decisions and the politics that shaped them. Baldwin (2016) have a different view of globalization; he clarifies that it involves businesses increasing international trade through buying and selling around the world, often due to the cost and availability of product or cheap labor. Friedman (1999) defined globalization as the establishment and intensification of, in particular; economic interdependencies among different nations, which, in his opinion; would contribute to the prevention of violent conflicts. Landes (1999) argue that, because some countries are so rich and some so poor despite being endowed with abundant natural resources are among reasons which triggered globalization for business optimum advantage. Other authors such as,

Piketty and Goldhammer (2015) clarified that, due to economic of inequalities, the tax system and uneven distribution of natural resources are part of the catalyst that propelled globalization. King (2019) opined that for most businesses, continual growth is one of the most important aims to achieve the primary objectives by scaling-up. Rutherford (2022) considered it as a strategic decision making that focuses on competition and cooperation between intelligent players. And because of the unequal distribution of natural resources, Sen (1997) maintained that, it helps to improve impoverished societies. Besanko et al, (2017) regarded it as economic strategy by firms adjusting their business strategies to the demands of ever-changing environment.

However, because Bangladesh is classified as one of the Least Developed Nation (LDN) according to United Nations ranking in late (1972), and in order to transform the nation from agricultural producing nation to industrial and manufacturers, Bangladesh government encourages various forms of strategic alliance and partnership with foreign nations and multinational corporations to invest in the country through Foreign Direct Investment (FDI),

Foreign Portfolio Investment (FPI) and other business alliance to promote trade and economic development. The government also provides tax incentives as motivation. Consequently, there are various concentration and conglomerations of businesses which facilitates trading activities (Trade Theory). And, because these businesses involve agglomeration of the isolated factories and warehouses by the multinational organizations (Cluster Theory) facilitates numerous economic activities. Bangladesh that have been experiencing high rate of unemployment since independent now reaped the benefits of globalization which created opportunities for the employed communities. According to, Jahoda et al (2017) opined that; prolong unemployment leads to state of apathy. Ideally, Smith (2003) argued passionately in favor of free trade with emphasis on integrated economy.

Baldwin (2016) convergence theory emphasized that, the new globalization is driven by information technology which facilitates rapid industrialization. Raworth (2018) doughnut economy model also recognizes the need for a proposed change of economic model as a response to humanity's major challenge by eradicating global poverty. Sachs (2006) argues on steps that can transform impoverished countries to prosperous ones. He cited integrated sets of solutions to the interwoven economic, political, environmental and social problems that challenge the world poorest countries.

Because Bangladesh have numerous raw materials and vast majority of underpaid workforce, proximity to port, tax incentives system, lower GDP per capita and hitch-free internalization of businesses through Foreign Direct Investment (FDI) these enhanced rapid infrastructural development in the economy especially the city of Dhaka, which is the country's capital and the most populous, and Chittagong as port for import of raw-materials and export of finished goods. These bolster migration from the rural areas to the city for employment and financial opportunities. Hatton et. al(1998) express concern about causes and economic impact of mass migration which at long-run could have devastating outcome. Goldin (2009) argues that migration promotes race between education and technology. Levy et. al (2004) explained

how knowledge transfer and computers enhance productivity and reduced redundancy level to significant level. Guest (2011) argued that, the flow of educated migrants from poor countries to rich ones actually reduces global poverty.

Some of these multinational organization source their production raw-materials directly from the local farmers by developing mutual bonds (Influence strategy), and because of their various experience and understanding of the methodologies of the supply chain (Experience curve), they exonerated the so-called 'middlemen' (Wholesaler and Retailers) from the supply-chain who prudently possess tacit abilities of influencing the price of products by hoarding the supply of goods to create 'artificial scarcity'. This boosted the revenues of the peasant farmers and simultaneously improves their standard of living. Many of these migrants are gainfully employed in various sectors of the economy thus reducing unemployment rate. Parhalad (2004) emphasize the significance of eradicating poverty through profits. He argued that, billions of poor people have immense untapped buying power and by serving these markets, they are helping millions of the world's poorest people escape poverty. Some of the multinational organizations, in order to ensure constant source of raw-materials went as far as possible to acquire acres of land to produce (Backward Integration) and to control the supply and direct distribution of company's products for cost-effectiveness and the strategies implemented towards greening the environment (Forward Integration) to the various internal and external stakeholders as their contribution to

sustainable developments and economic growth. Lewis (2007) explained the theory of economic growth that is by focusing on the output per head of the population.

However, the economic and industrial transformation triggered numerous environmental and ethical issues in the quest of both indigenous and multinational organization to maximize profits and minimize loss. There have been massive issues that ranged from ecological, wildfire, increased landfills and dumpsites, pollutions, epidemics, deforestations and floods. Berry et al (2021) express concern about productivity problems to development dilemmas. They argue on the value of the fundamental economic practices and the challenge of greening

capitalism in corporate governance. Tanzi (2022) suggested that, government should play a vital role concerning regulation of private sectors and dealing with special harms to achieve any semblance of future progress. Blas and Farchy(2021) expressed their concern about money, power and traders who barter the earth resources and became indispensable cogs in global market. Sedniev (2019) argue about the downsides of millionaire factories emphasizing about their ultimate objectives which is to maximize their primary income and invest money with high returns at the expense of the workers. Waugh (2021) expresses concern about climate change and the effects on global communities.

Conversely, Bhagwati (2004) argued persuasively that, globalization leads to greater general prosperity in an underdeveloped nation, it quickly reduces child labor and increases literacy; parents have sufficient income, and a remarkable increase in standard of living. Wolf (2005) opined that globalization is better than government at improving the lives of citizens and economic growth. Keynes and Volcker (2016) opined about inherent economic consequences. They argues that aggregate demand determine the overall level of economic activities and that inadequate aggregate demand could lead to prolonged periods of high unemployment. Tanzi (2022) remarkably argues about the difference between statistically predictable future events ‘risk’ and statistically unpredictable uncertain events ‘uncertainties’ perceiving pandemics, natural disasters at uncontrollable Acts of God without organization’s future preparation for future catastrophes.

However, in order to forestall and alleviate numerous environmental issues attributed to this sudden economic transformation, the government has set and has been implementing both operational and strategic plans. Gates (2021) emphasized on the need to work toward net-zero emission of green house gases and suggesting not only the policies that government should adopt, but we as individuals can do to keep our government, our employers, and ourselves accountable in this crucial task. Hansen and Macedo (2021) expressed concerns on what is ideal for city residents, developers, designers, and officials by looking for ways to bring urban environment into harmony with natural world and make cities more sustainable. Polman and Winston (2021) argue that, the companies of the future will profit by fixing the world’s problem and not creating them. Hawken (2021) clarified on how climate crisis can

be ended in one generation. He argues that this can be done through human dignity and tapestry of actions and policies.

Ohlson (2014) emphasized on his classical discovery on how to build healthy soil which solved myriads problems; drought, erosion, air and water pollution, food quality as well as climate change. He argues that revolutionize the way we think about our food, our landscapes, our plants determine our relationship with earth. Hawken (2017) on the other hand, explained on the need to educate girls in lower-income countries to land use practices that pull carbon out of the air. He concluded that the measure promised cascading benefits to human health, security, prosperity, and planetary crisis as an opportunity to create a livable world. Johnson and Wilkinson (2022) scale-up their aims to advance a more representative nuanced and solution-oriented public conversation to alleviate climate crisis. Mann (2021) in new climate war emphasized on the battle lines between the people and the polluters-fossil fuel companies, right-wing plutocrats, and petro-states. He concluded on outlined plans to forcing governments and corporations to wake up and make real change.

Horner (2007) expressed concern about the increasing global warming and exposes the shoddy science plain dishonesty and hidden political agenda behind the biggest phony environmental scare since green prediction of catastrophic global cooling in the 1970s. Rich (2016) opined that meaningful progress on urgent environmental issues can be made only on a bipartisan basis. He criticizes the green movement for having drifted too far to the left in their quest for business and economic growth. Chomsky and Pollin (2020) argues that we have to absolutely stop burning fossil fuel to produce energy within the next 30 years. He further emphasized that it has to be done to support rising standard of living and expanding opportunities for working people and poor throughout the world. Visser et.al (2022) clarified that; innovation can regenerate nature and society from degradation to restoration of the ecosystem. Figueres et. al (2022) emphasized on adhering to the meeting at the Paris '2015' agreement climate target with clarity how earth will look like in 2050 if we failed. They concluded that, confronting climate crisis is with determination and optimism.

BANGLADESH BEFORE GLOBALIZATION

After the war of liberation from Pakistan in 1971, economy of newly emerged Bangladesh started its journey. The country economic mainstay is predominantly on agriculture for consumptions and few exports. The agricultural products are crops, livestock's, fisheries and forestry. According to Daily Independent news, Contribution of Agriculture sector was highest (51%) followed by the service sector (41.28%) to Bangladesh GDP in 1971. Contribution of the Industry was the lowest one i.e. 7.68%. The nation has been experiencing a negative growth (-5.5%). GDP per capita was USD 134 in 1971. More than 70% of the population was leaving below poverty line. From 1973-1980 GDP growth rate of Bangladesh was 3.8%, population growth rate was 6.3% in 1975 and per capita income was about USD 100 only. Foreign investments were insignificant and over dependency on foreign aid are high. Government, however, shifted its mindset and open up different sectors for Private as well as foreign investment. The Foreign Private Investment Act of 1980 provided confidence to the investors especially foreign investors about security of their investment here in Bangladesh. Thus private sector development initiated and GDP growth was getting momentum. The inception of nation's largest export earning sector Readymade Garment (RMG) was in 1980 and other major sectors are Textiles, Pharmaceuticals, Leather, and Jute etc. Government provided policy boost like Back to Back LC and Bonded Warehouse Facility to export oriented RMG sector and achieved a revolutionary boom in export earnings.

(Table 5.0.A) Rice plantation in Bangladesh before globalization.



<https://www.thedailystar.net/supplements/ce>.

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(Table 5.0.B) Vegetables plantation in Bangladesh before globalization.



https://ideas.repec.org/a/spr/snbeco/v2y2022i7d10.1007_s43546-022....

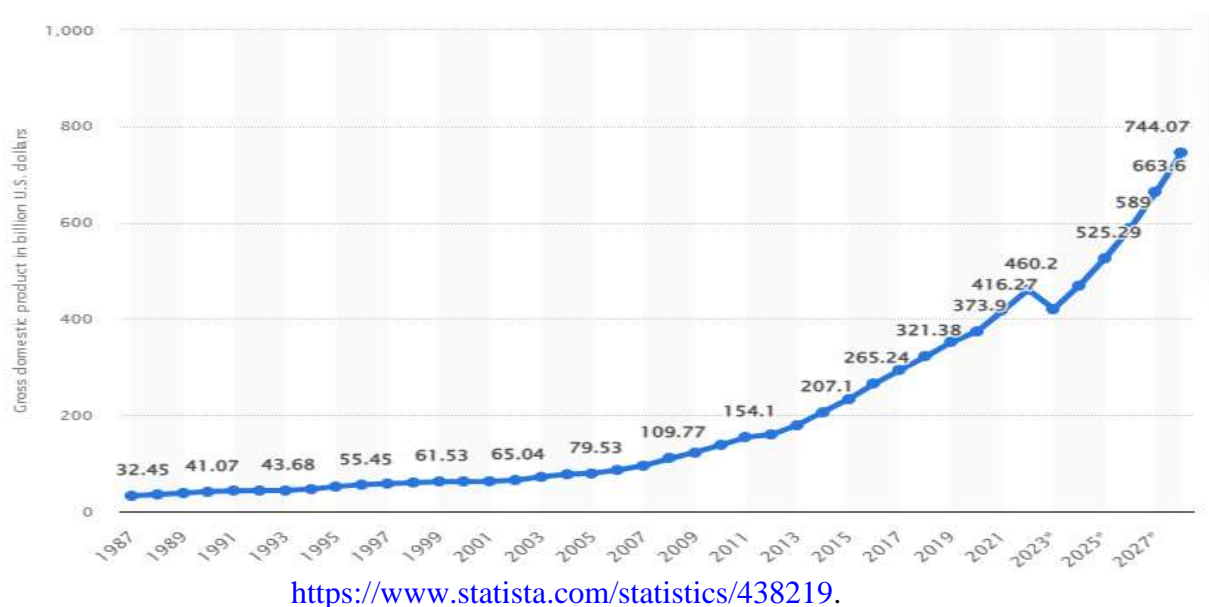
This marks the beginning of significant transition of new nation that has been ravaged by the war of independence, natural disasters, and famines and was predicted to fail economically by many western policymakers and analysts.

