

Agro Products and Processed Foods

Overview of the Agro Products and processed food sector

The agriculture sector has been a predominant driver of growth and rural development in Bangladesh, accounting for almost 13.02 percent of the gross domestic product (GDP) in FY 2020-21 and providing employment opportunities for more than 40.60 percent of the country's workforce.⁸⁹

The export of agro products is still insignificant compared to the huge production. One of the reasons for the low export of those products is the inadequate capacity to comply with the Sanitary and Phytosanitary (SPS) requirements of the importing countries. If the appropriate SPS capacity can be developed, the export of agro-products and fisheries products will be increased significantly, which will result in export diversification. Geographically, Bangladesh is a small country, comprising an area of 1,47,570 sq. km where the cultivable land is only 88,28,266 hectares but the cropping intensity is 198%. The country has 2110,800 hectares of single-cropped area, 41,25,288 hectares of double-cropped area, 18,66,780 hectares of triple-cropped area, and 22,662 hectares of quadruple land. Bangladesh is in the range of 3-10 in world production of vegetables, fish, mango, potato, guava, etc. The staple food of Bangladesh is rice while a large portion of the population favors wheat-made products. Though wheat production is not remarkable the main crop rice production exceeds 336 million tons. A large portion of arable land is kept reserved for rice cultivation for meeting internal demand. The rest of the available land does not provide enough opportunities for cultivating export-oriented agro products.

Global overview of the Agro-processing sector

Table 17: Top global exporters of agricultural products and processed food (in million \$)

Sl.	Exporter	Exported value in 2017	Exported value in 2018	Exported value in 2019	Exported value in 2020	Exported value in 2021
1.	European Union Aggregated	613.1	649.9	641.8	653.4	757.9
2.	United States of America	168.6	171.4	164.8	170.5	201.6
3.	Netherlands	106.9	112.3	110.4	112.4	129.0
4.	Brazil	87.8	92.9	89.1	93.2	111.1
5.	Germany	92.6	95.3	92.6	92.8	104.2
6.	China	78.4	82.8	81.7	78.2	88.5
7.	Canada	66.6	69.1	65.0	69.8	87.3
8.	France	72.6	77.3	75.5	73.4	86.2
9.	Spain	57.5	61.4	61.6	64.3	74.2
10.	Indonesia	49.3	46.0	43.2	46.9	65.1
11.	Italy	48.6	51.8	52.4	54.7	63.7
12.	Belgium	48.9	51.3	50.2	50.3	57.8
13.	New Zealand	27.5	28.8	29.3	29.2	54.5
14.	India	38.8	38.9	37.4	38.9	50.5
15.	Thailand	43.7	44.2	43.0	41.8	47.4
16.	Poland	33.8	37.6	37.9	41.2	47.1
17.	Australia	42.1	36.5	35.2	31.4	46.7
18.	Mexico	33.7	35.8	38.2	39.8	46.7
19.	Russian Federation	30.1	34.7	33.7	36.5	43.8
20.	Argentina	35.6	34.3	39.0	36.1	42.7
21.	Malaysia	28.6	26.8	26.3	27.2	36.6
22.	Viet Nam	30.2	30.4	29.9	29.6	33.9
Total World Export		1729.9	1805.8	1782.9	1803.7	2162.4

Source: ITC Trade Maps

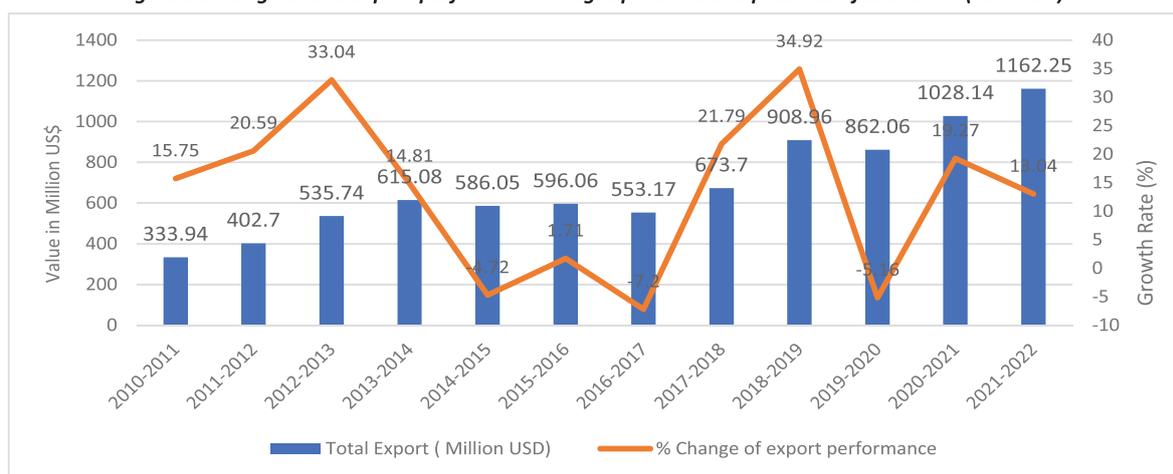
⁸⁹ BBS Statistical Yearbook (2021)

Agricultural development is associated with food security, poverty alleviation, improving standard of living, employment generation, growth of agro-based industries, providing inputs to many manufacturing sectors. In the global scenario, agricultural products worth US\$ 2162 billion were exported in 2021. Over the last 5 years, USA has consistently been the top global exporter, with US\$201.6 billion export in 2021. In the list of top 25 global exporters over the last 5 years, India stands 11th with export value worth US\$50 billion, followed by Thailand in the 15th position with US\$47 billion export, Malaysia 21st with US\$10 billion export. Bangladesh stands far from the top 25 exporters' list and was identified in the 91st position.⁹⁰ The main export items are tea, spices, fruits including dry fruits, vegetables, cut flowers and some other processed agricultural products. The agro-food processing industry in Bangladesh provides about 8.0 percent to manufacturing output (1.7 percent of GDP) and is currently valued at US\$ 2.2 billion. The agro-food processing industry's share of total exports now stands at around 1.5 percent.⁹¹

Export trend in Bangladesh

More than 700 agro products are exported from Bangladesh among which about 63 are basic agro processed products. The products are exported to more than 140 countries.⁹² Among the basic ones, fruits, vegetables, cut flower, dry food, spices, processed meat, frozen fish, cereal grains, tea, tobacco are noteworthy. Agro products are exported from Bangladesh under Harmonised System (HS) Chapters are mentioned in table (18). In Bangladesh, vegetables covered an area of 1121 thousand acres with per acre yield of 4110 kg and a total production of 4.6 million metric tons in FY 2020-21. Whereas fruits covered an area of 996 thousand acres and total production of 5.2 million metric tons. Due to the tropical climatic condition and environment Bangladesh is suitable for production of horticulture crops, fruits and vegetables. Sufficient number of fruits and vegetables with high varieties are grown every year.

Figure 36: Bangladesh's export performance in agro products and processed food sector (HS 04-24)



Source: EPB Data

With total export earnings of \$1.16 billion in the fiscal year 2021-22, the agricultural industry ranked fourth in export earnings, after the clothing, home textile and leather products. The main export items were tea, spices, fruits including dry fruits, vegetables, cut flowers and some other processed agricultural products.

⁹⁰ ITC Trade Map

⁹¹ Bangladesh Regional Connectivity Project-1, 2021

⁹² BIDA, Agro & Food Processing Industries, retrieved from,

<https://bida.gov.bd/storage/app/uploads/public/628/c73/ca9/628c73ca9b17a677576784.pdf>

The industry showed a 13.04% growth in FY 2021-22, while it was about 19.27% in FY 2020-21. The export earnings from this sector have been increasing steadily and total export value almost quadrupled from FY 2010-11 to FY 2021-22.

Product-wise export performance

Table 18: Export value of vegetables, fruits and dry foods (in million USD)

SL	Year	Export value of Vegetables (HS Code 07)	Growth Rate (%)	Export value of Fruits (HS Code 08)	Growth Rate (%)	Export value of Dry Food (HS Code 19)	Growth Rate (%)
1	2011-12	77.43	7.95	57.16	51.7	37.19	26.63
2	2012-13	110.34	42.5	71.89	25.77	45.24	21.65
3	2013-14	147.55	33.72	61.84	-13.98	72.6	60.48
4	2014-15	103.24	-30.03	38.48	-37.77	94.25	29.82
5	2015-16	104.34	1.05	20.23	-90.21	96.04	1.86
6	2016-17	81.03	-22.34	2.69	-86.7	109.61	14.13
7	2017-18	77.98	-3.76	2.24	-16.73	201.37	83.71
8	2018-19	99.68	27.83	0.33	-85.27	227.09	12.77
9	2019-20	164	64.53	0.49	48.48	193.71	-14.7
10	2020-21	118.73	-27.6	0.58	18.37	283.38	46.29
11	2021-22	99.91	-15.85	5.29	812.07	249.96	-11.79

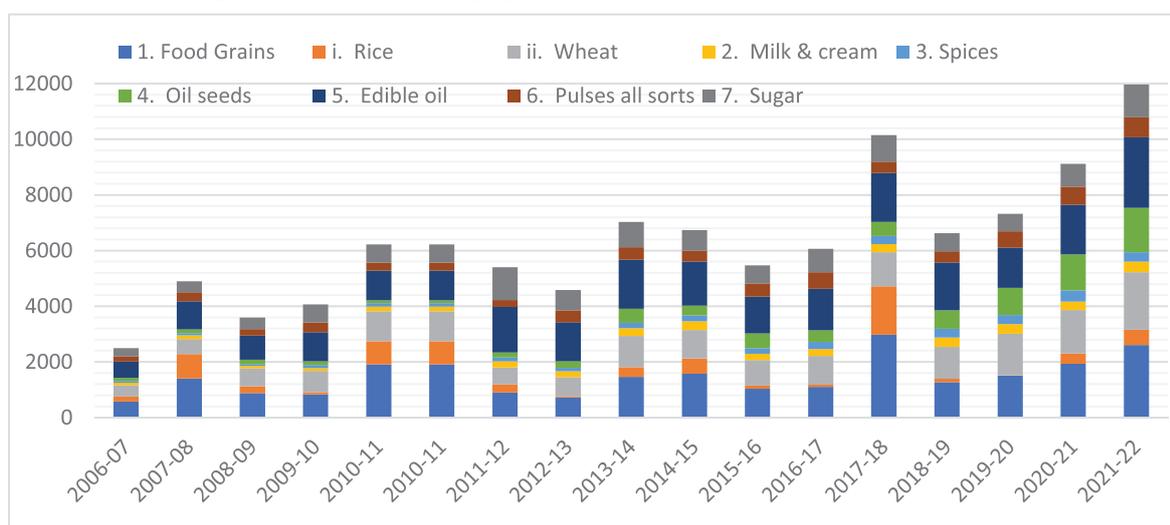
Source: EPB

There is huge demand of fruits, vegetables and dry foods in the global market. Table (18) shows Bangladesh’s significant growth in the export of fruits over the last 03 years. Despite having positive growths in exports in the previous years, vegetables and dry food (processed food) have seen negative growth in the fiscal year 2021-2022.

Import trend

Bangladesh is heavily dependent on import for some of the agro food products. From FY 2006-07 to FY 2021-22, import of food grains (rice, and wheat) increased by almost 5 times from \$581 to \$2611 million.⁹³ Spices import increased by 5 times from \$76 to \$336 million. That of oil seeds and edible oil increased by 15 (from \$106 to \$1597 million) and 4 times (from \$583 to \$2533 million) respectively and sugar import increased by 4 times (from 294 to 1186 million USD).

Figure 37: Import trend of agro-products and processed food (in million USD)

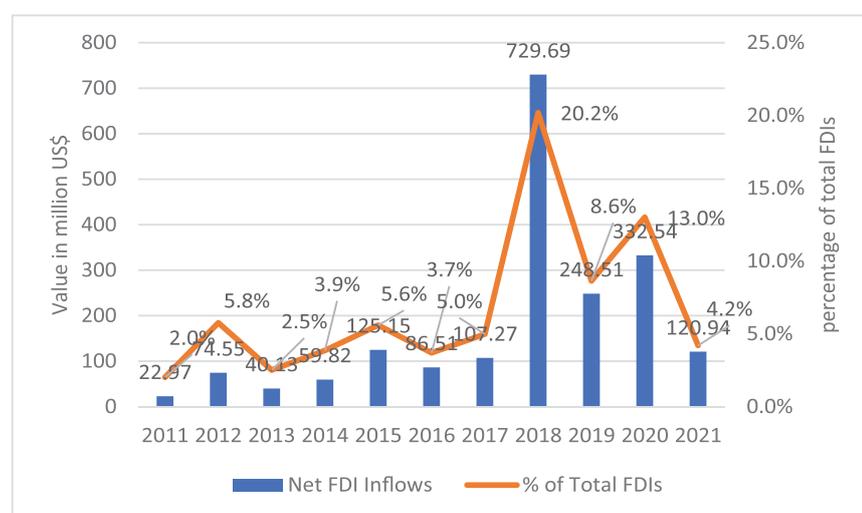


Source: Bangladesh Bank

⁹³ Bangladesh Bank

FDI in the sector

Figure 38: Net FDI inflows of food products in Bangladesh



FDI in food products has seen considerable rise in the recent years. FDI data from the last 10 years show that the value of FDI in food products was the highest in the calendar year 2018 amounting to US\$ 729.69 million which was about 20.2 percent of the total FDI.⁹⁴ FDI trend has been downward from the past few years. As per the Bangladesh Bank's report, food products generated \$120.94 million FDI inflows in 2021 which was only 4.20% of total FDI.

Destination analysis of Bangladesh and global perspective for selected agro products

Table 19: Destination analysis of Bangladesh and global perspective for selected agro products

S.L.	Top Export destination of Bangladesh (FY 2021-22)	Export value in million USD	Top Global Importers	Import in 2021 in million USD	Share of Import from Bangladesh (in %)
HS code 07 (vegetables)					
1	United Kingdom	22.97	United States of America	13488	0.00
2	Malaysia	19.91	Germany	8301	0.01
3	United Arab Emirates	11.45	United Kingdom	4273	0.54
4	Saudi Arabia	9.79	France	3897	0.02
5	Qatar	5.59	Canada	3507	0.02
Fruits (HS 08)					
1	United Kingdom	2.20	United States of America	22232	0.0003
2	Qatar	0.68	China	15910	0
3	United Arab Emirates	0.58	Germany	13090	0.0003
4	Vietnam	0.35	Netherlands	8479	0.0001
5	INDIA	0.34	France	6848	0.0006
Dry Food (HS 19)					
1	Saudi Arabia	42.83	United States of America	11043	0.15
2	Malaysia	33.22	China	6826	0.03
3	INDIA	28.30	Germany	5673	0.004
4	United Arab Emirates	23.60	United Kingdom	4765	0.4
5	United Kingdom	20.15	France	4636	0.04

Bangladesh's top export destination for vegetables in FY 2021-22 was the United Kingdom, with export earnings of US\$ 22.97 million. However, despite being the 3rd largest importer of vegetables, the United Kingdom only imported from Bangladesh a meager 0.54% of their total import. On the other hand, the USA, which is the largest importer of vegetables with \$13.4 billion total imports, had no vegetable imports from Bangladesh, indicating room for improvement in export market diversification.

⁹⁴ Bangladesh Bank

As for fruits, the USA is the highest importer but has a negligible amount of import from Bangladesh. The largest importers of fruits, including the USA, China, Germany, Netherlands, and France, could be potential export destinations for fruits from Bangladesh. For dry fruits, Saudi Arabia, Malaysia, India, UAE, and the United Kingdom are the main export destinations, with the USA, China, Germany, and France being potential markets for diversification.

Gender perspective in Agro Products and processed food sector

In Bangladesh, women play a major role in the agricultural sector. In 2022, women accounted for 40.6% of the agricultural labor force, a significant increase from the 1980s when they only made up 27%. There are a number of reasons for this increase, including government investment in women's empowerment programs, the green revolution, and the rise of microfinance. The government of Bangladesh has been investing in women's empowerment programs for many years. These programs have helped to increase women's access to education, healthcare, and other resources. As a result, more women are now able to participate in the agricultural sector.

The green revolution has also led to an increase in women's participation in agriculture. The green revolution is a series of agricultural improvements that have led to increased crop yields. These improvements have created more jobs for women in the agricultural sector. Microfinance is another factor that has contributed to the increase in women's participation in agriculture. Microfinance is a type of lending that provides small loans to people who would otherwise not be able to access credit. This has made it easier for women to start their own businesses or to invest in their farms.⁹⁵ The total budget in 2022-23 for this ministry was USD 2,557.98 million among which 48.8 percent was allocated (USD 1,248.36 million) for women.⁹⁶

In addition to these factors, the government of Bangladesh has also taken steps to support women in agriculture. For example, the Department of Agriculture Extension has trained 327,282 women in various agricultural technologies. The Bangladesh Agri Business Development Project has also distributed loans worth US\$ 42.94 million* to 41,467 entrepreneurs for the development of agribusiness. Among these entrepreneurs, 52.80% are women. Finally, the government has also provided training for women in the production of versatile jute products at the small and cottage industry level.

About 25% women participate in the implementation of the "Building Modern Food Storage" project and the project to set up premix kernel machines and laboratories to ensure the nutritional quality of food crops. Additionally, till March 31, 2022, 34.50% women will benefit from food friendly program. The number of farmers receiving training on modern technology provided by the Department of Agricultural Extension is 16,81,606, of which 3,27,282 are women (19.46%); 1,79,740 farmers have been trained in post-harvest loss reduction, value chain, supply chain development, entrepreneurship development etc. under various projects implemented by the Directorate of Agriculture Marketing. Among them 53,922 (30%) are women and various projects and programs have so far resulted in the creation of 41,467 entrepreneurs, of those, 21,895 (52.80%) were women.

Environment aspects of agro products and processed food

Chemical fertilizer use has been promoted to boost agricultural productivity and increase farmers' yields and income. However, the incorrect use of chemical fertilizers can negatively affect yields and harm the environment. Fertilizer that is overused or applied at the wrong time cannot be absorbed by the plants and can leach from soil to surface or ground water raising toxicity levels in water supplies or depositing into nitrous oxide and carbon dioxide, common greenhouse gases. On the other hand, failure to apply adequate amounts of fertilizer at the right times deprives crops of necessary nutrients and can negatively affect yields.

⁹⁵ Women in Agriculture in Bangladesh, United Nations Food and Agriculture Organization (FAO), 2022 available at <https://www.fao.org/3/cb3439en/cb3439en.pdf>

⁹⁶ Gender Budget Report FY 2022-23, Finance Division, Ministry of Finance, 2022.

*1 USD= 97.81 BDT, BBS 2022-23

Policies governing the sector

Bangladesh's Export Policy 2021-2024 identified Agro and Agro-Food Processing sector (including fruits and cut flower) as one of the Highest Priority Sectors. Moreover, considering the potential of the sector for creating newer employment opportunities and export earnings, the Industrial Policy 2022 mentions the Agro and Agro-Food Processing sector as one of the export diversifications sectors. In addition, the government in its 8th Five Year Plan (FYP) 2021-2025, has emphasized on:

- Production of diversified agro products for the implementation of inclusive growth strategy.
- Diversification of processed foods and agro products including fruits and vegetables.
- Ensuring food safety.

The following acts, regulations and policies regulate the agro products and processed food sector.

Regulations

According to Food and Agricultural Import Regulations and Standards Report, it is observed that for food and agricultural products imported to Bangladesh will comply with a range of laws designed to protect consumer, plant, and animal health.

• **The Food Safety Act, 2013** : Provisions for the establishment of an efficient and effective authority and for regulating, through coordination, the activities relating to food production, import, stock supply, marketing and sales, so as to ensure the rights toward access to safe food through appropriate application of scientific process, upon repealing and enacting the existing laws.

• **Food Additives Regulations, 2017**: Bangladesh has the Use of Food Additives Regulations, 2017, which were passed in February 2017 and are overseen by the Bangladesh Standard and Testing Institute (BSTI), Ministry of Industry, and Bangladesh Food Safety Authority (BFSA), Ministry of Food. The rules offer a list of food additives that can be used in a beneficial way.⁹⁷

• **The Food Safety (Food Hygiene) Regulations, 2018**

Policies

The Export Policy, 2021-24: According to the draft policy created by the Ministry of Commerce, the policy planned for three years intended to support the transportation of high-value items by maintaining standards and compliance as well as fostering contemporary, sustainable, and green technologies.

National Agriculture Policy 2018: The major goal of the Bangladesh Agricultural Policy 2018 is to provide a profitable, effective, environmentally friendly, long-lasting policy that aids in achieving growth.⁹⁸

Agro-food Processing Industry Promotion Policy 2022: Agro-food Processing Industry Promotion Policy 2022 will guarantee industry's sustained, goal-oriented expansion. To increase production efficiency and product quality, create new goods, and encourage global collaboration and technological exchanges, the policy will offer guidance. The policy has fiscal incentives in the form of business loans, capital and interest subsidy, Tax & VAT incentives and other important facilities for the agro-processing sector.

In addition, National Agricultural Marketing Policy, 2021 and Bangladesh Good Agricultural Practices Policy 2020 have been formulated to facilitate this sector.

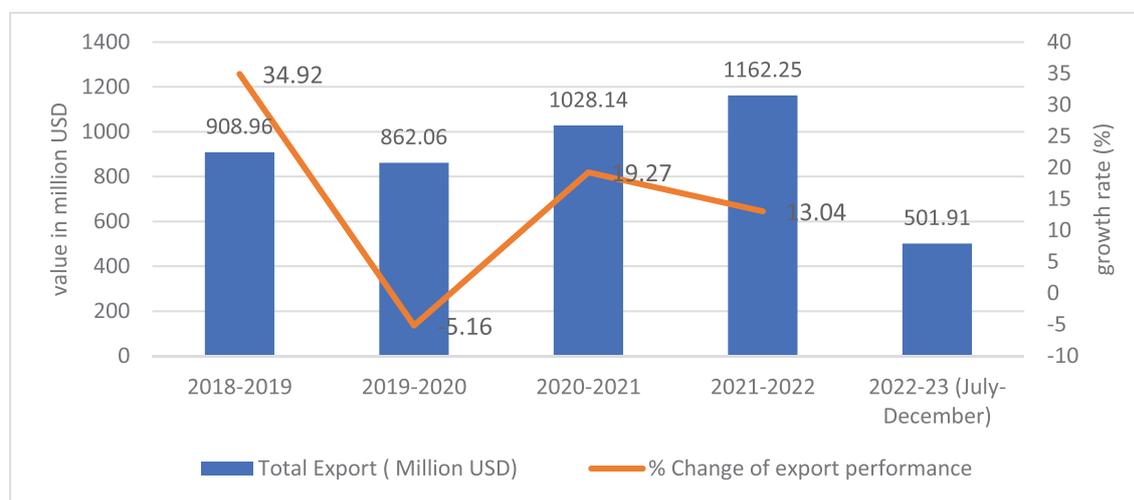
⁹⁷ Food and Agricultural Import Regulations and Standards Report, Office of Agricultural Affairs, USDA/Foreign Agricultural Service in Dhaka (2019)

⁹⁸ Ministry of Agriculture, Government of the People's Republic of Bangladesh, National Agriculture Policy 2018

Impact of COVID-19 on the sector

COVID-19 pandemic affected the agro-food system, disrupted supply chains due to lockdown and limits on travel and social gatherings. This had a negative impact on the nation's overall food consumption situation, and the agriculture sector experienced a negative growth of 5.16 percent in FY 2019-20.⁹⁹