THE ECONOMIC IMPACT

Bangladesh has been classed by the United Nations as one of the world's least developed countries (LDCs) since 1974, but its current trajectory implies that it is likely to shed that description by 2024. Before globalization, the primary economic mainstay of the country is predominantly agriculture produce such as tea, vegetables, raw hides and skin and sea foods for local consumptions and few exports. The economy is highly import dependent which accounted for deficit in balance of trade and payments. These are among reasons why the country was being classified by the UN as one of the poorest country in the world. However, globalization has facilitated sudden transformation. The internalizations of investment by indigenous and multinational organizations such as Gap, Nike, H&M, Addidas, Puma, Timberland, Versace, Reebok etc have facilitated heavy industrial development (Readymade garment and shoes factories) which enhanced increasing infrastructural facilities, increased employment opportunities, increasing commercial activities, hospitals and various educational institutions and general improvement in standard of living. The concentration and agglomeration of this isolated factories and warehouses that makes Dhaka the most densely populated area and the city capital while Chittagong as the primary export and import zone.

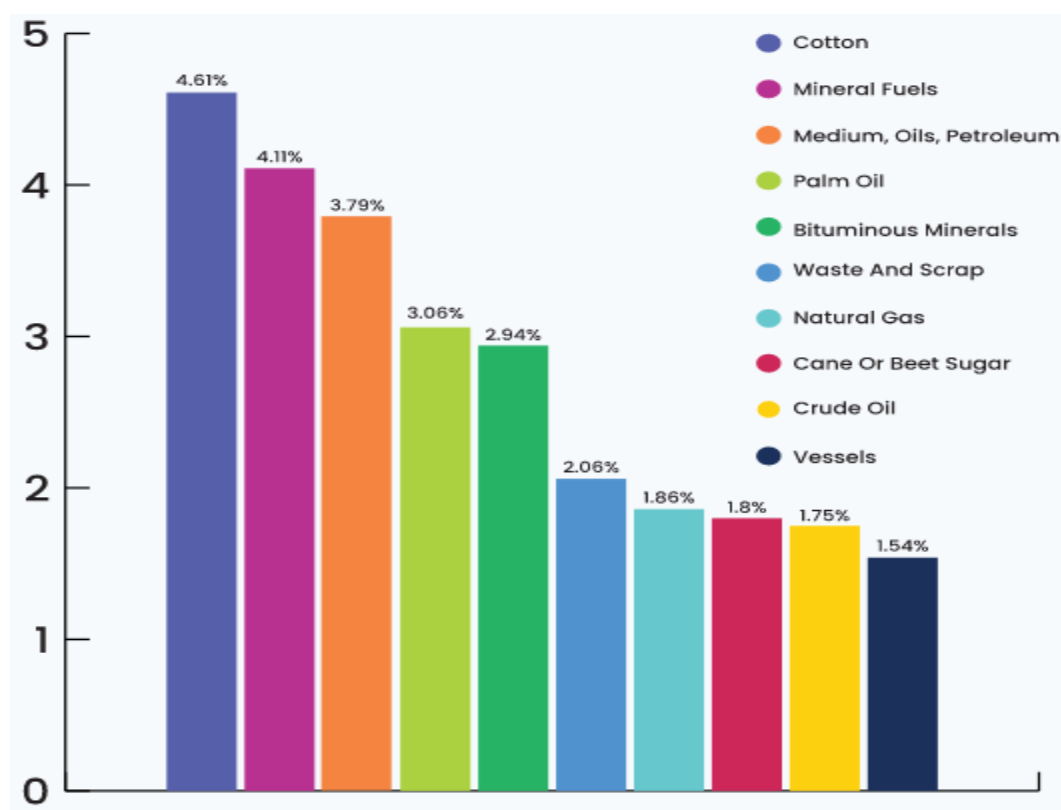
According to the World Bank press release on 13th April, 2022; it was established that Bangladesh economy has showed a remarkable recovery from covid-19 pandemic and the looming global uncertainty. The rebound of the manufacturing, service sectors and other economic activities are notable catalyst for the strong growth.

(Table 5.1) Bangladesh estimated GDP growth from 1987-2028.



The above chart shows the gross domestic product (GDP) of Bangladesh as it grew from 1987 from 32.45 billion progressively to 460.2 billion international dollars in 2022. This is an increase of about 253 billion U.S. dollars since 2014, and this growth is projected to continue at least until 2028.

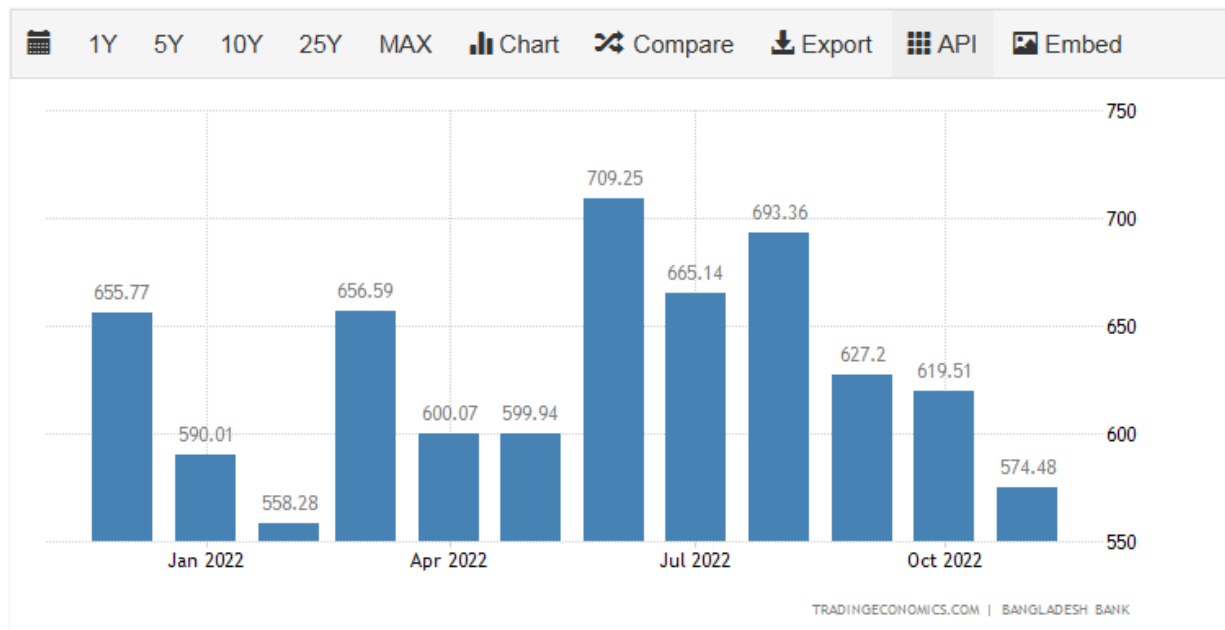
(Table 5.2) Bangladesh commodities import in 2021-2023



The above chart , according to Bangladesh Import Statistics, shows Bangladesh's top 10 import commodities in 2021 were Cotton (4.61%), Mineral fuels (4.11%), Medium, oils, petroleum (3.79%), Palm Oil (3.06%), Bitumen minerals (2.94%), waste and scrap (2.06%), Natural gas (1.86%), Cane or beet sugar (1.8%), Crude Oil (1.75%), and vessels and other floating structures (1.54%).

.(Table5.3)

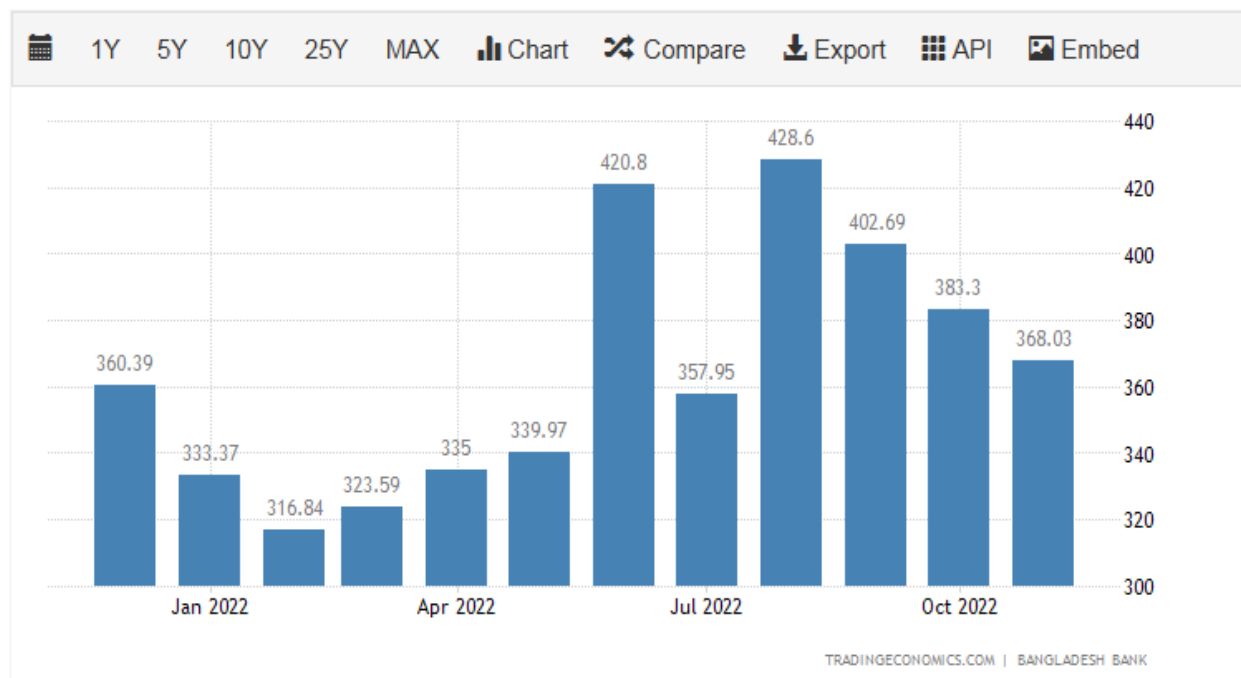
Bangladesh Imports from January –November 2022



<https://tradingeconomics.com/bangladesh/imports>.

The above chart shows the country monthly imports from January to November 2022. At the beginning of 2022, the nation total import was 590.01billion. The imports include commodities such as crude oil, cotton, cane or beet sugar and other essential products and then rose significantly to over 700 billion dollars in June with drastic reduction towards end of the year.

(Table 5.4)

Bangladesh Exports

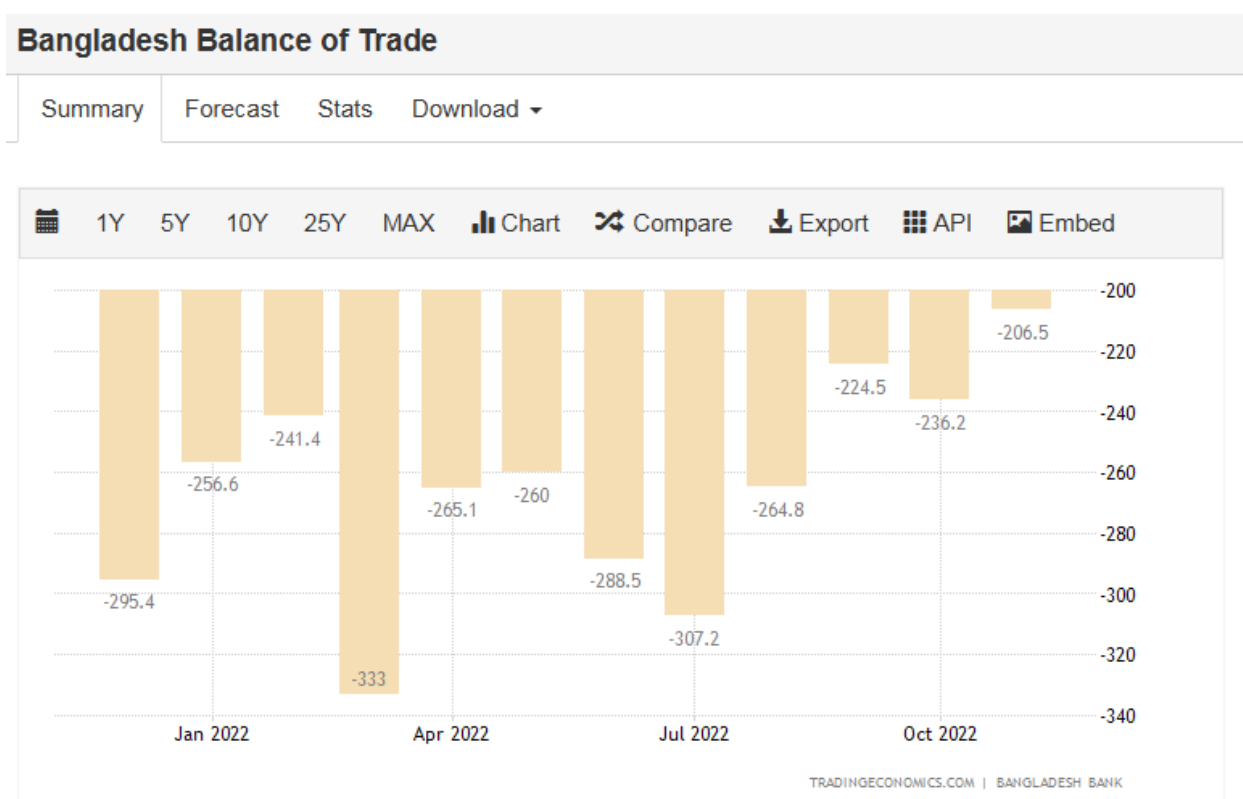
In macroeconomic terms, Bangladesh's total exported goods represent 5.3% of its overall Gross Domestic Product for 2022 (\$981.1 billion valued in Purchasing Power Parity US dollars). That 5.3% for exports to overall GDP in PPP for 2022 compares to 4.3% for 2021. Those percentages suggest a relatively increasing reliance on products sold on international markets for Bangladesh's total economic performance, albeit based on a short timeframe.

(Figure 5.1.1) Bangladesh tariffs system:

Bangladesh levies tariffs at four primary levels of imported goods and publishes the applied rates on the Bangladesh Customs website. Tariffs are levied on Generators, information technology equipment, raw cotton, textile machinery, certain types of machinery used in irrigation and agriculture, animal feed for the poultry industry, certain drugs and medical equipment, and raw materials imported for use in specific industries are generally exempt from tariffs. Samples in

reasonable quantities can be carried by passengers during travel and are not subject to tariffs; however, samples are subject to tariffs if sent by courier. Conversely, the country also imposed taxes on exported goods (Export duties) and locally manufactured products (Excise duties) which contributed significantly to the country national income (NI).

(Table 5.5)



| Related | Last | Previous | Unit | Reference |
|-------------------------------|---------|----------|----------------|-----------|
| <u>Balance of Trade</u> | -206.50 | -236.20 | BDT Billion | Nov 2022 |
| <u>Current Account</u> | -107.37 | -83.37 | Billion BDT | Nov 2022 |
| <u>Current Account to GDP</u> | -1.10 | -1.40 | percent of GDP | Dec 2021 |
| <u>Imports</u> | 574.48 | 619.51 | BDT Billion | Nov 2022 |
| <u>Exports</u> | 368.03 | 383.30 | BDT Billion | Nov 2022 |

The above chart shows that Bangladesh in November 2022 has a negative balance of trade of 206.45 (574.48-368.03) which represents 38.4% of the total import and export for the month of November compared to the previous month October (619.51-383.30) which represent a ratio of 42.34% with a total deficit of 107.37 and 83.37 respectively in the current account.

Regardless of the terms and balance of trade, Bangladesh is the world's second-biggest apparel exporter after China. Garments including knit wear and hosiery account for 80% of exports revenue; others include: jute goods, home textile, footwear and frozen shrimps and fish. Conversely, Bangladesh imports mostly petroleum and oil (11 percent of the total imports); textile (10 percent) and food items (9 percent). Others include: iron and steel (7 percent), edible oil (4 percent), chemicals (4 percent), yarn and plastic and rubber articles (4 percent). In 2013, imports of rice grains decreased substantially mainly due to adequate domestic supply of rice during the period.

The garment trade, according to the country Bureau of Statistics (BBS) began in the 1970s and is now a \$30 billion industry. The export oriented readymade garment (RMG) sector in Bangladesh started as a small non-traditional export sector in the late 1970s. Within a few years, RMG has transformed itself into the country's highest revenue generating sector, contributing over 80 percent of Bangladesh's total exports. From spinning to weaving, from knitwear to leisurewear,

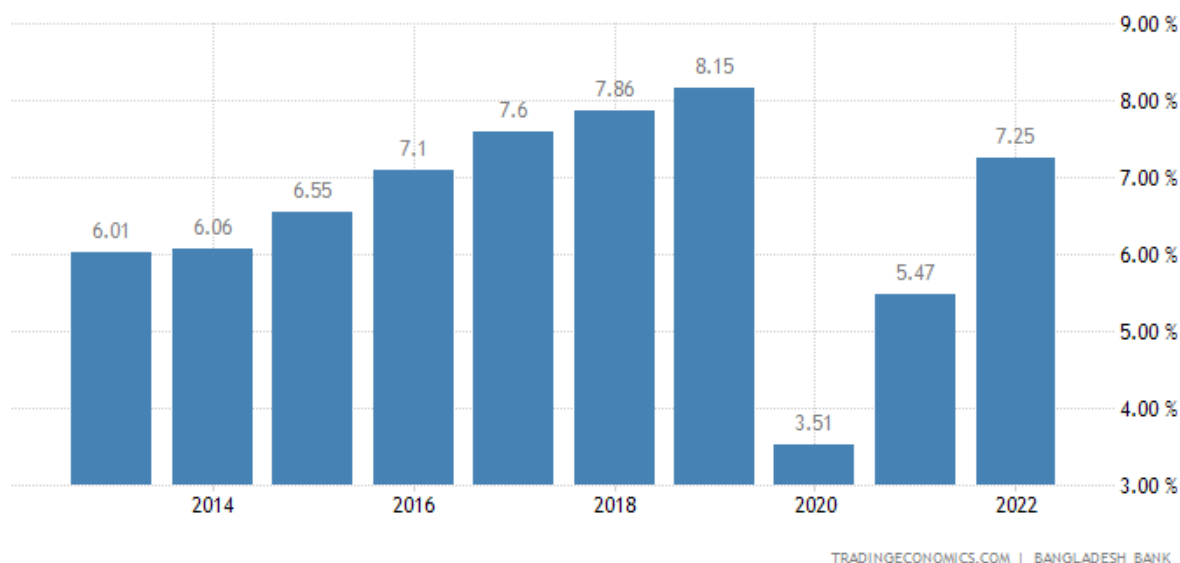
the textiles and clothing industry designs and produces for the world's leading brands and retailers. This growing sector of the Bangladeshi economy offers a unique competitive edge that supports profitable expansion into new strategic markets.

This is because of production-efficiency attributed to Low-cost of human capital and high-quality products that are produced on time, reliably and very competitively with a skilled work force. Also, unique regional location for expansion into key Asian and other markets enhanced access to large markets including the EU, Japan, and Canada. Clusters and agglomerations of companies providing a local supplier base with depth in skilled labor, training, and technical development facilities for the significant growth. According to the country official website, In FY 2020-21, Bangladesh's RMG exports grew 12.55 percent to \$31.46 billion (out of \$38.76 billion in total exports) as demand in major markets in Europe and North America began to recover from the demand shock induced by the COVID-19 pandemic. Despite the challenges posed by the global pandemic, global competition, factory safety issues, and infrastructure deficiencies, the long-term outlook for the RMG sector remains positive. As competitors such as China are moving up the value chain, value apparel manufacturing is shifting to cost effective players such as Bangladesh. However, Bangladesh has also begun efforts to move up the value chain and to produce more capital-intensive products, including footwear and more complicated garments.

Amid pressure from international retailers as well as the U.S. government and the European Union, many Bangladeshi factories have improved their safety standards and compliance norms. This has also created an opportunity for exports of U.S. safety equipment and diversification to other viable sectors.

Bangladesh have experienced massive improvements in health, education, infant mortality and life expectancy, improved standard of living with Average Propensity to Consume (APC) and Average Propensity to Save (APS) in both private and public sectors of the economy.

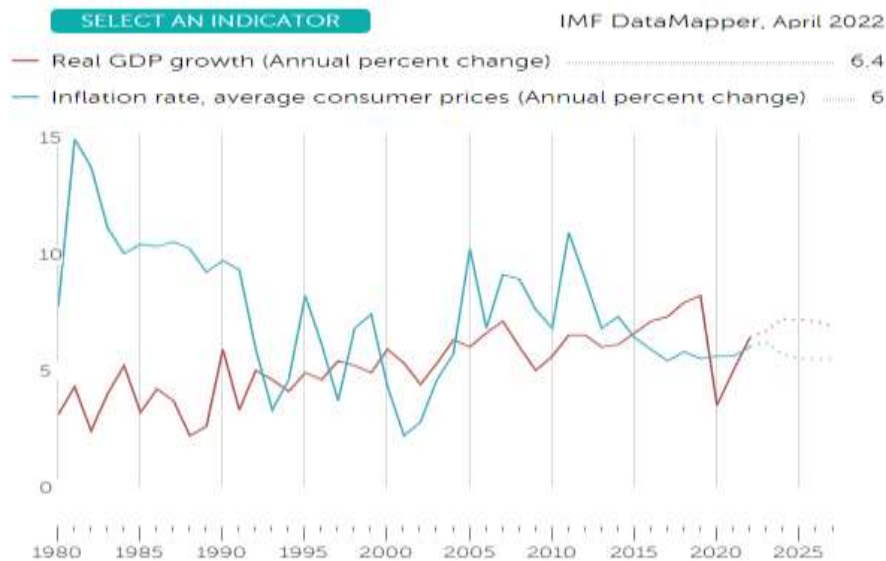
(Table 5.6) GDP Annual growth.



source: [GDP growth \(annual %\) - Bangladesh | Data \(worldbank.org\)](https://data.worldbank.org/BD/GD.GD.ZS)

The above chart shows that Bangladesh economy registered an impressive 6.91 percent growth in the Financial Year (FY) 2020-21 exceeding the provisional estimate by 1.51 percent, according to the report of the Bangladesh Bureau of Statistics (BSS). The GDP growth rate in 2019-20 was recorded to be 3.45 percent. The accelerated growth rate has taken place on the back of the rebound in the industrial sector, especially the cottage, small, medium and large industries.

According to the International Monetary Fund, Bangladesh's economic growth is expected to increase to 6.6% in the fiscal year ending June 2022, with expected growth of 7.1%. The forecast is based on improvement in the external environment and progress with the domestic vaccination program. In addition, according to a provisional estimate from the Bangladesh Bureau of Statistics, the government have proposed a 12% increase in the budget to spur economic activity and offset the pandemic's fallout. Gross domestic product rose 5.43% in 2021 financial year.