Figure 39: Impact of COVID-19 on export of agro products and processed food



Challenges and opportunities of the agro products and processed foods sector sector: findings from the SWOT analysis

SWOT analysis identified the following major strengths, weaknesses, opportunities, and threats that could impact the growth of the agro products and processed foods sector:

Table 20: SWOT analysis of agro products and processed foods sector

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. Diversified and high yielding crop 2. New technology related to Production, Processing, and, Marketing 3. Availability of competitive labor force including women 4. Extension services to farmers 5. Favourable climatic condition 6. Abundance of natural resources including Fertile land Water 7. Consistent research and development 8. Strong local industrial base 	<ol style="list-style-type: none"> 1. Shortage of infrastructure facilities and modern equipment in Post-harvest and Processing 2. Meagre access to high-tech or enhanced farming technology 3. Constraint in getting permission for contract manufacturing 4. Inadequate multipurpose specialized cold storage and Cool Chain 5. Lack of awareness regarding export requirements 6. Dearth of skilled workforce 7. Lack of value addition activities in agricultural products 8. Insufficient accredited laboratory and packaging house 9. Absence of a strong central organization for research and rural development 10. Slow implementation of Good Agricultural Practice (GAP)

⁹⁹ EPB

Opportunities	Threats
<ol style="list-style-type: none"> 1. Export opportunities in processed food and fresh vegetables 2. The forward and backward linkage 3. Favourable government policies 4. Scope of value addition in food processing 5. Opportunities of demographic dividend 6. Expanding demand of halal processed food 	<ol style="list-style-type: none"> 1. Export Subsidy may not be allowed to be provided after LDC graduation. 2. Lack of access to loans from banks 3. Natural disaster 4. Higher transportation cost including air freight 5. Presence of middlemen in marketing channel 6. Unavailability of duty drawback 7. Over utilization of ground water 8. Lack of Support by financial Institutions in food processing technologies. 9. Absence of mutual recognition agreement and certification with partner countries

Source: BFTI findings generated from KII and Stakeholder Consultation

Key strengths

Diversified and High yielding crop: Since independence, Bangladesh has seen huge progress in terms of crops diversification and production of high yielding crops. BRRI, BTRI, BINA, BARI developed 569 management technologies, 504 high yielding varieties of different crops. Moreover, various vegetables such as pumpkin, brinjal, parble, lady's finger, bitter gourd, kachur lati, longyard bean (barbati), green papaya, cauliflower, cabbage etc. and fruits such as mango, pineapple, banana, jackfruit, guava, papaya, tamarind, watermelon, cashew nut, etc. are produced.

New technology related to production, processing and marketing: The agricultural sector in Bangladesh has undergone significant changes over the past 40 years, despite various challenges and constraints. Bangladesh has more than tripled the production of rice in the space of 50 years achieving near-autarchy in rice ensuring the staple for the population. Technological advancements in the form of modern varieties, mechanization, irrigation, and management practices have led to a revolution in the sector. The government and private sector have played important roles in disseminating these technologies, which have contributed to the sustainable development of agriculture. The integration of various technologies, such as fertilizer, irrigation, and mechanization, has led to an increase in the yield of high-yielding varieties. The use of advanced chemical fertilizers and pesticides has also become popular among farmers over time. Power tillers, pumps, threshers, and rice mills are among the other technological advancements in the sector.

Availability of competitive labor force including women: Bangladesh has got abundant labor force with low wage rate. The involvement of women labour force in the sector has increased subsequently in the agriculture sector. According to the Labour Force Survey of 2016-17, the participation of women in agriculture has crossed 10 million out of total 80.30 million which was just 15,823 in 1974. A study by UKaid ¹⁰⁰ revealed that while male laborers' wage ranges between Tk. 285 and Tk. 352 on average; female laborers' wage varies between Tk. 182 and Tk. 214 for the same tasks. This indicates a crucial discrimination against women. However, not only is the wage of female laborers low but the spread of wage across farm tasks is also low for female. This signifies the relative weak bargaining power of female workers in the agriculture sector in Bangladesh.

Extension services to farmers: Over the last three decades, the agriculture sector in Bangladesh has seen interventions in terms of extension services from both the government and the private sector and NGOs. Specific extension services were provided by organizations such as Bangladesh Rural Development Board (BRDB), Bangladesh Water Development Board (BWDB) to the target groups. Government organizations such as Department of Agriculture Extension (DAE) has been providing extension services related to crop sector.¹⁰¹

¹⁰⁰ Ukaid (2020) Policy Brief on Recognition of Women's Role in Agriculture

¹⁰¹ Islam. Saiful, Agro and Farming, Agricultural Extension Services in Bangladesh. Retrieved from, <https://agricultureandfarming.wordpress.com/2013/11/07/agricultural-extension-services-in-bangladesh/>

Favorable climatic condition: Bangladesh has geographical advantage for exports. , Strong forward and backward linkage, favourable climatic condition, favourable temperature, rainfall and available of natural resources including fertile land water which act as potential opportunities of the sector.

Key weaknesses

Shortage of infrastructure facilities and modern equipment in Post-harvest and Processing: Post-harvest management of horticulture commodities in Bangladesh requires improvement. Despite government efforts to upgrade the sector, small-scale farmers still rely on inexpensive, local technologies for pre and post-harvesting. This leads to losses due to inefficient harvesting, storage, and diseases. Post-harvest losses in food grains are estimated at 15%, while those in fruits and vegetables range from 20-25%. Developed countries have fewer losses due to accessible, advanced technologies, strict regulations, and skilled workers. In developing countries, improved post-harvest management practices have been introduced, such as packing houses with improved packaging and atmosphere modification. Reducing post-harvest losses is necessary to maintain affordable consumer prices and to increase availability.

Meagre access to high-tech or enhanced farming technology: High price of modern farming technologies make them unaffordable to farmers who are mostly smallholders. This affects farm productivity as well as farmers' income. An effective contract farming system could benefit both farmers in terms of getting supplies of inputs and a fair price, and for agro-processors required produces in right quality and volume for processing. This could be a win-win negotiation for both the parties that are in place in many developed and developing countries. Although, a couple of agro-processors ventured into contract farming with limited success, unfortunately that is yet to happen in on a large scale for lack of a workable contract-farming framework that works both the parties.

Dearth of skilled workforce: There is a serious dearth of skilled workforce in agro-processing sector. Moreover, retention of experienced/skilled workforce is a major challenge for the industry. Stakeholder consultation revealed that in many cases young people leave the sector and shift to other sectors because of comparatively higher salaries.

Inadequate multipurpose specialized cold storage: Despite having increasing demand globally, due to the absence of multipurpose cold storage system Bangladesh cannot export horticulture produces to an expected level. For example, Bangladesh stands 8th in the world in potato production with over 2.5 million to 3 million metric tons of exportable surplus. The cold storages now have capacity to hold around 4 million metric tons of potatoes, and it has to be cleared by November to accommodate 2 million metric tons of perishable vegetables.

Lack of awareness regarding export requirements: Exporters in Bangladesh face challenges due to a lack of knowledge about food standards and changing consumer demands, as well as strong competition from other countries with better product marketing. In addition, poor communication between donor organizations and the agricultural sector means that crucial needs are often not addressed. The sector also faces issues with the unavailability of duty drawback and the lack of value addition activities and strong central organizations for research and rural development. These factors contribute to a decline in exports, such as in the case of fruits and vegetables, cut flowers, and foliage in FY 2014-15, when harmful organisms were detected in 270 consignments from Bangladesh in the EU.

Key opportunities

Export opportunities in processed food and fresh vegetables: The agro-food processing industry in Bangladesh provides about 8.0 percent to manufacturing output (1.7 percent of GDP) and is currently valued at US\$ 2.2 billion. The agro-food processing industry's share of total exports now stands at around 1.5 percent. More than 700 agro products are exported from Bangladesh among which about 63 are basic agro processed products to more than 140 countries. Among the basic ones, fruits, vegetables, cut flower, dry food, spices, processed meat, frozen fish, cereal grains, tea, tobacco are noteworthy.

Expanding demand of halal processed food: OIC countries imported total US\$ 279 billion in the year 2020, of which halal food sector shared 72%. Global halal processed food markets provide an additional opportunity for Bangladeshi industries. Bangladesh has a huge possibility to export halal products through exploring global halal markets; provided internationally accepted certification process is in place.

In addition, Bangladesh has significant export opportunities in the agriculture sector due to high global demand for its products. Maintaining quality, ensuring food safety, and reducing product loss are key factors for keeping up with global demand. The government has implemented favorable policies to support the sector's growth, and farmers are increasingly interested in value addition and food processing. Proper technology can help increase exports, Bangladesh's demographic dividend present additional opportunities for the sector.

Key threats

LDC graduation: Export subsidy may not be allowed after LDC graduation. Currently the government provides 20% cash incentive on exports of agro products and processed food.

Lack of accredited laboratory and packaging house: A major challenge for the agricultural sector in Bangladesh is the lack of accredited laboratories and packing houses, resulting in the need to send products to other countries for quality certification, increasing costs and lead times. In 2016, the government built a central packaging house to address this issue, but more initiatives are needed to meet rising global demand. Other threats to the sector include limited access to bank loans, natural disasters, high transportation costs, lack of specialized raw materials, middlemen in marketing channels, and insufficient support from financial institutions for food processing technologies.

Lack of access to loans from banks, natural disasters, higher transportation costs including air freight, presence of middlemen in marketing channels, unavailability of duty drawback, and absence of mutual recognition agreement and certification with partner countries are also some of the constraints that threaten the industry.

Fisheries and Livestock Sector

Fisheries Sector

Overview of the sector

Bangladesh is ranked third in generating fish from inland waterbodies, fifth in producing fish for aquaculture, and eleventh in producing marine fish in the world. The GDP growth in the fisheries sector was 2.08 percent and the contribution of the fisheries sector in the overall agriculture sector was 21.83 percent in FY 2021-22.¹⁰²

Export trend

Table 1: World fisheries sector exports during 2014-2021

(In million USD)

Year	Live Fish (HS-0301)	Frozen Fish (HS - 0300, 0302, 0303)	Shrimps and prawns (HS - 030617)	Crabs (HS - 030614, 030624)	Fisheries Sector
2014	24.59	57.31	588.86	45.78	716.5
2015	20.09	55.59	490.92	51.42	618.0
2016	20.06	38.58	542.09	63.29	664.0
2017	20.42	40.31	544.55	3.31	608.6
2018	24.30	46.64	460.85	4.77	536.6
2019	31.20	57.06	438.66	6.96	533.9
2020	15.52	72.32	378.77	6.55	473.2
2021	6.61	73.44	401.73	9.20	491.0

Source: ITC

The table (21) shows fisheries exports increased from US\$ 473.2 million to US\$ 491 million in 2020 to 2021 with a growth rate of 17.8%. Bangladesh exports fish and fish products to 52 countries including European Union, the USA, Japan, Russia, and China, among others.

Overview of fisheries sector of Bangladesh

The agriculture sector's contribution to the Gross Domestic Product (GDP) is 12% of which approximately 3.57 percent comes from the fisheries subsector. Due to the successful implementation of extensive planning and development initiatives carried out by the government, the fisheries production in FY 2020-21 was 4.621 million metric tons, which was a 50.91 percent increase over the production in FY 2010-11 (3.062 million MT). The FAO's Harmonized System (HS) is used to classify the export of fish products. Bangladesh's exports mostly the following categories: Fish, crustaceans, mollusks, aquatic invertebrates

According to Export Promotion Bureau (EPB) export data, Netherlands is Bangladesh's largest importer of fisheries and fisheries product. Netherlands's imports are worth US\$ 87.54 million in FY 2021-22 which is 20.23% of total export of fisheries of Bangladesh. In fiscal year 2021-2022, the export value of the fisheries sector was US\$ 532.94 million.¹⁰³ The top 15 export markets for the sector were Netherlands, Belgium, the United Kingdom, Germany, the United States, France, China, Japan, Portugal, Hong Kong, Russia, Thailand, Spain, Denmark, and Saudi Arabia. In FY 2021-2022, the total exports to the top 15 export markets accounted for US\$ 433 million contributing to about 81.25% of the sector's total export.

¹⁰² Bangladesh Economic Review (2022)

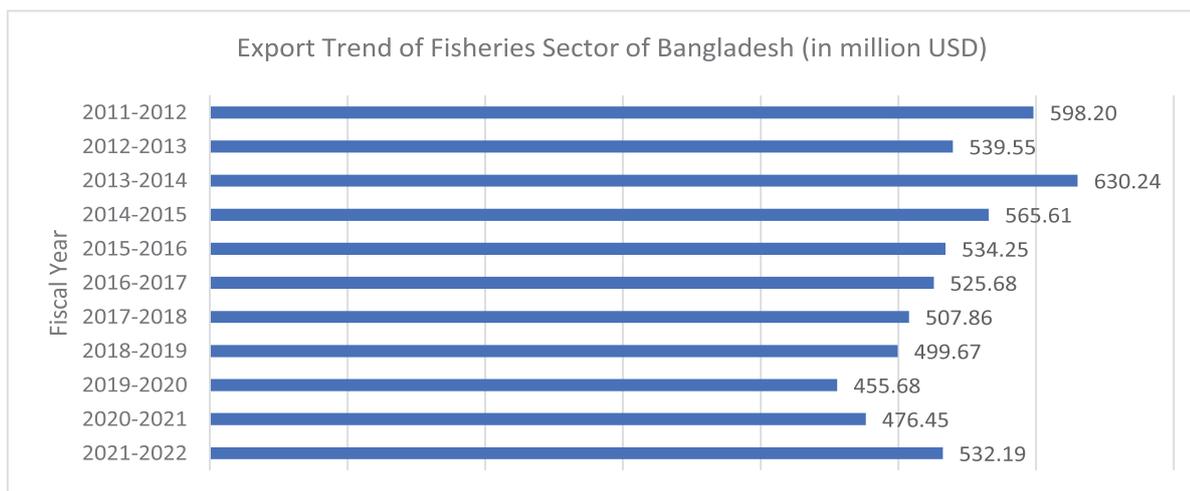
¹⁰³ Export Promotion Bureau (EPB) Export Data (2022). Retrieved from: http://epb.gov.bd/site/view/epb_export_data/-.

It is also observed from Export Promotion Bureau (EPB) export data that live fish, frozen fish (fish, fresh or chilled; Fish, frozen, (excluding those of 03.04), Fish fillets and other fish meat, fresh, chilled or frozen, Fish, salted, dried...; smoked fish; fish meal fit for human consumption, Crustaceans, fresh or chilled or frozen), etc. are among the most commonly exported products from Bangladesh.

Export trend of Fisheries sector of Bangladesh

In fiscal year 2021-2022, the export value of the fisheries sector was 532.94 million USD.

Figure 40: Export scenario of fisheries sector of Bangladesh

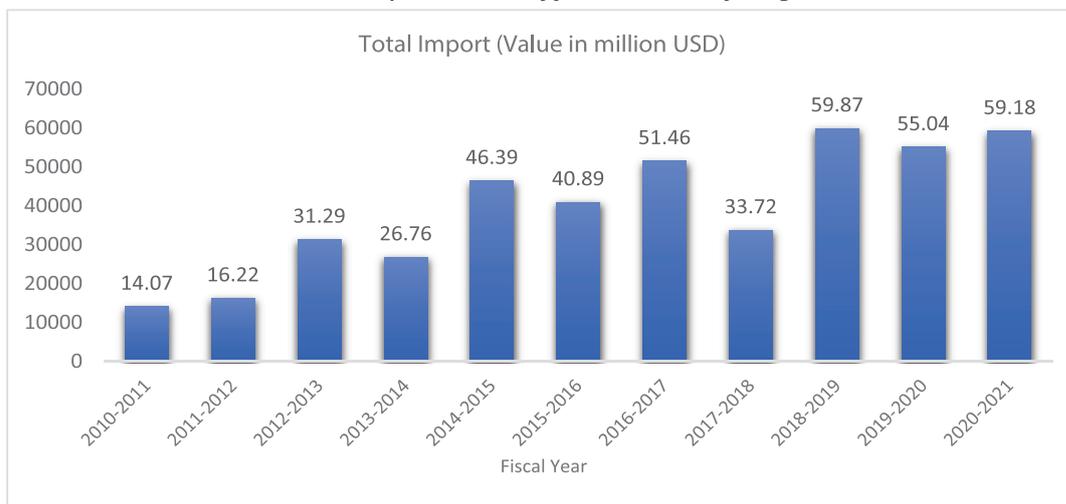


Source: Export Promotion Bureau (EPB)

Import trend of Fisheries sector of Bangladesh

The import payment figure (41) sourced from Bangladesh Bank showed that the imported goods of the fisheries sector include fish and mollusks & other aquatic invertebrates.

Figure 41: Import scenario of fisheries sector of Bangladesh



Source: Bangladesh Bank

Data analysis showed that period from 2010-2011 to 2013-2014 proved to be promising as the import payment situation was moderate. However, from 2014-15 to 2017-18, the import payment for fisheries products was really high which showed dependency on imported fisheries products for Bangladesh. There were ups and downs in case of importing fish and mollusks & other aquatic invertebrates from the beginning to date.

Investment

For steady growth and diversification of the fisheries sector, the Dutch government has partnered with Bangladeshi companies to invest 6 million euros to ensure the aquaculture sector in Bangladesh grows sustainably. Three centers of excellence will be established, experiments and research with farm-produced goods will be conducted, and technical support will be provided. However, the fisheries sector is yet to receive any foreign direct investment.

Gender perspective in Fisheries sector

Currently, in Bangladesh, approximately 1.4 million women are involved in various activities in the fisheries sector, either directly or indirectly. In the fiscal year 2020-21, 5086 farmers received training on fish diseases and treatments, out of which 1017 were women, accounting for about 20% of trained fish farmers. Women constitute approximately 80% of the workforce in fish processing factories for export. The Department of Fisheries provides training to around 132 thousand people annually,¹⁰⁴ of which 11% are women involved in fish farming. Women make up approximately 80% of the workforce in fish and shrimp processing plants, while 45% of individuals involved in the production of fishing nets and tools are women. In terms of fisheries and management courses, women constitute approximately 25% of individuals obtaining these courses.¹⁰⁵

It is worth noting that over half of the farmers nominated by the Department of Livestock for enhanced farm management programs through various schemes are women. In the fiscal year 2021-22, there were 73,052 women working in the fisheries sector, accounting for 52.56% of all workers. For the first time in any maritime training institute in Bangladesh, the Marine Fisheries Academy has included 8 female cadets for training from the academic year 2010-11, and currently, there are 12 female cadets undergoing training. Furthermore, in the first 10 batches, 60 female cadets have successfully graduated and secured employment

Environmental aspects of fisheries sector

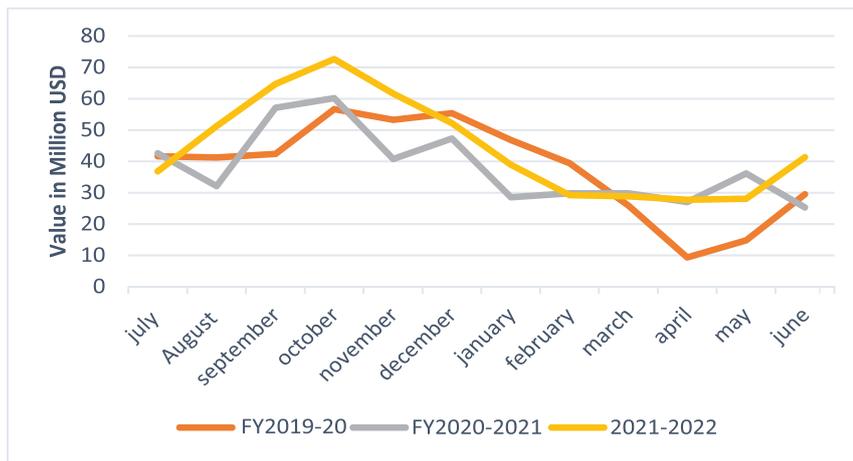
Bangladesh has made significant social and economic progress over the past decade, but this has come at a cost to the environment. To promote sustainable development, Bangladesh government has been working together since 1980. They have developed plans and policies such as the 8th Five Year Plan, Delta Plan, Perspective Plan 2041, and Mujib Climate Prosperity Plan, to promote a green growth centered development pathway. The World Bank is helping the government by identifying policies and investment alternatives to support this transition. They have implemented various initiatives to promote sustainable fisheries, including alternative livelihood development activities for 60,000 households in 450 villages to reduce overfishing, providing training and conditional grants for 7,500 shrimp growers in 300 shrimp farming clusters. The Bank also supports the construction of a Joint Management Centre (JMC) to monitor fishing vessels for the safety of fishermen and combat illegal fishing. The Bank is collaborating with the government to implement green growth goals and empower women to promote environmental sustainability. The Bank is also focusing on pollution management and environmental risk management, as well as implementing programmes for ecological restoration of wetlands, sustainable fisheries management, and payment for ecosystem services in Chittagong, coastal shelterbelts, and the Sundarbans.

¹⁰⁴ Gender Budget Report FY 2022-23, Finance Division, Ministry of Finance, 2022.

¹⁰⁵ Women's Participation, Constraints, and Opportunities for Trade in Bangladesh, Australian Aid, Partnership for South Asia, World Bank Group, 2016.

Impact of COVID-19 pandemic on the fisheries sector

The fisheries sector in Bangladesh has experienced significant disruptions in the supply chain due to bottlenecks in transportation, trade, and labor, as the world economy had collapsed as a result of the Covid-19 pandemic. Fish farmers have suffered enormous losses due to the decline in demand for fish caused by the impact of Covid-19 lockdowns on household incomes. The production, sales, and prices of fish had fallen dramatically. Consequently, many individuals working in these supply chains, including fishermen, seafood merchants, processors, suppliers, and transport workers, were at risk of losing their jobs and businesses and means of subsistence.¹⁰⁶



As depicted in the figure (42), the value of fish exports decreased from February 2020 to June 2020, but recovered in FY 2021-2022. The export value of fisheries products was US\$ 456.15 million in FY 2019–20, US\$477.37 million in FY 2020-2021 and US \$532.94 million in FY 2021–22.

Policies governing the fisheries sector

The following acts, regulations and policies regulate the fisheries sector:

- According to Import Policy Order 2021-24 of Bangladesh, a number of previously controlled commodities have been moved to the prohibited list. Shrimps are among these items (all HS Code products under 03,06 HS Code)
- The Export Policy 2021-2024 of Bangladesh mentions the fisheries sector as one of the Special Development sectors (Value added frozen fish and live and processed Crab)¹⁰⁷
- In addition, National Fisheries Policy-1998 facilitates and govern this sector.¹⁰⁸

Incentives for the fisheries sector

The government of Bangladesh offers a number of fiscal and non-fiscal incentives, privileges, and facilities to facilitate and encourage investment.

Cash incentive: For the first time ever in the country, the ice cover has been used to decide the cash incentive for frozen shrimp and other species. The table (22) depicts the existing cash incentive rates:

Table 22: Cash incentives in Fisheries sector

Ice cover rate in shrimp exports	Cash Incentive Rate
Up to 20%	10%
Above 20% to 30%	9%
Above 30% to 40%	8%
Above 40%	7%

¹⁰⁶ How has the Covid 19 Pandemic Impacted the Fisheries Sector? (2020). LightCastle Partners.