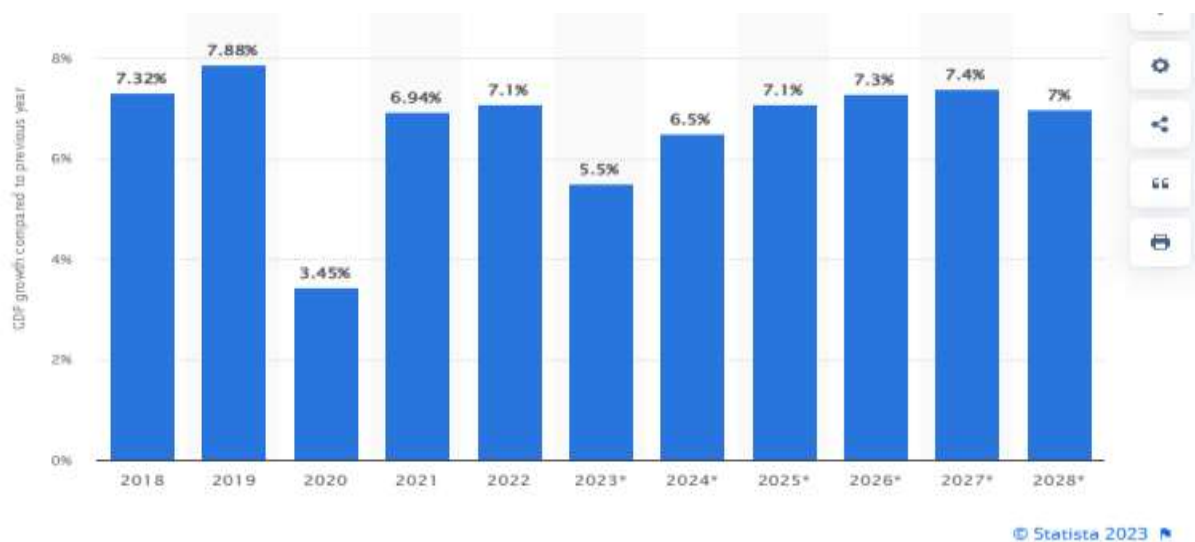


(Table 5.7)

Source: <https://www.imf.org/en/Countries/BGD>

With a combination of progressive social policies and economic reforms, Bangladesh has been able to attract a large number of foreign investments and find new markets, resulting in a thriving economy despite the world's stagnating state. Bangladesh's economic liberalization, successful adaptation and modernization policies have allowed the country to transform. The success of the IT industry is central to the digital transformation and ongoing economic growth of Bangladesh. It exports nearly \$1 billion of technology products every year a figure that the government expects to increase to \$5 billion by 2021 with future projection of \$10 billion by 2025.

(Table 5.8)



<https://www.weforum.org/agenda/2019/11/bangladesh-gdp-economy-asia>.

It was this economic transformation in industry, trade and commerce; service sectors and agricultural development that enhance the development of infrastructural facilities, social amenities, increase in emerging markets, increase educational development and improved medical services. It was this transformation serves as catalyst to rural urban drift in search of better employment and financial opportunities that makes Chittagong the principal export zone and Dhaka as the capital city to be densely populated.

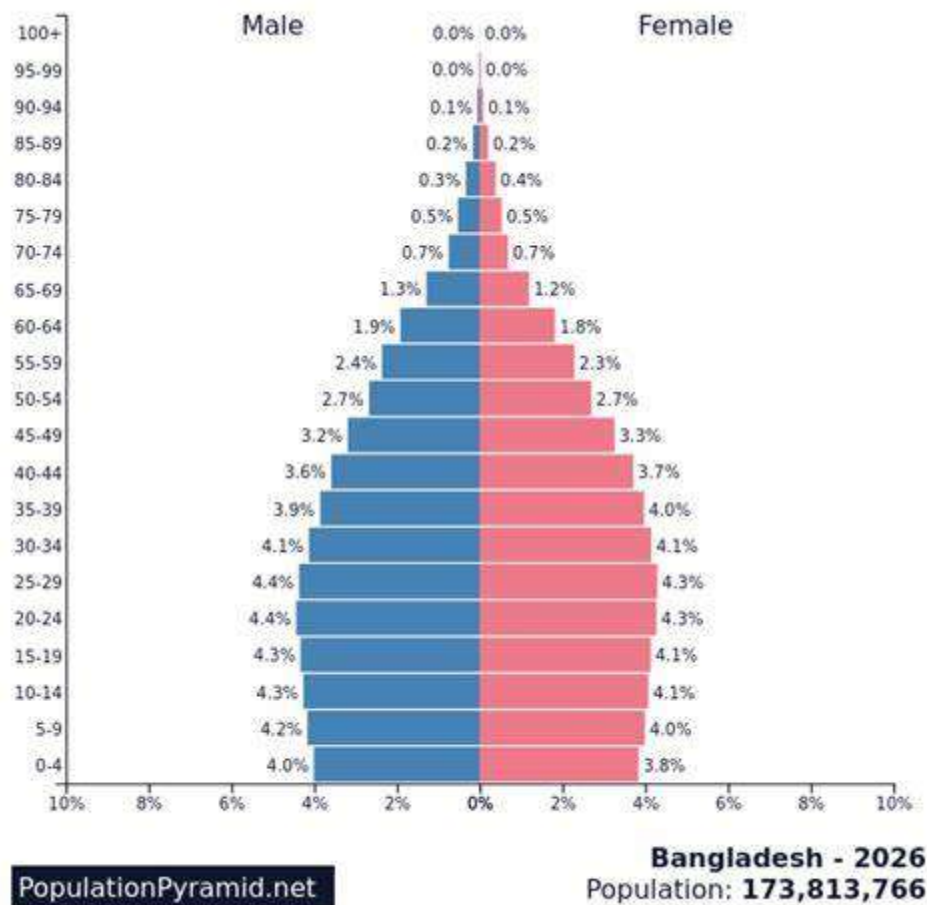


Table 5.9 <https://www.populationpyramid.net/bangladesh/2022>.

The above chart shows the estimated population of Bangladesh in 2026. The vertical line represents demographic variables of the population while the horizontal line indicates the percentages of each category of the population segment. Age's between 19-59 is majority which represents over 70% of the entire population. This age group is potentially good for economic development and growth because they are working class in either formal or informal organizations or businesses and government generate revenue in as tax either in form of (progressive, proportional or regressive) to enhance economic development. Age's group between 0-15 is basically dependants and it represents 16% of the total population. This is due to the fact that, they are basically pre-school or high school students.

Ages above 60 are mostly retirees from active services and pensioners. They are mostly dependants, redundant, unproductive and usually require constant medical supplies and good medical services to extend their life expectancy.

THE ENVIRONMENTAL IMPACT

It is very rare for a nation to experience rapid economic growth without environmental consequences. The significant and sudden transformations of Bangladesh from Least Developed Nation (LDN) to industrial and manufacturing economy have exacerbated various environmental issues that range from deforestation, environmental pollution and climate change. Each of this will be critically analyze in descending order.

(Figure 6.1.1) Deforestation.

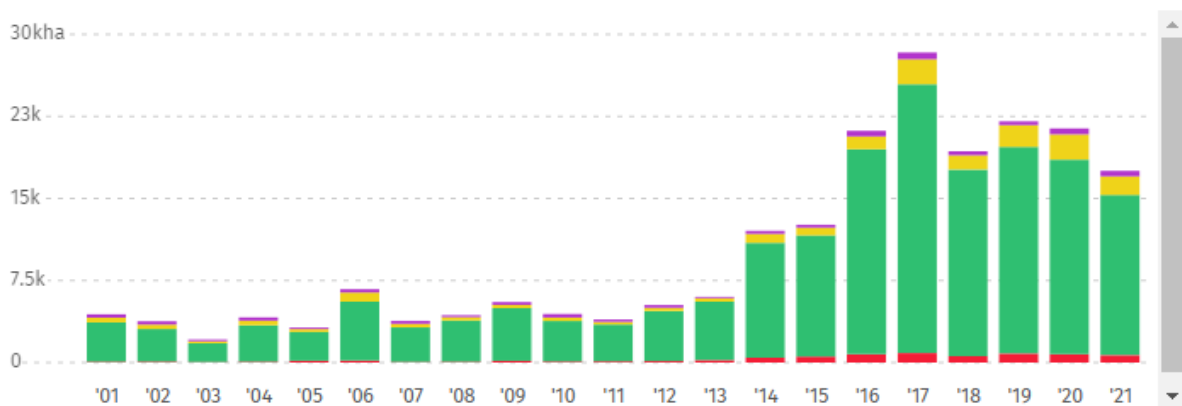
In 2010, according to Global Forest Watch, Bangladesh had 2.22Mha of tree cover that extends to over 16% of its land area but in 2021, it nation has lost 17.6Kha of tree cover which is equivalent to 8.9 Mt of CO₂ emission. According to environmental science, 25% of a country's land area should be covered with forests for balanced ecology. Bangladesh, however, has only 6% that is forested 50% of the country's forests have been destroyed in the last 20 years. The indiscriminate felling of trees in the greater parts of Dhaka, Mymensingh, Rajshahi, Rangpur, and Dinajpur has resulted in an alarming depletion of the forests. In addition, three decades ago, according to Global Forest Watch (GBW), the forest area in Tangail was 2,000 acres; today it is down to 1,000 acres. Similarly, the forests in the Chittagong Hill Tracts have been over-exploited by the tribal people, mainly for cultivation. The increasing demand for land for agriculture, homes, and industries caused by a population explosion has taken a heavy toll on the country's forests since the early 20th century.

Table 6.1

ANNUAL TREE COVER LOSS BY DOMINANT DRIVER IN BANGLADESH



In **Bangladesh** from **2001** to **2021**, **6.4%** of tree cover loss occurred in areas where the dominant drivers of loss resulted in deforestation.



<https://www.globalforestwatch.org/dashboards/country/BGD>.

The above chart shows the annual deforestation in Bangladesh from 2001-2021. The vertical line indicated figures in (Kha) while the horizontal line represents the years. From 2001-2013, there is gradual increase and decrease in annual level of deforestation which is estimated the to be slightly below 7.5k except in 2006 when he nation experience a sharp level of deforestation of 7.1k. However, between 2014- 2021, there has been an alarming increase at the way the forest is been depleted for commercial and industrials purposes attributed to globalization with a sharp increase in 2017 estimated to be around 27kha. Deforestation has leads to desertification in the country starting from the central Briand area in the northwest of Bangladesh. It is feared that this process continues a large part of Bangladesh will turn into a desert.

Table 6.2

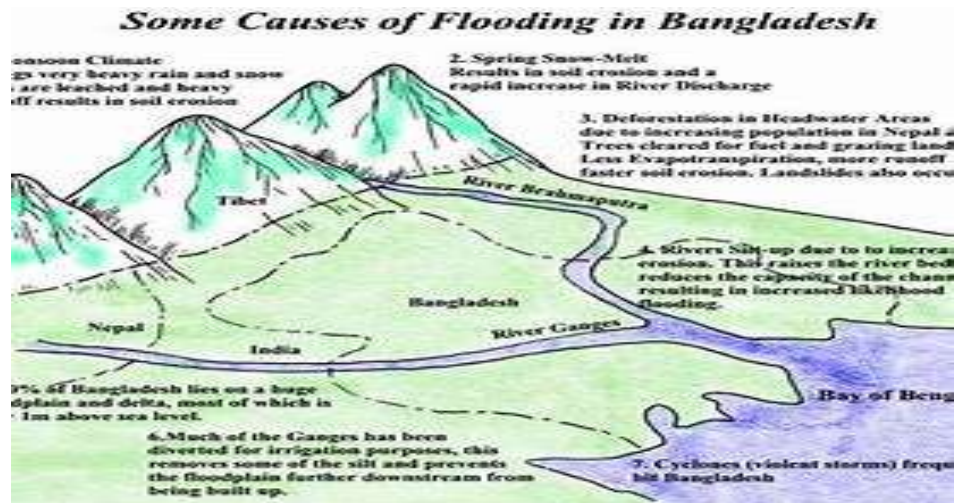
Stockpiled of destroyed vegetation in Bangladesh



<https://www.dw.com/en/bangladesh-deforestation-leaves-rohingya>

It was alleged that illegal encroachment by the local people and over-exploitation of forest resources as the immediate reasons for the fast depletion of woodlands in Bangladesh. In the Chittagong Hill Tracts, substantial loss of forest resources is attributed to the commercial exploitation of immature trees for sale on the black market. Commercial use of forest land for the monoculture of rubber and for fuel wood has also had a negative impact on the country's forests. The notable ones are soil erosion which is a gradual process that occurs when the impact of water or wind detaches and removes soil particles causing devastating flood.