¹⁰⁷ Export Policy 2018-21-1 (1) EPB Report 25.05.2020.pdf

¹⁰⁸ Yearbook Of Fisheries Statistics of Bangladesh 2019-20, Department of Fisheries Bangladesh Ministry of Fisheries and Livestock.

Ice cover rate in other frozen fish exports	Cash Incentive Rate
Up to 20%	5%
Above 20% to 30%	4%
Above 30% to 40%	3%
Above 40%	2%
Export Subsidy	
Crab and monopterus cuchia (live, frozen and softcell)	10%

The frozen fish industry currently receives a monetary incentive of 7.0-10% on shrimp exports and 2.0 - 5.00% on other fish exports. Live and chilled food exporters association members currently export crab, eel fish, and chilled fish. Crab and eel fish exports currently receive a 10 percent export subsidy from the government.¹⁰⁹

Challenges and opportunities of the fisheries sector: findings from the SWOT analysis

SWOT analysis identified the following major strengths, weaknesses, opportunities, and threats that could impact the growth of the fisheries sector:

Table 23: SWOT analysis of fisheries sector

<p>Strengths</p> <ol style="list-style-type: none"> 1. Plenty of water bodies, rivers, and coastline 2. waterbodies and kindred fisheries resources Intensification in Pond culture/Pisciculture /Shrimp culture 3. Diverse species 4. Supportive extension services at the farmer's level 5. Adoptability of new technology 6. Large workforce 7. Significant export earnings 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Lower productivity of shrimp culture 2. Shortage of skilled human resources 3. Insufficient deep-sea trawler for fishing 4. Inadequate infrastructure and technological know-how 5. Lack of multipurpose cold storage and cool chain 6. Constraints in supply chain activities 7. Lack of development of fish vaccines and disease management 8. Inability to comply with global standards 9. Post-harvest loss
<p>Opportunities</p> <ol style="list-style-type: none"> 1. High demand and consumer acceptance 2. Availability of new farming technology 3. Increasing productivity through improved practices 4. Implementation of development projects for increasing production and quality of fish products 5. More people shifting from red meat to fish due to increased health awareness 6. Approval of cultivating Vannamei Chingri 7. Leveraging Marine aquaculture 8. Scope of safe (i.e., organic) fish production 9. Women's participation in aquaculture farming 	<p>Threats</p> <ol style="list-style-type: none"> 1. Scarcity of quality feed, seed and other inputs 2. Preference erosion due to LDC graduation after 2026 3. Uncertainty about cash incentives 4. Impact of Climate changes 5. Degradation of habitat through agricultural development, urbanization, and development of industries 6. Water pollution due to indiscriminate disposal of single-use-plastics and other wastes 7. Rising sea levels and changes in water temperature and salinity impacting fish habitats. 8. Compliance to WTO agreements on Fisheries subsidies

Source: BFTI findings generated from KII and Stakeholder Consultation

¹⁰⁹ Fisheries ministry seeks 25pc cash incentive on chilled fish export. The Financial Express. Retrieved December 8, 2022, from <https://thefinancialexpress.com.bd/trade/fisheries-ministry-seeks-25pc-cash-incentive-on-chilled-fish-export-1652322783>

Key strengths

Plenty of fisheries resources: There are 260 kinds of freshwater fish and 475 types of marine fish. Approximately 12 exotic species are cultivated in the country.¹¹⁰

Intensification in pond culture/pisciculture /shrimp culture: Through the use of cutting-edge technology, such as the standardization of gher size, stocking density, the installation of an aeration system, the addition of fertilizers and feeds, and the amplification of culture operations, shrimp production in gherms may be greatly enhanced.¹¹¹

Availability of huge water bodies, rivers, and coastline: Bangladesh is also endowed with vast inland culture (8,21,923 hectares), inland capture (38,90,282 hectares), and marine (1,188,81,300 hectares) water resources, with huge potential for fisheries output.¹¹²

Supportive extension services at the farmer's level: Currently DoF is providing such kind of extension services. Some of the services are service to office callers, farm visits, mail service, training and workshops, informal meetings.¹¹³

Adaptability to new technology: Currently Fish Farmers are using different kinds of new technologies in fisheries sector. Adoption of such advanced technologies are playing a significant role in the advancement of fisheries such as “pond preparation with lime”, “acclimatization of fish fry before stocking”, “appropriate stocking density”, “monosex tilapia”, “pangus cultivation”, “formulated feed supply into the pond”, “urea use” and “use of TSP” etc.¹¹⁴ Some IT firms are also experimenting diagnosis of different water parameters such as pH level, etc. with the help of IoT devices.

Key weaknesses

Lower productivity of shrimp culture: The challenging factor behind this lower productivity can be over-reliance on traditional mode of farming, lack of species diversity, improper site selection, insufficient attention paid on construction of ponds, inadequate pond preparation, poor pond management, use of poor-quality seed, poor dissolved oxygen management, insufficient water exchange, inadequate feeding, and inadequate management of pythons.¹¹⁵

Shortage of skilled human resources: There is a lot of untapped potential in the Blue Economy that we haven't been able to tap into because of our lack of knowledge and expertise. The blue economy cannot be tapped into without access to both trained workforce and cutting-edge technology/machinery.

As the notion of sustainable fisheries industry is socio-economic-cum-environmental, its operation and administration necessitate an ongoing interaction of diverse human knowledge in order to ensure its smooth direction and attainment of its objective. Consequently, the arrangement of various types and degrees of training and education is of utmost importance for the development of human resource participating in a sustainable fisheries industry as well as for raising environmental consciousness.¹¹⁶

¹¹⁰ About Department of Fisheries. Retrieved from: <http://www.fisheries.gov.bd>

¹¹¹ Chandra, K. J., Chowdhury, A. R., & Das, D. R. (2010). Shrimp culture practices at farmers level in Bagerhat District. *Progressive Agriculture*, 21(1-2), 173-185

¹¹² Dr. A K M Nowsad Alam (2010) Post-harvest Loss Reduction in Fisheries in Bangladesh: A Way Forward to Food Security, National Food Policy Capacity Strengthening Programme

¹¹³ Ahmed, Z., Sarker, M. A., Rahman, M. Z., Lei, B., & Mukta, M. Z. N. (2018). Fisheries extension in Bangladesh and local extension agent for fisheries: A micro level assessment of farmers' Attitude.

¹¹⁴ Sakib, H., & Afrad, M. S. I. (2014). Adoption of modern aquaculture technologies by the fish farmers in Bogra district of Bangladesh. *International Journal of*

Agriculture Innovations and Research, 3(2), 414-421.

¹¹⁵ Brojo Gopal Paul, Christian Reinhard Vogl (2011) Impacts of Shrimp Farming in Bangladesh: Challenges and Alternatives.

¹¹⁶ Zamal, H., Das, U. K., & Barua, P. (2008). Human Resources Development for Sustainable Aquaculture in Bangladesh.

Insufficient deep-sea trawler for fishing: About 57,000 artisanal mechanized and non-mechanized wooden boats and 200 industrial steel body trawlers are engaged in fishing in the coastal seas up to 60 kilometers (within 40 meters of depth) from our coastline, with extremely limited ability to capture pelagic fishing-shoals closer to the surface. But below 50 meters, the ability to catch demersal fishes is extremely limited. It is impossible to catch fish with long lines in deep water. Crustaceans such as shrimp and lobster are caught in small numbers in the benthic zone, the deepest part of the ocean, but fishes close to the sea bottom, at a depth of approximately 150–550 meters, are off limits to industrial fishing.¹¹⁷

Inadequate infrastructure and technological know-how: It's estimated that between 30 and 33 percent of the fish harvested spoils and can't be used for human consumption.¹¹⁸ The infrastructure facilities were inadequate and poorly maintained, as was discovered. Fish shelters were not sufficiently clean to safeguard the fish from contamination. The surface water drainage system was unblocked, which worsened the market's environmental condition. There was no distillation process for the supplied water, and electricity upkeep was inadequate. This infrastructure does not support hygienic conditions for the marketing of edible and high-quality fish, as required for a sanitary environment.¹¹⁹

Lack of multipurpose cold storage and cool chain: According to the Bangladesh Cold Storage Association, there are currently 20 multipurpose cold storage facilities in operation. The multipurpose cold storage still has a capacity of between 15,000 and 20,000 tonnes. Large opportunities exist for facilities that serve several purposes, such as ripening and packing houses.¹²⁰

Constraints in supply chain activities: Bangladesh's fisheries sector suffers large post-harvest losses annually due to ignorance and negligence in handling and processing at all stages of the supply chain, from harvest to retail distribution. Additionally, there are limits in processing, marketing, and packaging.¹²¹

Lack of development of fish vaccines and disease management: In order to keep aquaculture economically and ecologically sustainable, disease prevention and control are essential. There is a paucity of knowledge regarding the current status of fish disease and health management strategies in rural aquaculture in Bangladesh. No diagnostic laboratories or support services are available for fish growers. Since farmers do not recognize the symptoms of illnesses, they do not report their occurrence. Consequently, the vast majority of infections in rural aquaculture went undiagnosed.¹²²

Key opportunities

High demand and consumer acceptance for marine fish: According to figures from the ministry of livestock and fisheries and the Bangladesh Frozen Foods Exporters Association (BFFEA), the country earned over US\$477 million by exporting 77,000 tonnes of processed shrimp and marine fish in fiscal year 2020-21. In contrast, the production of dried fish was 62,561 tonnes during this period. Compared to the nation's fish yields of more than 4.5 million tonnes, the production of processed fish increased to 0.139 million tonnes.¹²³

¹¹⁷ Ocean/Blue Economy for Bangladesh, Ministry of Commerce

https://mofl.portal.gov.bd/sites/default/files/files/mofl.portal.gov.bd/page/d1b6c714_aee6_499f_a473_c0081e81d7dc/BI

¹¹⁸ Rahman, S., & Ahmed, K. K. (2002). Performance of fisheries sector planning in Bangladesh. *Outlook on Agriculture*, 31(4), 243-251.

¹¹⁹ Rahman, M. M., Hossain, M. M., Rahman, S. M., & Alam, M. H. (2009). Fish marketing system in Khulna, Bangladesh. *Journal of Innovation and Development Strategy* 3 (5), 27-31.

¹²⁰ Bangladesh National Cooling Plan for the implementation of the Montreal protocol (UNDP)

¹²¹ Dr. A K M Nowsad Alam (2010) Post-harvest Loss Reduction in Fisheries in Bangladesh: A Way Forward to Food Security, National Food Policy Capacity Strengthening Programme

¹²² Faruk, Md & Alam, Md & M.M.R, Sarker & M.B, Kabir. (2004). Status of Fish Disease and Health Management Practices in Rural Freshwater Aquaculture of Bangladesh. *Pakistan Journal of Biological Sciences*. 7. 10.3923/pjbs.2004.2092.2098.

¹²³ Despite market demand, fish processing is limited to shrimp, dried fish. Available at-

<https://www.tbsnews.net/economy/industry/despite-market-demand-fish-processing-limited-shrimp-dried-fish-365974>

Availability of new farming technology like pen culture, cage aquaculture, cluster farming of shrimp, sea ranching etc.: Currently inland aquaculture has undergone the most rapid growth, with the introduction of new technologies, species, and intensification and enhancement of farming, notably in pond aquaculture, over the entire nation (Planning Commission, 2016).¹²⁴

Increasing productivity through improved practices: Adoption of scientific management practices is a prerequisite for enhancing fish farming. Farmers who utilize scientific management approaches will be able to boost the production and profitability of fisheries sector.¹²⁵

Implementation of development projects for increasing production and quality of fish products: The government is implementing numerous initiatives to ensure the availability of animal protein through expanding fish stocks. Fish farming in open water, conservation of endangered fish species, construction of fish breeding and breeding sanctuaries, conservation of Jatka, and other initiatives are now under progress.¹²⁶

This sector is executing many development initiatives, including habitat restoration, conservation of natural resources, community-based resource management, human resource development, and alternative income-generating activities, among others.¹²⁷

Key threats

Scarcity of quality feed and seed: Providing quality feed to the fish in aquaculture is crucial for maximizing productivity. However, according to a study more than half of the farmers cited "unavailability of quality feed components." Because of this, it has become a significant obstacle in pond fish farming. Most farmers only use urea fertilizers, cattle dung and rice bran to feed the fish in their ponds. Though ready-made fish feed is now available on the market, availability is inadequate and pricing is quite high, putting it out of reach for small and marginal fish farms.¹²⁸

Preference erosion and other challenges due to LDC graduation after 2026: Bangladesh will no longer be considered an LDC once a year 2026 rolls around. Bangladesh, meanwhile, will lose its privileged status in a number of countries' markets due to loss of duty-free quota free access. Cash incentive may not be allowed to be provided after LDC graduation (The frozen fish industry currently receives a monetary incentive of 7.0-10% on shrimp exports and 2.0-5.00% on other fish exports from the Government.)