Table 6.3



This causes the soil to deteriorate and losing its fertility. This has secondary effects as the soil ultimately washes down to rivers and causes floods. In addition, it causes a reduction in total annual rainfall this is as a result from the lack of evaporation from leaves, as none remain, and from the reduction in the absorptive capacity of the ground that causes droughts. It also causes devastating climatic changes and massive destructions of natural habitat that impacted on ecology and scientific community.

(Figure 6.1.2) Environmental Pollution

Environmental pollution is one of the most serious problems facing humanity and other life forms on our planet today. It is the contamination of the physical and biological components of the earth atmosphere system to such an extent that normal environmental processes are adversely affected. However, In Bangladesh, it has become a worst case scenario. There are compounded cases of various pollutions that include air, water and land.

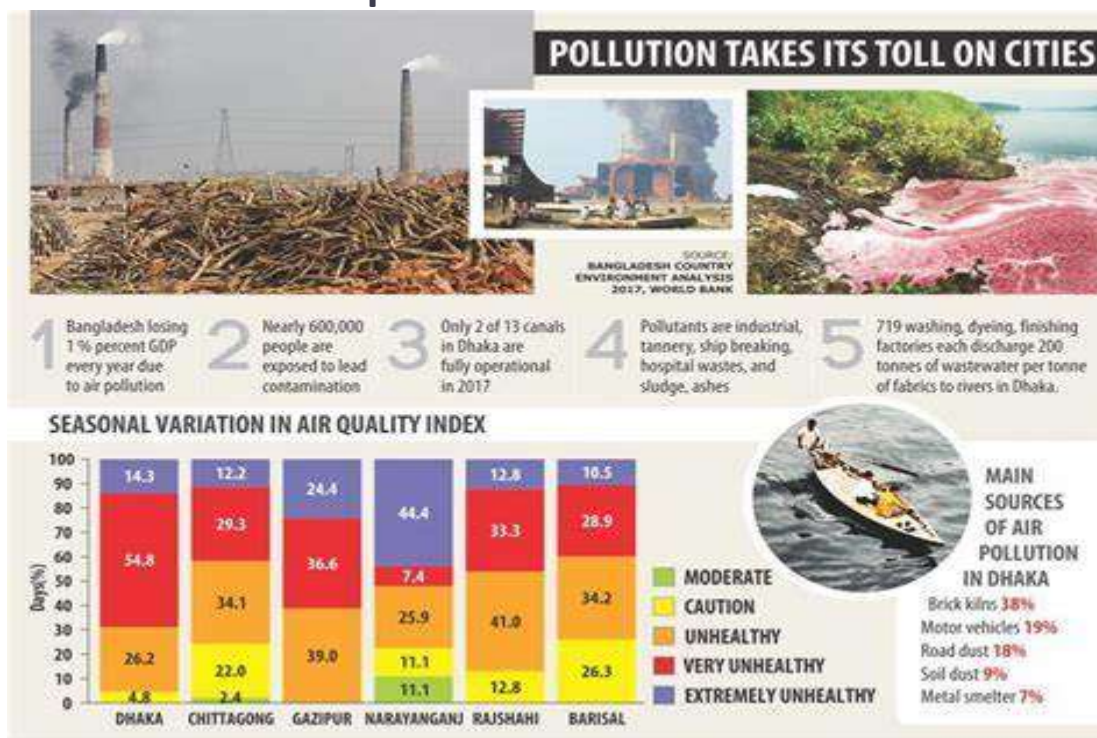
(Figure 6.1.3) Air pollution:

Air pollution is a mixture of solid particles and gases in the air. Car emissions, chemicals from factories, dust and mold spores may be suspended as particles in air. Common gaseous pollutants

such as carbon monoxide, sulfur dioxide, chlorofluorocarbons (CFCs) and nitrogen oxides produced by industry and motor vehicles have devastating effect on health and physical wellbeing of the inhabitants.

Table 6.4

Air pollution



(Figure 6.1.4) Water pollution

Water pollution occurs from a variety of sources. Pollution can enter water directly through both legal and illegal discharges from factories, such as imperfect water treatment plants, Spills and leaks from oil pipelines or hydraulic fracturing operations can degrade water supplies. Wind, storms, and littering especially of plastic waste can also send debris into waterways.

With rapid growth and urbanization, Bangladesh faced a sharp increase in both plastic use and pollution. In the last 15 years, Bangladesh's annual per capita plastic consumption in urban areas tripled to 9.0 kg in 2020 from 3.0 kg in 2005. Consumption of LDPE packaging materials

(plastic bags, etc.) increased fivefold in 2020 from 2005. Of the 977,000 tons of plastic consumed in 2020, only 31 percent were recycled. Most mismanaged plastic waste was single-use plastics like shopping bags, packs, and wrappers. Mismanaged plastic wastes are polluting cities, countryside, rivers, and canals. They clog drains, causing urban flooding. Plastic is a material that degrades slowly and into tiny particles (called micro plastics), posing a significant risk to humans, marine life, and ecosystems.

Table 6.5

Water pollution



(Figure 6.1.5) Land Pollution

This is the decline in the quality of the earth's land surfaces in terms of use, landscape, and ability to support life forms. Land pollution takes place when waste and garbage is not disposed of in the right manner thus, introducing toxins and chemicals on the land. Also, Mineral exploitation equally leads to a decline in the quality of the earth's land surfaces.

- The four major waste landfills in Dhaka have left a serious environmental impact on the soil and groundwater of surrounding areas through leachate pollution.
- Levels of toxic metals in the surface and groundwater and in vegetable and rice crops in the vicinity of the landfill sites that was higher than prescribed safe limits.
- Government authorities are working daily to improve waste management, including better coordination between municipal and national authorities, as well as better-engineered landfill sites that minimize the chances of leaching hazardous waste.
- Municipal authorities plan to expand the city's largest landfill site, both aboveground and underground.

Table 6.6 **Landfills and dumpsites in Bangladesh**



However, there are other serious negative effects attributed to these sudden transformations. This includes increasing massive landfills and dumpsites, use of child labor by the indigenous and multinationals organizations for profits maximization and deplorable working conditions of the employees.

In addition, the collapse of garments factory in Dhaka Bangladesh (Rana Plaza) on 24th April, 2013 killing and injuring over 1,500 people triggered a global concern which galvanized the interventions of ILO, WHO and barely less than a year, there was another tragic fire accident at Tazreen Fashion Factory at the outskirts of Dhaka killing over 100 people. Furthermore, in less than 5 years, there have been over 50 more cases of several casualties in different garment factories in Bangladesh due to unhealthy working conditions (Sweatshops) and exposure to employment injuries.

Table 6.7 **Rana plaza garment factory in Dhaka, Bangladesh**



Table 6.8

COLLAPSED RANA PLAZA



<https://www.theguardian.com/globaldevelopment/2018/apr/24/bangladeshi-police-target-garment-workers-union-rana-plaza-five-years-on>

(Figure 6.1.6) Climate change:

Climate change is one of the ills plaguing the global economy and it is the most devastating effect of deforestation affecting Bangladesh and global communities and it is one of the major causes of global warming which triggered the rise in planet's temperature.

It was unanimously agreed in 2015 Paris convention by 196 countries, legally binding treaty to limit global warming below 2 degree Celcius. Countries are encouraged to reduce their greenhouse gas emission as soon as possible to achieve a climate neutral world and net zero carbon emission by 2050.

Despite the fact that the country has shown remarkable success of poverty reduction, certain percentage of the population lives under poverty line. Moreover, the country is experiencing a rapid and unplanned urbanization without ensuring the adequate infrastructure and basic social services. The unsustainable process of urbanization makes the inhabitants vulnerable to climate change.

Bangladesh has a critical environmental state by its nature. The fact that it has inland huge rivers makes it subject to constant floods especially due to severe climate change. Over 163 million living in Bangladesh has almost no escape from these natural phenomena due to their closeness to the rivers passing through and around the country.

This is because, Bangladesh lies at the bottom of the Ganges, the Brahmaputra and the Meghna (GBM) river system. Bangladesh is watered by a total of 57 trans-boundary rivers flowing to it: 54 from neighboring India and three from Myanmar. The country, which has no control of water flows and volume, drains to the Bay of Bengal. Coupled with the high level of widespread poverty and increasing population density, limited adaptive capacity, and poorly funded, ineffective local governance have made the region one of the most adversely affected on the planet. There are an estimated one thousand people in each square kilometer, with the national population increasing by two million people each year. Almost half the population is in poverty. The population lacks adequate resources to respond to natural disasters.

Table 6.9



However, sources shows that Bangladesh climate change is largely caused by human activity, such as burning fossil fuels, natural gas, oil, and coal. Burning these materials releases what are called greenhouse gases into Earth's atmosphere. These gases trap heat from the sun's rays inside the atmosphere causing earth's average temperature to rise.

Table 7.0

Effect of climate change in Bangladesh



With 2/3 of its land at less than five meters above sea level, Bangladesh is the country most vulnerable to climate change.

#PROSPERBANGLADESH
#AGAOBANGLADESH

**HELPING COMMUNITIES BUILD
RESILIENCE TO CLIMATE CHANGE**

Over the past 44 years, according to World Bank, Bangladesh experienced a 0.5°C temperature increase. The summers are getting hotter and longer, winters are warmer, and the monsoon seasons are being extended from February to October. With these patterns, the country's distinct seasonal variations are becoming blurred. By 2050, the temperatures are predicted to rise by 1.4°C in Bangladesh.

Erratic weather conditions played a key role in the 2019 dengue outbreak in Dhaka city, where 77 percent of the country's total dengue-related deaths occurred. That year, Dhaka recorded more than three times the average February rainfall followed by high temperature and humidity between March and July.

Compared to monsoon, the likelihood of contracting an infectious disease is about 20 percentage points lower in the dry season. Respiratory illness rises with the increase in temperature and humidity. For a 1°C rise in temperature, people are more likely to suffer from respiratory illnesses by 5.7 percentage points; for a 1 percent increase in humidity, the chances of catching a

respiratory infection rise by 1.5 percentage points. The weather pattern also affects mental health. More people suffer from depression during winter while the level of anxiety disorders increases with temperature and humidity. Further, women are at higher risk than men for depression, while men are more susceptible to anxiety

Bangladesh is one of the countries that contributes the least to greenhouse emissions, yet has one of the highest vulnerability conditions to global warming, prone to a significant number of climate related disasters. There are serious consequences from the impacts of climate change on different sectors of the economy in the country.

SUSTAINABLE DEVELOPMENT GOALS

Sustainable Development Goals (SDGs), according to the United Nation Development, also known as the Global Goals. It was adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. The 17 SDGs are integrated and they recognize that impact in one area will affect the outcomes of others. The development must balance social, economic and environmental sustainability. Developed nations have committed to prioritize progress for underdeveloped and developing countries. The SDGs are designed to end poverty, hunger, AIDS, and gender discrimination.

Despite the magnitude of the losses suffered by the victims of the Tazreen and Rana Plaza accidents and their survivors, no compensation was paid in application of the labour code provisions on employer liability. A small number of global buyers and local players made some payments to victims in the months following the disasters, albeit on a voluntary basis.

In addition, the number of recent tragedies such as the Tampoco and MultiFabs factory fires in 2016 and 2017, galvanized the local authorities and stakeholders at the national and international levels, with the involvement of organizations such as the Industrial Global Union and Clean Clothes Campaign, that took bold steps to strengthen occupational safety and health, labour inspection services, skills training and rehabilitation services in the long term.

Action has also been taken to implement a national employment injury scheme in Bangladesh based on the principles of Convention No. 121 and a mutual consensus on the core elements of the scheme. The operational of an Employment Injury Insurance (EII) scheme will inevitably take time, possibly two to three years at best. Until an EII scheme becomes operational and capable of collecting contributions and paying benefits, it is crucial that in case of another large-scale industrial accident such as the Rana Plaza collapse or the Tazreen building fire, a proper bridging solution be in place to provide for appropriate health care and compensation to the victims in an efficient and diligent manner and on a temporary basis.

The Bangladesh government has initiated different approach to reduce the impact of danger caused by massive deforestation, pollutions and climate change that are having a devastating impact and health hazard causing a reduction in life expectancy. Below are measures initiated and implemented by the government.

(Figure 7.1.1) Reforestation

According to United Nation Disasters and Risk Reduction (UNDRR), reforestation is a disaster risk reduction approach to mitigate deforestation-related hazards and climate change effects. Deforestation intensifies soil erosion leading to landslides, congestion of the drainage networks, and water logging. Deforestation also causes loss of biodiversity, damages natural habitats, and increases the earth's surface temperature that amplifies extreme rainfall, drought, and fire events.

Table 7.1 Reforestation involving Rohingya refugees.



<https://www.undrr.org/news/involving-rohingya-refugees-reforestation>

The government also intensified efforts on some quick-growing species, like bamboo and vetiver grass; reduce the risk of landslides through a combination of mechanical and biological land stabilization technologies. The harmonization of soil and stabilization effort with construction, prevent soil erosion and reduces airborne particulate pollution.

In addition, through the cash-for-work program, the dwellers are also motivated and empowered to work for improving the living environment. The government and the World Bank also initiate:

(Figure 7.1.2) Community engagement

This is vital for post-plantation care and maintenance which is a mandatory need for sustaining the impact of reforestation for slope stabilization. It is a community rights-based approach, which takes account of the needs of rural people, farmers, and communities. Reforestation initiatives through sustainable resource management encompass community engagement, public awareness, and capacity building of people on how they can conserve forest and biodiversity.

(Figure 7.1.3) World Bank projects supports

According to the World Bank, the Sustainable Forests & Livelihoods Project (SUFAL) the Bangladesh Sustainable Coastal and Marine Fisheries Project (SCMFP) and the Sustainable Enterprises Project (SEP) is working to shape a strong growth trajectory for the country's sustainability goals.

SUFAL with the Bangladesh Forest Department is helping to restore degraded forest ecosystems and conserve biodiversity. In selected sites in 600 villages across 165 Upazilas, this is being done through sustainable forest management practices to enhance carbon sequestration, ecosystem services, livelihood opportunities, and climate change resilience in certain forest areas of Bangladesh.

The SCMFP project with the Ministry of Fisheries and Livestock supports Blue Economy development through increasing coastal and marine fisheries' contribution to the economy, poverty reduction, and environmental stability in 450 villages in 10 coastal districts.

The SEP, in partnership with the Palli-Karma Sahayak Foundation, helps microenterprises in several districts to adopt environment-friendly practices and occupational health and safety measures in the manufacturing and agribusiness sectors. By providing loans to microenterprises, it helps to adopt innovative, environmentally sustainable technologies and practices.

In addition, the Bank is conducting several studies to identify policy and investment reforms which will estimate the cost of environmental degradation, as well as analyze key interventions to address environmental priorities. Support will also be provided for the country's environmental governance framework, air quality management, plastic waste management, conservation of natural resources, as well as creating opportunities for green financing.

(Figure 7.1.4) Curbing Land Pollution (Landfills and dumpsites)

The National Action Plan for Sustainable Plastic Management initiated by the government focuses on circular use of plastic, based on a 3R strategy: Reduce, Reuse, and Recycle. A circular economy will create new value chains, green skills, jobs, and innovative products while addressing social and environmental challenges. The government progressively took steps in curbing plastic pollution, with varied outcomes: in 2002, Bangladesh was the world's first country to ban plastic shopping bags. But, after some time, plastic use and mismanagement increased again. The Jute Packaging Act 2010 for six essential items (paddy, rice, wheat, maize, fertilizer, sugar) promoted an alternative to plastic packaging. In 2020, a High Court directed concerned authorities to ban Single-Use Plastic in coastal areas and in all hotels and motels across the country.

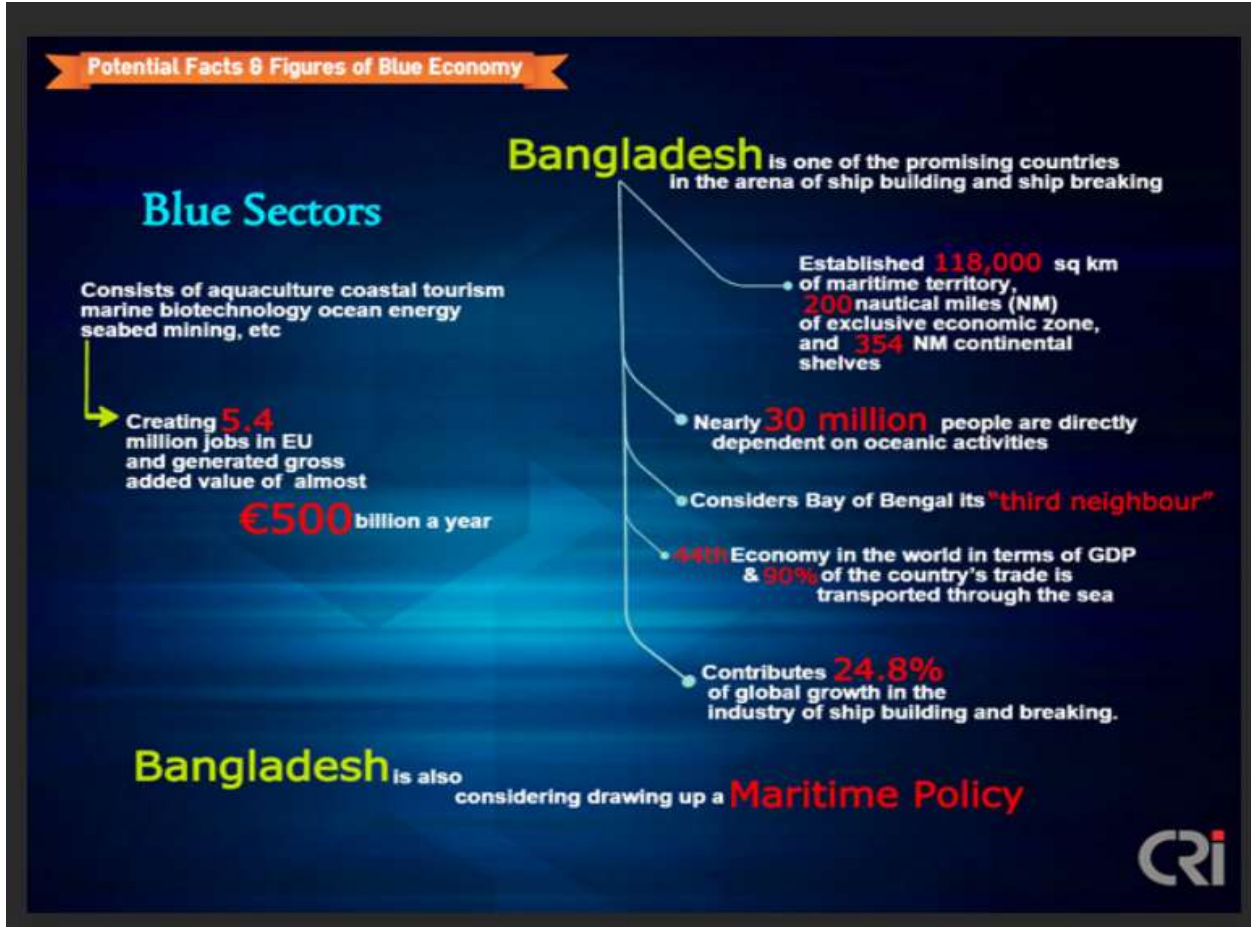
National Action Plan for Sustainable Plastic Management sets a target of recycling 50 percent of plastics by 2025, phasing out targeted single-use plastic by 90 percent by 2026, and reducing plastic waste generation by 30 percent by 2030 from 2020/21 baseline.

(Figure 7.1.5) Blue Economy project

On October 25, 2018, the Bangladeshi government and the World Bank signed an agreement to finance a \$240 million project. The Sustainable and Marine Fisheries Project will help improve the fisheries management system, necessary infrastructure and value-chain investments and it will encourage the private sector to invest more towards the availability and quality of sea fish.” The project will also assist in reforming policies and regulations for fisheries. Since the fisheries

sector is the second largest export earning sector of the country, this project should add more to the initiatives for blue economy in Bangladesh.

Table 7.1 Blue Economy project



(Figure 7.1.6) Risk reduction of Air Pollution

The country was ranked as the most polluted country in the world between 2018 and 2021 by the World Bank; its capital, Dhaka, was ranked as the second-most polluted city. In 2019, air pollution was the second-largest risk factor for deaths and disability in the country. Four of the top five causes of total deaths were directly associated with air pollution-stroke, ischemic heart

disease, chronic obstructive pulmonary disease, and lower respiratory tract infection. The most vulnerable populations are children, the elderly, and people with underlying health conditions. Higher rates of mortality and morbidity are further compounded by substantial associated economic costs.

(Table 7.2) Air pollution in Dhaka, Bangladesh.



<https://openknowledge.worldbank.org/handle/10986/38289>.

Bangladesh, as a developing country has the responsibility to reduce greenhouse gas (GHG) emissions, which is the primary cause of global warming. But lately this has been the rallying factor for policy makers to give off higher amounts of emissions in nearly all sectors with disregard for the environment. Large developed industrial nations are emitting increasing quantities of GHGs. There was existing plans such as the "National Action Plan on Adaptation" (NAPA) of 2005, and the "Bangladesh Climate Change Strategy and Action Plan" (BCCSAP) of 2009.

Various countries have pledged to provide funding for adaptation and mitigation in Bangladesh. The accord committed up to US\$4 billion of immediate short term funding in 2010–2012 to support their action in climate change mitigation.

This funding is available to build their capacity to reduce emissions and responds to impacts of climate change. Furthermore, this funding is expected to strike a balanced between mitigation and infrastructure adaptation in various sectors including forestry, science, technology and capacity building. Moreover, the Copenhagen Accord (COP 15) also pledges US\$100 million of public and private finance by 2020, mostly to developing nations.

One of the major successes initiated by the government is ability to adapt to climate change. This is done by setting up a strong institution. The Ministry of Disaster Management and Relief (MoDMR) has a wide range of programs on DRR. It has recently drafted a ‘National Plan for Disaster Management (2016-2020)’ with a detail institutional framework on disaster management. According to the NPDM, disaster management policy and activities is guided by several drivers including, a) Disaster Management Act 2012; b) Standing Orders on Disasters (SOD) first introduced in 1997 and then revised in 2010; (SOD) first introduced in 1997 and then revised in 2010; c) National Plan for Disaster Management 2010–2015; d) Disaster Policy Act 2015; e) SAARC Framework for Action (SFA) 2006–2015; f) Sendai Framework for Disaster Risk Reduction (SFDRR) 2016–2030; g) Asian Regional Plan for Disaster Risk Reduction (ARPD RR); and the Sustainable Development Goals (SDGs).

The Bangladesh National Adaptation Program Action (NAPA) is tasked to structure and ranked a series of climate adaptation needs and vulnerabilities, as well as sector-specific costs and benefits. These proposed actions have considered poverty reduction and security of livelihoods with a gender perspective as the most important set of criteria for prioritization of adaptation needs and activities.

Bangladesh also has a large network of NGOs all through the country that is highly active in supporting the people vulnerable from climate change. Various CSOs and NGOs have been helping the Bangladeshi government in policy formulations. Bangladesh Centre for Advanced Studies (BCAS), SUSHILON, Forum of Environmental Journalists of Bangladesh (FEJB) are some of the CSOs and NGOs that have been actively coordinating the government of Bangladesh in recent years in formulating climate change policies

(Figure 7.1.7) Curbing Water Pollution

Water is the most significant resource in Bangladesh as the livelihood of the country's majority of people, directly and indirectly, depends on natural resources. Alongside the use of domestic purposes; water is used mainly in agricultural, commercial, and industrial establishments in the country. Therefore, the quality of water is very essential for the livelihood of millions of people here. But the major concern is the level of water pollution is so high that it poses a serious threat to public health. Despite the alarming levels of water pollution in the country, no significant or effective steps are taken or there is no clear or specific law to prevent ongoing water pollution. The existing environmental laws are not enough to address the problem and its implementations are also largely absent. So, existing laws and frameworks are not effective enough to address the cause of water pollution and its prevention.