¹²⁴ Shamsuzzaman, M. M., Islam, M. M., Tania, N. J., Al-Mamun, M. A., Barman, P. P., & Xu, X. (2017). Fisheries resources of Bangladesh: Present status and future direction. *Aquaculture and Fisheries*, 2(4), 145-156.

¹²⁵ Prodhan, M. M. H., & Khan, M. A. (2018). Management practice adoption and productivity of commercial aquaculture farms in selected areas of Bangladesh. *Journal of the Bangladesh Agricultural University*, 16(1), 111-116

¹²⁶ Bangladesh Economic Review (2022)

¹²⁷ Department of Fisheries

¹²⁸ -Barua, P., & Sarker, S. (2010). Operational problems of aquaculture technologies in Chittagong region of Bangladesh. *Fishing Chimes*, 30(8).

Climate changes and manmade hindrances such as construction of unplanned flood dam, pollution of water, siltation etc.: Increasing concentration of greenhouse gas in the atmosphere is creating a climate crisis on a worldwide scale. Climate change is having a significant impact on fisheries in Bangladesh, with rising sea levels, changes in water temperature and salinity, and more frequent extreme weather events affecting fish populations and the livelihoods of fishers.

Degradation of habitat through agricultural development, urbanization, and development of industries: There are competing demands for land in Bangladesh having very small land mass. Habitat degradation, urbanization, industrialization etc. are responsible for this. These obstacles can be overcome through the development of responsible fisheries eroding the potential for horizontal expansion of fisheries and appropriate utilization of water bodies.¹²⁹

Water pollution for the inland water bodies: Bangladesh's fishing industry confront one of its greatest obstacles from water contamination.¹³⁰ Currently, the leather, garment, and tannery industries are contaminating rivers and several wetland areas. It is particularly true for the Buriganga River. Additionally, discharges of waste water from shrimp farms seriously pollute the local water supply.¹³¹

¹²⁹ Islam, M. S., Jahan, H., & Al-Amin, A. A. (2016). Fisheries and aquaculture sectors in Bangladesh: an overview of the present status, challenges and future potential. *Journal of Fisheries and Aquaculture Research*, 1(1), 002-009.

¹³⁰ Mowla, K. G. R. Bangladesh Fisheries Industry: Growth, Prospects and Opportunities.

¹³¹ Bangladesh National Conservation Strategy

Livestock Sector

Bangladesh is the 12th largest holder of cattle inventory in the world.¹³² Livestock sector has been contributing to improve the level of nutrition intake of people through providing adequate amount of meat and egg products. Milk, meat and eggs are three most vital products of livestock sector. For trend analysis, two digits of HS Code have been chosen. The products of livestock sector are as follows:

- Live Animals (01);
- Meat and edible meat offal (02);
- Dairy products, eggs, honey, edible animal products (04); and
- Products of animal origin excluding human hair (05).

To present the global overview of the sector, top ten importers' data, export & import trend are analyzed.

Table 24: The top ten importers of livestock sector in 2021

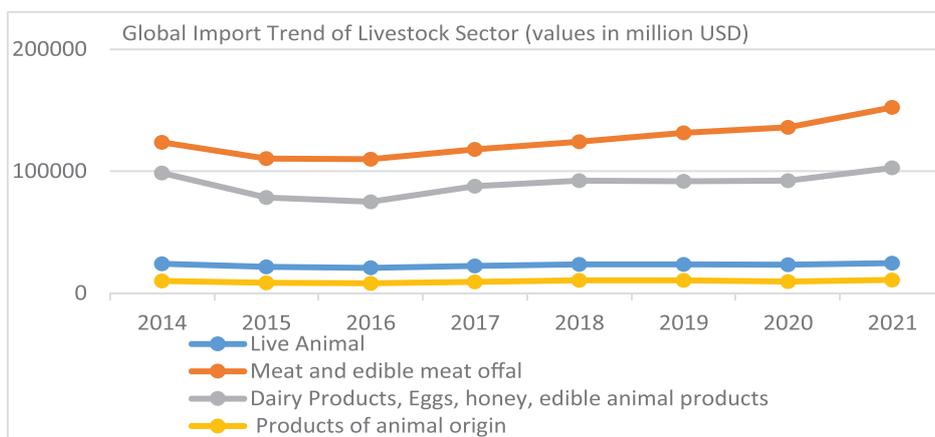
Sl.	(01) Live Animal		(02) Meat and edible meat offal		(04) Dairy Products, Eggs, honey, edible animal products		(05) Products of animal origin	
	Country	Import Volume in 2021 (in million \$)	Country	Import Volume in 2021 (in million \$)	Country	Import Volume in 2021 (in million \$)	Country	Import Volume in 2021 (in million \$)
1	United States of America	3354	China	31586	Germany	10636	Germany	1195
2	Italy	1885	United States of America	11996	China	9695	United States of America	1192
3	Germany	1527	Japan	10988	Netherlands	5223	China	1049
4	Netherlands	1431	Germany	7303	France	4975	Japan	636
5	Hong Kong, China	1266	Korea, Republic of	6057	Belgium	4779	France	538
6	China	945	France	5564	Italy	4412	Netherlands	529
7	Poland	732	Mexico	5212	United Kingdom	3682	Poland	340
8	Spain	705	United Kingdom	5101	United States of America	3298	Viet Nam	326
9	Viet Nam	663	Italy	5049	Russian Federation	2944	Spain	323
10	Belgium	648	Hong Kong, China	4717	Spain	2371	Italy	296

Source: International Trade Centre (ITC) data

The table (24) shows globally the top ten importer countries in livestock products including: live animal, meat, dairy and animal products. In 2021, the USA was the top importer of live animals. Germany was the top importer of dairy products and products of animal origin. China was the top importer of meat and edible meat offal. The top ten importer countries in the livestock sector are USA, Italy, Germany, Netherlands, Hong Kong, and China.

¹³² The report "Agro & Food Processing Industries", 2020, Available at: <https://bida.gov.bd/storage/app/uploads/public/628/c73/ca9/628c73ca9b17a677576784.pdf>

Figure 43: Global import scenario of livestock sector

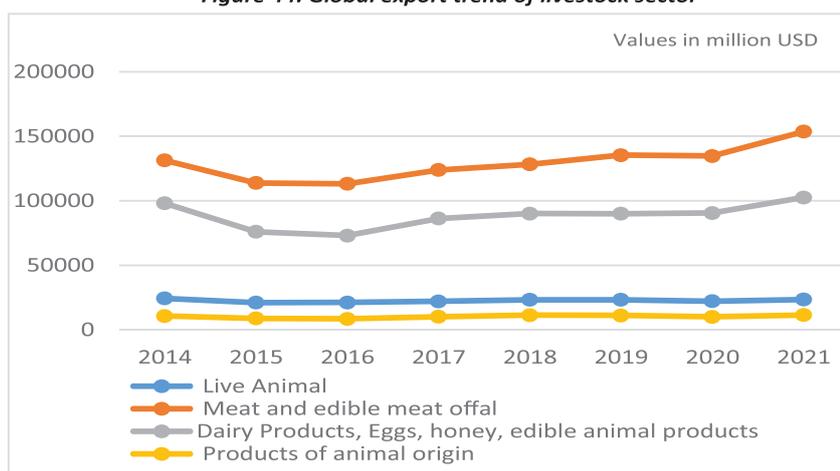


Source: International Trade Centre (ITC) data

This figure (43) shows the global import scenario of livestock sector. The figure also shows the increasing trend of dairy and meat products. The annual average import growth rate from the year 2014 to 2021 is 1.8%.

The figure below (44) shows the global export scenario of livestock sector. The figure shows the slightly increasing trend of dairy and meat products. The annual average export growth rate from the year 2014 to 2021 is 0.93%.

Figure 44: Global export trend of livestock sector



Source: International Trade Centre (ITC) data

OIC countries imported total US\$ 279 billion in the year 2020, of which halal food sector shared 72%. Global halal meat markets provide an additional opportunity for Bangladeshi industries. Bangladesh has a huge possibility to export halal products through exploring global halal markets; provided internationally accepted certification process is in place.

Table 25: Production of milk, meat and eggs

Product	Unit	Production			
		2017 -18	2018 -19	2019 -20	2020 -21
Milk	Million MT	9.41	9.92	10.68	11.99
Meat	Million MT	7.26	7.51	7.67	8.44
Eggs	Billion	15.52	17.11	17.36	20.58

In FY 2020-21, the total number of cattle and poultry in Bangladesh stood at 56.33 million and 365.85 million respectively.¹³³ The table (25) shows that the production of animal protein like milk, meat (beef, mutton and chicken) and egg has been increasing over the past several years. At present, local dairy industry is meeting around 65% of the total local milk demand of 15.2 million metric tons. The remaining demand for milk is met primarily through imports.¹³⁴

¹³³ Economic Review 2022, Finance Division, Government of Bangladesh

¹³⁴ The report "Agro & Food Processing Industries", 2020, available at: <https://bida.gov.bd/storage/app/uploads/public/628/c73/ca9/628c73ca9b17a677576784.pdf>

Table 26: Export scenario of livestock sector (value in million USD)

Sl. No.	Financial Year	Live Animals	Growth (%)	Meat and Edible meat offal	Growth (%)	Dairy Products	Growth (%)	Products of Animal Origin excluding human hair	Growth (%)	Total	Growth (%)
1.	2017-18	0.022		0.55		1.72		14.56		16.85	
2.	2018-19	0.004	-80	0.73	34	2.29	33	19.10	31	22.13	31%
3.	2019-20	0.039	812	0.43	-41	1.94	-15	9.87	-48	12.27	-45%
4.	2020-21	0.006	-83	0.92	113	1.90	-2	13.05	32	15.87	29%
5.	2021-22	0.005	-28	0.64	-30	1.74	-8	20.43	57	22.82	44%

Source: Export Promotion Bureau (Yearly average growth 15%)

The table (26) indicates that the export of products of animal origin excluding human hair was US\$ 20.43 million in 2021. Export of dairy products, eggs, honey, edible animal products is US\$ 1.74 million in 2021 while it was US\$ 1.90 million in 2020. The table (26) also shows that in FY 2018-19 the total export growth was 31% while in FY 2021-22 the total export growth was 44%. The five years average growth from year 2017 to 2021 in livestock sector is 15%. The products of animal origin are exported more than the other products of livestock sector.