(Table 7. 3) water pollution



National Policy and preparedness was been initiated to oversee the event of a major oil chemical spill in the marine environment at-sea operation with guaranteed global resources. The operation involves monitoring of oil slicks/chemical pollution incident by the national authority and forecasting their movement on-shore and off-shore. The available labor force and external

reinforcement of equipment and personnel. Additional assistance and capability may be available from local resources and reliance on technical expertise, equipment and personnel being deployed from outside the region. This plan recognizes this fact and ensures the smooth and effective administration, control and deployment of such external aid. The government explicitly emphasized that all ships/exploration operations /ports/harbor facilities / terminals/pipelines that transport or handle hydrocarbons or other potentially dangerous substances must submit emergency plans to National authority. The local authorities are tasked to be consistent with and be coordinated with other response plans (national and regional) ensure compliant.

(Figure 7.1.8) Business Ethics and Corporate Social Responsibilities (CSR)

Corporate Social Responsibility (CSR) can be referred to as Social Responsibility of Corporate to the society. According to Carroll, CSR is meant to incorporate the legal responsibility to “obey the law; to be ethical and to be a good corporate citizen when making profits. It is also viewed by other academic authors as a comprehensive set of policies, practices, and programs that are integrated into business operations, supply chains, and decision making processes throughout the company and include responsibilities for current and past actions as well as adequate attention to future impact.

The current trend about CSR is not about philanthropy or charitable work. It is about something more fundamental. It is about how companies take responsibility for their actions in the world at large to address the social problems or the problems of the stakeholders and to strike a balance between economic and social goals, where resources are used in a rational manner and social needs are be addressed responsibly especially due to increased concern about the damages caused to the environment by economic and commercial activities of the multinationals organizations and indigenous companies in their quest for cost- saving and profits maximization at the detriment of global communities.

However, in Bangladesh, there are numerous garment industries that supplies ready-made garments for global brands. Outsourcing and global trade have boosted the living standards of many people in the Bangladeshi garment industry, there are some significant concerns regarding

the working conditions and treatment of workers in these value and supply chains. Bangladesh, the ready-made garment (RMG) sector emerged in 1980 and started with Reaz Garments, which exported its first consignment to the US and earned a significant profit. Since then, there has been a successful economic development in the industry that has broadened the employment scope for millions of skilled and semi-skilled workers, who are mostly women. The RMG sector in Bangladesh employs million people and is the second-largest garment-producing economy after China. Therefore, most of the country's economic activity revolves around producing garments for the global supply chains that contributed a significant percentage to gross domestic product (GDP) and export earnings. This successful transition can be attributed to the country's readily employable low-cost labour force, proximity to raw materials and government incentives to promote international trade and economic growth which underpins this competitive advantage. As a result, there have been serious challenges, such as human rights violations, deplorable working conditions, child labor, poor sanitary facilities and unfair contractual and employments relationships. Though, it may be apparent that the garment industry contributed to the country's economic growth, but it has come at the cost of the health and safety of workers. Since 2003, more than 2,000 workers have died in fire incidents in the RMG sector. The collapse of the Rana Plaza factory (in Bangladesh on 24 April 2013, killing at least 1,500 workers and injuring over 2,000) is a well-known example of unacceptable working conditions in supply chains where safety laws, labour laws, and human rights are frequently violated.

(Table 7.4)



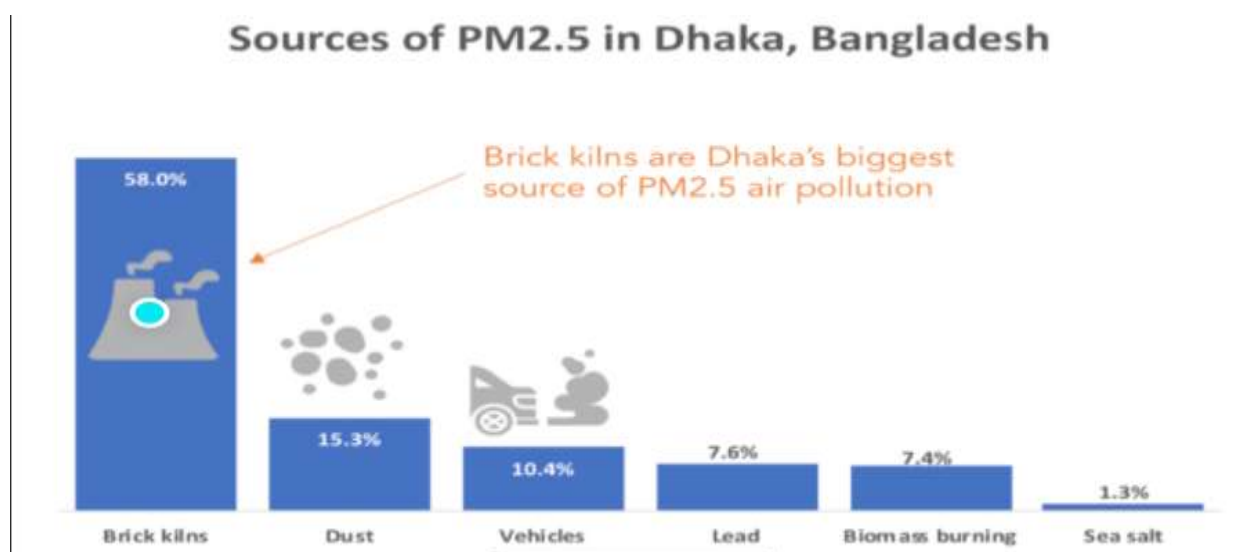
📷 Relatives of the dead workers, who were trapped in the collapsed Rana Plaza building in Savar, near Dhaka. Photograph: Andrew Biraj/Reuters

The Rana Plaza disaster demonstrated the complexity and disordered nature of the governance of multinational corporations (MNCs) with supply chains in Bangladesh. Being one of the worst industrial disasters of recent times, the incident called into question the corporate social responsibility (CSR) practices of MNCs in the garments sector. MNCs have enormous capacity that has enhanced the nation through globalization and transnational operation of corporations. Consequently, these corporations polluted the environment; exploiting employees; sweatshop conditions for workers; negligent with the health and safety of workers poor quality of work-life balance that is exacerbated by systemic flaws of government protection of human rights.

Figure 7.1.9 CSR initiatives on air pollution.

Exposure to high level of air pollution significantly raises the risks of breathing difficulties, cough, lower respiratory tract infections, as well as depression and other health conditions. Children under five years, elderly, and people with comorbidities such as diabetes, heart or respiratory conditions are most vulnerable. According to World Health Organization (WHO), sites with major construction and persistent traffic in the Dhaka City have the highest level of air pollution. At these sites, the fine particulate matter (PM_{2.5}), which is considered most hazardous to health, is on average 150 percent above the WHO Air Quality Guidelines (AQG), which is equivalent to smoking about 1.7 cigarettes per day. The second highest concentration of PM_{2.5} levels is found near brick kilns in Greater Dhaka, which is 136 percent above the WHO AQG – equivalent to smoking 1.6 cigarettes per day. Dhaka is the most polluted division while Sylhet is the least polluted. From 2018 to 2021

(Table 7.5) Sources of air pollution in Bangladesh



Incidence of lower respiratory tract infections was significantly higher among children living near major construction and traffic sites than elsewhere in the country, including near brick kilns. Sylhet Division, which has the cleanest air in the country, still experiences average

PM_{2.5} concentration levels 80 percent above WHO AQG. This is said to be equivalent to smoking 1.2 cigarettes per day.

(Table 7.6) **Air pollution**



However, in July, 2022, Bangladesh's Ministry of the Environment, Forest and Climate Change published the Air Pollution (Control) Rules 2022. These rules are established under the Bangladesh Environment Conservation Act 1995. This created the National Air Quality Control Plan and the Air Pollution Prevention Plan. It also identifies air pollution activities, and establishes standards for emissions from industry, automobiles, and specific projects (power generation, textiles, cement, fertilizers, etc.). According to the rules, organizations responsible for any form of air pollution during their production process or specific projects must abide by the rules governing such act. Other measures initiated by the government to control air pollution are:

Figure 7.2.0 Air quality monitoring system:

The ambient air quality monitoring network in Bangladesh consists of eleven (11) fixed Continuous Air Monitoring Stations (CAMS). Real-time measurements of ambient level pollutants are being monitored in 8 major cities namely, Dhaka, Narayanganj, Gazipur,

Chittagong, Rajshahi, Khulna, Barisal and Sylhet. The data generated by the CAMS are used to define the nature and severity of pollution in the cities; identify pollution trends in the country; and develop air models and Air Quality Index for public information.

Figure 7.2.1 Curbing emission from industries

Cement, brick industry, unplanned constructions are the main sources of air pollution in the country. Government have enacted Environmental Conservation Rules 1997 to regulates industrial emission; Brick Manufacturing and Kiln Construction (Control) Act 2013 has been enacted to reduce emissions from brick kilns. Renewable energy and decarburizing equipments is been exempted from tariffs towards promotion of Renewable Energy (according to Sustainable and Renewable Energy Development Authority of Bangladesh); Renewable Energy Policy 2009: Equipment and spare parts exempted from duty and 5% VAT, 5 years income tax exemption.

In addition, Incentives for clean production and installation of pollution prevention technologies is been bolster by Bangladesh Bank (the central bank) that launched the BDT 2 bn green banking refinance scheme in August 2009; it provides soft loans for industries using environmentally friendly technology (to set up solar panel, bio-gas plants and industrial effluent treatment plant under the scheme) in order to help reduce industrial pollution and increase power supply. More sectors have been brought under the green banking refinance scheme to build environment-friendly economy.

Furthermore, the government has initialed enforcement teams to ensure compliance with regulations. The Monitoring and enforcement are being carried out by the Department of Environment to ensure regulatory compliance on a regular basis. There are other actions at national, sub-national and / or local level to reduce industry emissions: Department of Environment regularly conducts stakeholder meeting, seminar and workshop to motivate the industries to undertake pollution control measures as well as switch to less polluting technologies. The introduction and implementation of Clean Air and Sustainable Environment project (CASE Project) working on cleaning up brick kilns (as well as transport) will enhanced rapid reduction in emission of polluted gas to atmosphere.

Figure 7.2.2 Curbing emission produced by different modes of transportation.

Bangladesh Petroleum Corporation (BPC) has begun importing diesel fuel with a lower sulphur content of 0.05% (500 parts per million, or ppm) since 2015, although the official standard is still 5,000ppm. The government also placed quota on importation of used car not older than 4 years. In addition, the government has initiated actions plan to expand, improve and promote public transport and mass transit especially the Greater Dhaka Sustainable Urban Transport Project (GDSUTP). Furthermore, the government has constructed 70km of sidewalks with surface drainage and ancillary road improvements which have been completed by the Clean Air and Sustainable Environment project (CASE Project). Other transport-related action implemented was he banned of electric rickshaws as they consume more electricity.

Figure 7.2.3 Curbing emission caused by burning of agricultural and municipal waste.

The government creates awareness of harmful impacts of open burning: burning of municipal and agricultural waste or trash can cause long-term health problems. The toxic chemicals released during burning include nitrogen oxides, sulfur dioxide, volatile organic chemicals (VOCs) and polycyclic organic matter (POMs). Burning plastic and treated wood also releases heavy metals and toxic chemicals, such as dioxin. The government enacted common legal framework of Bangladesh Environment Conservation Act, 1995 and Environment Conservation Rules 1997 broadly cover the issue of open burning. In addition, the government has financed 4.5million USD to promote environment friendly clean cook stoves to promote cleaner and eco-friendly cooking and have been distributed to over 10 million households in 2022.

Figure 7.2.4 CSR initiatives on water pollution.