Table 27: BD vs. global export scenario of livestock sector including 6 digits HS Code in FY 2021-22

HS Code	Top 10 export products of BD	Export value in million USD	HS Code	Global top 10 export products	Exported value in million USD
050400	Fresh, chilled, frozen, salted, dried..., Guts, bladders and stomachs of animals (excl. fish)	14.74	020230	Frozen, boneless meat of bovine animals	28880.1
050510	Raw feathers for stuffing; down	1.69	020130	Fresh or chilled bovine meat, boneless	21505.9
040900	Natural honey	1.00	040690	"Cheese (excluding fresh cheese, incl. whey cheese, curd, processed cheese, blue-veined cheese	21444.9
020220	Frozen unboned bovine meat (excl. carcasses)	0.45	020329	Frozen meat of swine (excluding carcasses and half-carcasses, and hams, shoulders and cuts thereof	18066.0
051199	Animal products, nes; dead animals of chapter 1	0.31	020714	Frozen cuts and edible offal of fowls of the species Gallus domesticus	15247.0

HS Code	Top 10 export products of BD	Export value in million USD	HS Code	Global top 10 export products	Exported value in million USD
0405 90	Fats and oils derived from milk (excl. butter and dairy spreads)	0.28	0402 21	Milk and cream in solid forms, of a fat content by weight of > 1,5%, unsweetened	11269.3
0403 10	Yogurt	0.17	0203 19	Fresh or chilled meat of swine (excluding carcasses and half-carcasses, and hams, shoulders and	10142.7
0402 99	Sweetened milk and cream (excl. in solid form)	0.12	0402 10	Milk and cream in solid forms, of a fat content by weight of <= 1,5%	9832.8
0201 10	Fresh or chilled bovine carcasses and half carcasses	0.12	0406 10	"Fresh cheese ""unripened or uncured cheese"", incl. whey cheese, and curd"	8846.0
0402 21	Milk and cream in solid forms of >1.5% fat, unsweetened	0.09	0405 10	Butter (excluding dehydrated butter and ghee)	7646.5

Source: Export Promotion Bureau (EPB) and International Trade Centre (ITC) data

Table (27) shows Bangladesh and global export scenario of livestock sector including 6-digit HS Code in FY 2021-22.

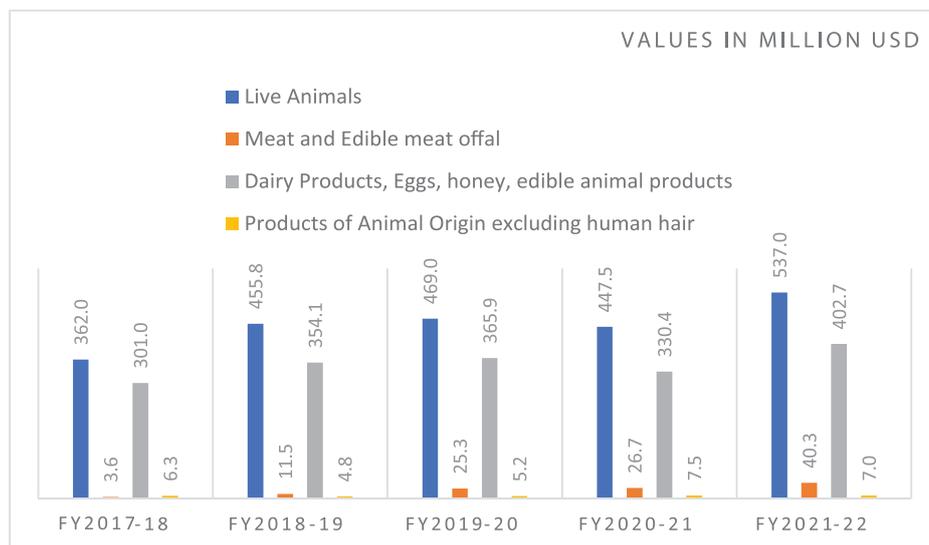
Table 28: Destination analysis of Bangladesh and global perspective

Sl. No.	Export Destination of BD	Export share (%)	Global Importer	Import share (%)
01: Live animals				
1.	MV: Maldives	92.9	United States of America	13.57
2.	AE: United Arab Emirates	2.5	Italy	7.63
3.	GB: Great Britain	2.0	Germany	6.18
4.	LK: Sri Lanka	1.1	Netherlands	5.79
02: Meat and edible meat offal				
1.	MV: Maldives	51.1	China	20.73
2.	KW: Kuwait	21.5	United States of America	7.87
3.	VN: Vietnam	8.4	Japan	7.21
4.	CN: China	0.2	Germany	4.79
04: Dairy Products, Eggs, honey, edible animal products				
1.	IN: India	30.9	Germany	10.35
2.	JP: Japan	26.9	China	9.43
3.	PH: Philippines	10.8	Netherlands	5.08
4.	BN: Brunei Darussalan	9.1	France	4.84
05: Products of animal origin				
1.	HK: Hong Kong	39.1	Germany	10.88
2.	VN: Vietnam	30.2	United States of America	10.85
3.	CN: China	11.0	China	9.56
4.	KR: Korean Republic of	7.4	Japan	5.79

Source: Export Promotion Bureau (EPB) and International Trade Centre (ITC) data

The table (28) indicates the country-wise export performance of livestock sector in FY 2021-22. Top 4 exporter countries are selected to show the export performance of each livestock product. Bangladesh' top most exporter countries for exporting meat products are Maldives, Kuwait, Vietnam and Malaysia. Bangladesh exports dairy products to India, Japan, the Philippines, Brunei Darussalam, and USA.

Figure 45: Import scenario of livestock sector



The figure (45) indicates that the import of products of animal origin excluding human hair was US\$ 7 million in 2021. Import of dairy products, eggs, honey, edible animal products was US\$ 330.4 million while it was US\$ 365.9 in 2019. The figure also shows that in FY 2018-19 the total import growth was 23% while in FY 2021-22 the total import growth was 22%.

The five years average growth from year 2017 to 2021 in livestock sector is 11%. The figure, clearly shows that the volume of import of live animals and animal products and dairy products, eggs, honey, edible animal products are greater than that of other products of livestock sector.

According to Department of Livestock Services (DLS) analysis, Bangladesh's milk market is valued at US\$ 2.47 billion and is anticipated to expand by more than 5% yearly in the future years. It is a large market that merits local and foreign direct investment, as well as a lucrative industry for investment diversity.¹³⁵ Rangpur Dairy & Food Products, a producer of dairy and non-dairy products derived from milk in the country, has decided to invest USD 715.67 thousand to purchase machinery. The company, generally known as RD Food, projects a 15-18% boost in annual revenue as a result of the investment. The increased investment is expected to increase profits by 12 to 15 percent.¹³⁶ According to its financial statements, Rangpur Dairy & Food Products' typical annual sales is over USD 5.1 million and its net revenue is greater than USD 306.72 thousand*.

In case of livelihood sector, in a significant boost to the nation's livestock industry, the FAO, DLS and Ministry of Fisheries and Livestock, announced that 5,500 farmer organizations will be established and receive funding very soon. These groups will increase livestock farmers' productivity, give them better access to markets, and strengthen their resistance to hazards like climate change. They will be organized into 61 districts and will consist of beef, goats, sheep, cattle, dairy buffalo, and poultry.¹³⁷

¹³⁵ Bangladesh Dairy Industry: A Lucrative Sector for Investment Heterogeneity, publication of the Institute of Chartered Accountants of Bangladesh available at: <https://www.icab.org.bd/publication/news/4/449/Bangladesh-Dairy-Industry:-A-Lucrative-Sector-for-%20%20Investment-Heterogeneity>

¹³⁶ Financial statements of Rangpur Dairy & Food Products', Available at: https://rdmilk.com/themes/rd_milk/assets/psi-pdf/Annual-Report-2021-2022.pdf

¹³⁷ Development of livestock sector to be accelerated by investment in thousands of new producer groups, available at: <https://www.fao.org/bangladesh/news/detail-events/es/c/1455593/>

* Exchange rate: 1 USD= 97.81 BDT, BBS 2022-23

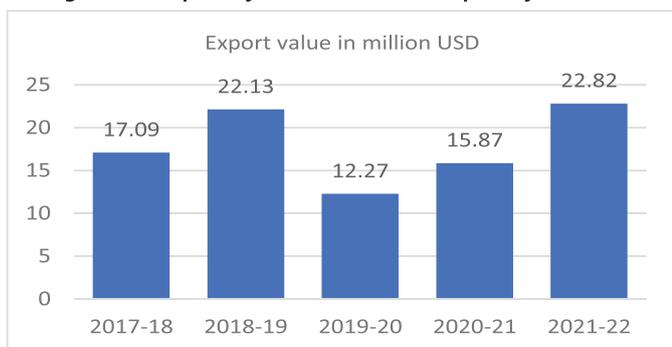
Gender perspective in livestock sector

In rural areas, women are the main managers of small livestock and poultry farms. Every year, around 0.2 million people participate in these activities under the Department of Livestock, with women comprising about 25-30% of the participants. Women's participation in livestock and poultry farming activities is approximately 25%. The Livestock and Dairy Development Project (LDDP) is being implemented in 61 districts of 8 divisions from January 2019 to December 2023. The scheme has a total of 1,91,000 beneficiaries, of which 50% (95,000) are women beneficiaries. In the fiscal year 2021-22, 154,254 women worked in the livestock sector, representing 44.80% of all workers. In the fiscal year 2022-23 in the livestock sector the total budget was USD 402.12 million among which 43.78 percent (USD 176.04 million) for women.¹³⁸

Impact of COVID-19 on the livestock sector

The main markets for livestock sector have been severely buffeted by COVID-19. By looking at the yearly variation in export performance of livestock sector, the impact of COVID-19 pandemic on the sector is shown in the figure (46) below. The export value was falling from FY 2019-20 but exporting of the sector gained momentum again in FY 2020-2021. In FY2019-20, export of livestock products fell to 12.27% from 22.13% export in FY 2018-19.

Figure 46: Impact of COVID-19 on the export of livestock sector



Source: Export Promotion Bureau

Bangladesh Bank, vide ACD Circular No. 01/2020, had formed re-finance scheme of USD 511.20 million from its own fund for horticulture, fisheries, poultry, dairy and livestock. This loan had been provided to the farmers/farms at 4 percent interest by the banks and the banks would get refinance at 1 percent from BB.

Policies governing the livestock sector

The following regulations, acts and policies regulate the livestock sector:

Regulations

Bangladesh Animal Feed Rules 2013: Animal Feed Rules 2013 were issued by the Ministry of Fisheries and Livestock to regulate the quality and standard of animal feed and its manufacture, import, export, preservation, marketing, and use. The Rules address licensing requirements and procedures, approving the quality of feed and its contents, including conventional food, maintaining feed quality with sufficient energy, protein, and nutrition, as well as age-specific standards for various animal species.¹³⁹

Policies

The National Livestock Development Policy 2007: The National Livestock Development Policy 2007 addresses ten key policy areas. These are: Dairy Development and Meat Production, Poultry Development, Veterinary Services and Animal Health, Feeds and Fodder Management, Breeds Development, Hides and Skins, Marketing of Livestock Products, International Trade Management for this sector, Access to Credit and Insurance, and Institutional Development for Research and Extension.¹⁴⁰

¹³⁸ Gender Budget Report FY 2022-23, Finance Division, Ministry of Finance, 2022.

¹³⁹ Bangladesh: Bangladesh Animal Feed Rules 2013, available at: <https://www.fas.usda.gov/data/bangladesh-bangladesh-animal-feed-rules-2013>

¹⁴⁰ Portal of Ministry of Finance, Government of Bangladesh

https://mof.portal.gov.bd/sites/default/files/files/mof.portal.gov.bd/budget_mof/d9f53c16_c377_420a_9ba4_271ef1396986/G-1_09_144_Fisheries_English.pdf

The Export Policy, 2021-24: Halal meat and meat products are identified as a special developmental sector in export policy 2021-24.

Import Policy Order, 2021-24: The main features of the Import Policy Order, 2021-24 are: In case of importation of ducks, chickens and birds, a free form of Avian Influenza certificate issued by the appropriate authority of the exporting country should be submitted to the custom authority. In case of importation of meat, a form of ‘Mad Cow Disease Free’ certificate issued by the appropriate authority of the exporting country should be submitted to the custom authority. In case of importation of meat and bone meal from other animal sources, the free form including: Bovine Spongiform Encephalopathy (BSE), Transmissible Spongiform Encephalopathy (TSE), anthrax and tuberculosis certificate issued by the appropriate authority of the exporting country should be submitted to the custom authority.