Bangladesh relies heavily on groundwater. Dhaka, the capital and the world's most densely populated city, was sourcing water supply from the Buriganga and Sitalakhya rivers but had to gradually transition to groundwater to meet the demand. Depleting groundwater resources in and around Dhaka has made the development of a new surface water source essential. As nearby water bodies are unsuitable for public water supply because of poor and deteriorating water quality, the Meghna River has been selected as a new source, as it has good water quality and

ample quantity even during the dry season. However, scenarios suggest it could become too polluted for drinking within the next five years due to tributary canals that are loaded with both domestic and industrial wastewater. According to Asia Development Bank (ADB), there are high level of commitment and professional excellence in this applied research and improvements in policy and regulatory requirements to protect the water quality of the Meghna River. Deltares and its partners Witteveen+Bos (NL), Enviro Consultants Ltd. (Bangladesh), and e.Gen Consultants Ltd. (Bangladesh) made an inventory of pollution sources and future development in the river basin. Historical water quality data were collected, and the river quality was monitored. Data have been analyzed using Delft-FEWS, an open data platform initially developed as a flood forecasting and warning system. Project outputs included an identification of an ecologically critical area. This project helped to put water quality of the Meghna River on the agenda of all stakeholders. The Bangladesh government, local authorities as well as industries felt the sense of urgency to protect the water quality. The Meghna River Master Plan is being prepared under the supervision of an inter-ministerial High Level Committee.

In addition, the government has built infrastructure to treat contaminated water on a large scale in order to produce enough drinkable through the construction of water treatment plant and regulate the sources of pollution. Also, certain industries have developed measures that will help them become sustainable without relying on existing environmental regulations. Notable is the apparel and footwear industry's Zero Discharge of Hazardous Chemicals (ZDHC). ZDHC has set guidelines for managing hazardous chemicals in apparel and shoe factories, with an ultimate goal of ensuring zero discharge of hazardous chemicals for all clothing and footwear by 2020. By committing to ZDHC, companies can attain sustainability regardless of their existing geographical and environmental regulations.

Finally, Epyllion Group (EG), a prominent readymade garments factory in Bangladesh. The organization has launched an online Bengali calendar to promote sustainability and reduce plastic usage by providing an eco-friendly alternative to traditional paper calendars. Through this initiative, the organization has successfully break the tradition of printing and sending calendars, which are made of non-disposable materials, to the stakeholders each year,

Epyllion Group saved over 1,500 kg of plastic waste from being unethically discarded each year.

(Table 7.7) Epyllion plastic waste reduction strategy.



Figure 7.2.5 Government and CSR initiatives on climate change.

Bangladesh rating is high on the list of countries most vulnerable to climate change. It was ranked seventh position on the 2021 World Climate Risk Index (WCRI). It is among the countries that is most affected by extreme climate conditions. It is said that the country only contributes a small share of global emissions. Climate change-induced natural disasters and plague on Bangladesh due to globalization, geographic location and flat, low-lying topography. High population density, poverty and reliance on climate-sensitive sectors for water and food security, particularly water resources, agriculture, fisheries and livestock, increase its vulnerability to climate change. Climate-induced disasters such as tropical cyclones and storm surges, monsoon floods, flash floods, droughts, sea-level rise, salinity intrusion and ocean acidification are among factors that are exacerbating the living condition of the populace and

reduction in life-cycle. Recognizing the urgency of the issue, Bangladesh became one of the most active countries in terms of planning and action on climate change. The country has taken several measures in recent years to promote climate change investments.

Notable among these is the adoption of a fiscal framework designed to channel more resources towards adaptation investments. Also, new environmental guidelines were introduced to promote green financing, foster green banking, and establish dedicated funds.

The country has been proactive and adept in climate change adaptation, mandated by the Constitution in its 15th amendment, Article 18A 1 on the protection and improvement of the environment and biodiversity. Over the decades, Bangladesh has advanced substantially in building adaptive capacity and resilience through formulation and subsequent implementation of required policies and regulatory frameworks for enabling climate resilient sustainable.

There have numerous developments. Landmark achievements such as formulation of National Adaptation Programme of Action (NAPA, 2005), Bangladesh Climate Change Strategy and Action Plan (BCCSAP, 2009), Bangladesh Delta Plan 2100, Mujib Climate Prosperity Plan, climate inclusive updated National Environment Policy (2018), updated Standing Order on Disaster (2019) etc. have paved the way for effective climate change adaptation and has propelled Bangladesh as a pioneer in the global arena. Parliamentary Standing Committee on Ministry of Environment, Forest and Climate Change (MoEFCC) has separate resolution for active involvement for climate actions. It joined the global declaration on ‘Planetary Emergency’ to counter climate adversities. Bangladesh has also demonstrated success in disaster preparedness through functioning of initiatives such as the Cyclone Preparedness Programme (CPP) established by Father of the Nation Bangabandhu Sheikh Mujibur Rahman with world’s largest gender balanced volunteers group. Furthermore, cyclone and flood shelters; people with disabilities, boat ambulance, relief warehouses and digital information center are also provided through the Green Climate Fund.

The government also initiated different strategies to promote climate-friendly investments by:

- Reducing and gradually eliminate costly energy subsidies and mitigating the impact on the poorest through targeted transfers.
- Considering phased introduction of a carbon tax on selected fuel products, notably those consumed by more affluent households, such as petrol and diesel at the pump, which could help raise revenue, reduce pollution, and encourage the use of cleaner, emissions-saving technologies.
- Preparing financially against the impact of natural disasters through a dedicated contingency line in the budget and the use of insurance mechanisms such as catastrophe bonds that provide more extensive coverage.
- Fostering climate-friendly investments, taxes on pollution, incentivizing green products, and enhancing the business environment to attract foreign investors who promote the use of clean technologies.

**SUMMARY OF THE POSITIVE AND NEGATIVE IMPACT OF GLOBALIZATION IN BANGLADESH AND THE
SUSANABILITY INITIATIVES SO FAR IMPLEMENTED.**

| POSITIVE | NEGATIVE | EFFECTS | SUSAINABILITY INITIATIVES IMPLEMENTED |
|---|--|--|---|
| Emergence of Ready-Made Garment (RMG) industries. | Child labor, labor exploitations, Over age workers. | Deplorable working conditions, poor sanitary facilities and workers are underpaid. Reluctance of these children to acquire better education. | A minimum wage rule was enacted and signed into law, Child below 18 yrs are restricted to work in factories. Public schools at all level are established to facilitate better education at low cost and free skills acquisitions. |
| Mass and rapid industrial development. | Pollutions | Air, water and Land | Decarburizing power plant, low-carbon emission vehicles, drastic reduction in burning of fossil fuel by the government through effective distribution of free electric stove to the communities and prevention of wild-fire. Epyllion project and Blue Economy projects |
| Economic development, lower trade to GDP ratio, emerging market, development of financial institutions and economic growth. | Mass deforestation, destructions of natural habitat and ecology. | Soil erosion, floods, destruction of ozone layers, endangering the life of various species of animals forcing them to extinction. | Reforestation, Forest conservative managements, Legal actions against violators. |
| Employments opportunities, infrastructural developments and women empowerment, Increase in standard of living, increase in disposable income and savings. | Overpopulation, Rural-Urban migration, unethical dumping of consumers waste products, | Noise pollution, increasing landfills and dumpsites. Increasing financial burden of the government. Increasing medical conditions and reduction in life expectancy. | Introducing waste management's and municipal authorities to managed and evacuate industrials and domestic waste for proper disposal. Government provides various incinerators and industries are mandated to manufacture products that its end use are recyclable. |
| Promotes international trade and investments which transformed Dhaka and Chittagong from rural settlements to industrial zone and cities. | Increasing unethical activities of the Multinationals organizations in their quest to save cost. | Multiple oil spills which affects the marine ecosystem causing irreparable damage. Dumping toxic waste on land and sea in order to save costs which have negative impact on agricultural produce and drinking water. | Business ethics and CSR so that organizations have a good ethical business practices based on altruistic behavior by striking a balance between producing products that are harmless to the consumers and at the same time maximize their profits. |

Figure 7.2.6

TECH-REVOLUTION

In the process of investigations, the researcher was able to discover that:

- First- generation bio-fuel can be made from (Feedstock's) e.g. Sugarcane, corn and (edible oil) such as rapeseed and soya oil. Through technologies they can be converted to bio-ethanol and biodiesel respectively for transportation and for generating power or electricity.
- Second-generation gasification technologies which involves gasifying of agricultural residue, waste woods, energy crops and black liquor to produce Sungas, diesel fuel, biomethanol or biomethane. This can be use in heat production and for generating electrical power for motor or gas turbines.
- Biochemical processes of waste from food industries, municipal biowaste and other biomass containing sugar products and alcohols such as ethanol, butanol and other hydrocarbons can be use alternatively as petrol or diesel to power engines or cooking.

The researcher assume that this might be an alternative measure to generate eco-friendly electrical power and to reduce the total quantities of crude oil imported to the country annually so that such funds can be used to purchase other essential commodities.

Figure 7.2.7

RECOMMENDATION

The researcher also recommends that individual, organizations and government respectively should:

- Conserving energy at individual's level by turning it off when not in use to save electricity.
- Form a community based - green corps to monitor, surveillance and supervise to ensure compliance.
- Provide formal and informal training program to enhance learning for the green transition.
- Provide fact-based and accessible information on climate change and daily weather reports from the nation's meteorological centers' to prevent unforeseen catastrophes.

CONCLUSION

Bangladesh is a country ravaged by war of independence from Pakistan and later became independent nation in 1971. Consequently, the nation relies heavily on agriculture for subsistence and few exports and is high-imports dependent. This makes the nation a net-importer with a negative balance of trade and payment. It is a nation that was predicted to fail economically by analysts and was classified as one of the poorest and Least Developed Nations (LDN) according to United Nations (UN) classification of countries in 1971. However, the introduction of Ready-Made-Garment (RMG) factories in the country in 1980 has facilitated significant transformations that enhanced numerous indigenous and multinationals corporations to move their production facilities from their home countries to Bangladesh. This served as catalyst to emerging markets, employment opportunities, increase in income, increase in disposable income and increasing infrastructural development that has changed the economic status from low-income to middle-income nation in 2010 with high optimism to be among the remarkable industrialized nations in the world. However, the sudden economic transition has negative consequences. There has been high level of land, water, air pollutions and climate change due to unethical activities of indigenous and multinationals corporations in their quest to save cost and maximizing profits which is impacting negatively on the populace and biodiversity with a significant increase of health-related hazards that impacted negatively on life-cycle.

In other to ameliorate the negative impact associated with rapid industrialization transformation, the government has enacted various rules and regulations to balance the development and sustainability in the country. Reforestation initiatives have been implemented to conserved nature and prevent soil erosion, Organizations' are also tasked to produce eco-friendly product of which the waste can be recycled. The health sector has been prepared to deal with the imminent health crisis arising from air pollution and climate change. Urgent actions are been taken to improving the public health service platform and to provide curative and preventive health care. In addition, the government has implemented community-level screening for persistent coughs and breathing difficulties especially for people living in air pollution areas. The government research department are tasked to ensure close monitoring of air quality data and engaging in

further research to help devise effective measures to deal with the health impacts of pollution. The government is also ensuring that toxic water, rain water and water from the waste will all be managed at the plant, which includes a dedicated faecal sludge facility. Wet sludge will be treated and used for irrigation, while solid sludge will be treated and used as fertilizers.

City Region Development Project has been launched and, when completed, will transform refuse management in the city. Using the (3R) principles of waste management; reduce, reuse, and recycle. A significant percentage of the managed waste will be recycled and recovered, with a considerable percentage being converted to compost and biogas. The biogas will generate enough electricity to make the entire plant self-sufficient in electricity. The governments through innovation and technologies have implemented an engineered landfills site that will minimize the chances of leaching hazardous waste. Government have implemented community engagements and volunteering groups for post-plantation care and maintenance to conserve forest and biodiversity.

The researcher strongly believed that, if measures undertaken by the government are well implemented and effectively managed, Bangladesh in 2050, will be among the best country in the world economically and in sustainability development goals due to the nation resilience efforts for greener environment that will make the country more habitable, eco-friendly and free from pollutions, environmental degradation and unethical business conducts. This good trajectory will, to some extent, restore back the habitat with high possibilities that will make the country look like an earthly paradise.

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