Subsidy/cash incentives for the livestock sector

20% export subsidy/cash incentive is applied for 100% halal meat and 100% halal processed meat products. 10% export subsidy is applied for the export of bovine guts, horns and tendons (excluding bones) of cattle and buffaloes. Exemptions of import duty is applied on several dairy and poultry feed capital machineries.¹⁴¹ Moreover, livestock rearing and poultry are exempted from Corporate Income Tax (CIT) for different income slabs.

Challenges and opportunities of the livestock sector: findings from the SWOT analysis

SWOT analysis identified the following major strengths, weaknesses, opportunities, and threats that could impact the growth of the livestock sector:

Table 29: SWOT analysis of livestock sector

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. Abundance of poultry and livestock 2. Diversified Livestock Production 3. Strong government support 4. Favorable environment for rearing 5. Educated entrepreneurs 6. Improved cross breed development 7. Availability of potential indigenous genetic resource 8. Availability of high yielding cow 9. Low cost of housing for livestock (can be made with traditional housing materials) 10. Availability of crop by-products as feed 11. Increase of domestic livestock production 	<ol style="list-style-type: none"> 1. Low availability and high price of feed and fodder 2. Inadequate milk collection and processing facility 3. Limited grazing space for animal resources 4. Poor waste management practices (feed waste) spread contagious disease in animals, poultry and dairy 5. Limited R&D facilities 6. Lack of implementation and enforcement of compliance and traceability system 7. Inadequate qualified veterinary medical personnel 8. Lack of quality control facilities for medicine, vaccines, feed and feed ingredients, chicks, eggs, birds etc 9. Absence of system for providing market information to smallholders 10. Poor quality of slaughter houses

¹⁴¹ Agribusiness Sector Profile, Available at- <https://bida.gov.bd/storage/app/uploads/public/625/658/1db/6256581db4fd1719994967.pdf>

Opportunities	Threats
<ol style="list-style-type: none"> 1. High demand for quality livestock products 2. Emergence of newer & stronger varieties through crossbreeding of commercial livestock 3. Women's empowerment and involvement in the livestock 4. Employment opportunities 5. Introduction of Halal certification 6. Use of number of livestock as an instrument in getting access to Conditional Cash Transfer (CCT) Programs of the government. 7. Online training for livestock farmers and telephone-based solution and app-based knowledge sharing platforms 	<ol style="list-style-type: none"> 1. Absence of disease diagnosis and treatment facilities including biosecurity 2. Lack of physical security of animal resources 3. Limited access to finance, particularly to MSMEs 4. Seasonal influence and risk of animal-based pandemics (e.g. bird flu, swine flu) 5. Constraints in ensuring food safety for the consumers 6. Small livestock (e.g., goat) susceptible to water related injuries and death

Source: BFTI findings generated from KII and Stakeholder Consultation

Key strengths

Abundance of poultry and livestock: Livestock sector plays a dynamic role in rural economic development and a significant number of people in Bangladesh depend on the cattle and chicken sector because they can rear chickens and cows at home. According to the Bangladesh Poultry Industry Central Council (BPICC), Bangladesh's poultry sector currently contributes 1.5 to 1.6 percent of the country's GDP.

Favorable environment for rearing: Bangladesh's climate is perfect for nurture cows, chickens and other animals. Despite the challenges, cattle and poultry can be effectively raised in rural areas on commercial basis.

Educated entrepreneurs: In Bangladesh the number of educated entrepreneurs in cattle and poultry business increases with time. As a result, a large number of the country's young people are now earning their livelihood by opening cattle and poultry farms rather than sitting jobless after graduation. According to Frontiersin, over 93% (92.6) of layer poultry farms and more than 78% (78.3) of broiler chicken farms have higher academic credentials ranging from secondary level. Educated farmers can manage their farms with updated knowledge and technology, adequate supply feed, and administer required medications. As a result, they are reaping big profits, and the sector is expanding rapidly.

Availability of crop by-products as feed: In Bangladesh, large scale animal production is general based on commercial feeds rather than the provision of fodders. On the other hand, small and marginal farmers feed their livestock with different crop residues and grasses. The feed milling industry is remarkably dependent on imported concentrate feeds for the animal ration. The manufacture of the core crops is huge all year round which offers an abundant opportunity to use the by-products of these main crops as animal feed commercially if appropriate techniques are followed.

The other strengths of the livestock sector are improved cross breed development, availability of Potential Indigenous genetic resource, availability of high yielding cow and low cost of housing for livestock (can be made with traditional housing materials).

Key weaknesses

Low availability and high price of feed and fodder: The country has insignificant percentage of its cultivable area under fodder production. Area under permanent pastures has been decreasing steadily. Most of the animals depend on the agricultural bi-products like green grass, straw and cereal milling by-products. Fodder cultivation is not a common practice in Bangladesh.

The cattle in the small farms are supplied with green grasses mostly grown on fallow lands, crop field boundaries, embankments and side of roads. The situation becomes very worse during flood and dry season. Hence the price of feed and fodder are increasing gradually.

Limited R&D: There is a lack of R&D facility which constrains the availability of quality breed animals and required knowledge and technological know-how for maintaining the quality breed varieties.

Lack of qualified veterinary medical personnel, inadequate medicine and vaccine: Animal diseases are also among the most important constraints to livestock development in Bangladesh. In fact, animal disease alone constitutes half of the causes of death of all livestock population. But in Bangladesh, inadequate coverage of animal health services. There is lack of veterinary medical personnel, inadequate medicine and vaccine to protect livestock sector from animal diseases.

Absence of system for providing market information to smallholders: Selling farm produce is an important problem, particularly for the smallholders in Bangladesh. In Bangladesh, there is no developed formal marketing network and market information system for livestock products to support small holder commercial farmers in the rural area.

Inadequate grazing space for animal resources: In Bangladesh, there is lack of grazing space and physical security of animal resources. Grazing lands have been declining steadily. Traditional bathan or grazing lands, which have been used for milk production and cattle, are now converted into ponds and croplands etc. In rainy season, there is limited grazing facilities.

The other weaknesses of the livestock sector are limited milk collection and processing facility, lack of improved waste management practices (feed waste) spread contagious disease in animals, poultry and dairy, lack of R&D facilities, lack of implementation and enforcement of compliance, lack of skilled labor and qualified personnel and poor quality of slaughter houses.

Key opportunities

High demand for quality livestock products: Cattle and chickens of various brands are graded and sold in supermarkets in Europe and America. Although there is no defined brand for poultry goods in our nation yet, Bengal has concentrated on branding chicken and meat products in recent years. Some start-ups, such as Protein Market and Royal Meat, offer branded chicken products, and meat online.

Emergence of newer & stronger varieties through crossbreeding of commercial livestock: The Central Cattle Breeding and Dairy Farm (CCBDF) established in 1960 at Savar under the Department of Livestock Services (DLS) has been pursuing a breeding programme involving several imported breeds and maintain a large number of breed lines. Newer and stronger varieties of cattle and poultry are produced through crossbreeding. Due to the phenomenon of hybrid vigor, the special features including: disease resistance, increased fertility, feed efficiency and longevity animal are produced.

Women 's empowerment and involvement in the livestock: 2.5 million people are engaged in the poultry business nearly and implicitly engages 3.5 million people, having women accounting for 40% of the workforce.¹⁴²

The other opportunities of the livestock sector are employment opportunities, introduction of halal product certification, use of livestock as an instrument in getting access to Conditional Cash Transfer (CCT) Programs of the government and online training for livestock farmers and telephone-based solution and app-based knowledge sharing platforms.

¹⁴² Self Sufficiency in Protein: Poultry Industry in Bangladesh, available at:
<https://businessinspection.com.bd/poultry-industry-in-bangladesh/>

Key threats

Absence of disease diagnosis and treatment facilities: Animal disease diagnostic tools and services are almost absent. There is lack of facilities for animal diagnosis center. In Bangladesh, shortage of manpower in cattle and poultry disease diagnosis, management are one of the main challenges in livestock sector. Veterinary diagnosis services so far are based on the clinical diagnosis.

Seasonal influence and risk of animal-based pandemics (e.g. bird flu, swine flu) in the livestock sector: Livestock sector has been affected by various type of seasonal influences and pandemics. In 2007, 2009, 2011, and 2017 poultry industry was attacked by Avian Influenza. Therefore, the poultry industry endured a loss of USD 62.31 million*. There are numerous diseases that affect cattle throughout the year, such as worms, scurvy, PPR, aquaphobia, blood dysentery etc.

The other threats of the livestock sector are lack of physical security of animal resources, small livestock (e.g., goat) susceptible to water related injuries and death, limited credit support from banks, constraints in ensuring food safety for the consumers, lack of quality control facilities for medicine, vaccines, feed and feed ingredients, chicks, eggs, birds etc.

*Exchange rate: USD 1= BDT 97.81, BBS 2022-23

Software & IT related Services Sector

Overview of the sector

Software development and IT-enabled services are well embodied in the Bangladeshi IT industry. These services are acknowledged as having one of Bangladesh's most promising export-potential industries, supported by an ample young, cost-competitive workforce that is fluent in English, as well as an increasingly dependable communication and power infrastructure.

Broadly, computer services include software, data processing and hosting, installation, maintenance and repair of computers and peripheral equipment, consultancy and information services contain information services for news agency and other than news agency (citizens, clients, service receivers). To be specific, in this study the computer services and information services term will be used interchangeably with software and IT-related services sector.

The information technology (IT) services market comprises services used by organizations to create, manage, and deliver services, next to assisting with other business functions. The market is divided into four segments IT consulting & implementation, Business Process Outsourcing, IT Outsourcing, and Other IT Services.¹⁴³

The software and IT-related services sector will keep growing in importance as a component of the business. The sector, followed by Business Process Outsourcing and Application Outsourcing, has contributed most to the market growth due to the ongoing digital transformation and automated business operations.

Policymakers have identified some points to realize the objective of developing a Smart Bangladesh. 'Smart Bangladesh 2041' focuses on smart education, smart health care, smart agriculture, smart trade, smart transportation, and so on. Thus, 'Smart Bangladesh' includes 'smart citizens, smart economy, smart government, and smart society'.

Bangladesh government has identified software and IT-related services as a "thrust sector" as it represents likely successful reforms, job creation, industry growth and high spillover effects to other sectors as well as improving governance and facilitating inclusion. The sector in Bangladesh, especially the software and IT-related services, is moderately small compared to the dimension of its national trade, and the size of the national economy. However, the software and IT-related services sector in this country has started promptly growing in recent times. It also can be a great means to create employment for the educated youth of this country without creating much pressure on its environment and limited resources. Moreover, it can play an important role in women's empowerment too in a way. Some facts that there are more than 750 thousand ICT professionals, 650 thousand registered freelancers and 4500 IT/ITES firms.¹⁴⁴ Furthermore, there are 126.18 million ¹⁴⁵ internet subscribers (mobile+ ISP & PSTN) till October 2022 (BTRC, 2022) with wide range of 4G internet coverage and initiative for 5G internet is on the progress. Information and communication sector including software and IT-related services contributed 1.29% to GDP in FY 2020-21.¹⁴⁶ A milestone for Bangladesh is Bangabandhu Satellite-1 which is the first Bangladeshi geostationary communications and broadcasting satellite. By using its bandwidth and frequency, it is possible to provide high-speed internet facilities in areas deprived of internet such as hilly and haor areas.

Global Overview of the sector

The world import demand for software and IT-related services amounted to \$499.34 billion in 2020 (ITC) when Bangladesh contributed 0.06 per cent. In terms of export, the software and IT-related services exports grew on average (CAGR) by 11.54% from 2006 to 2020.

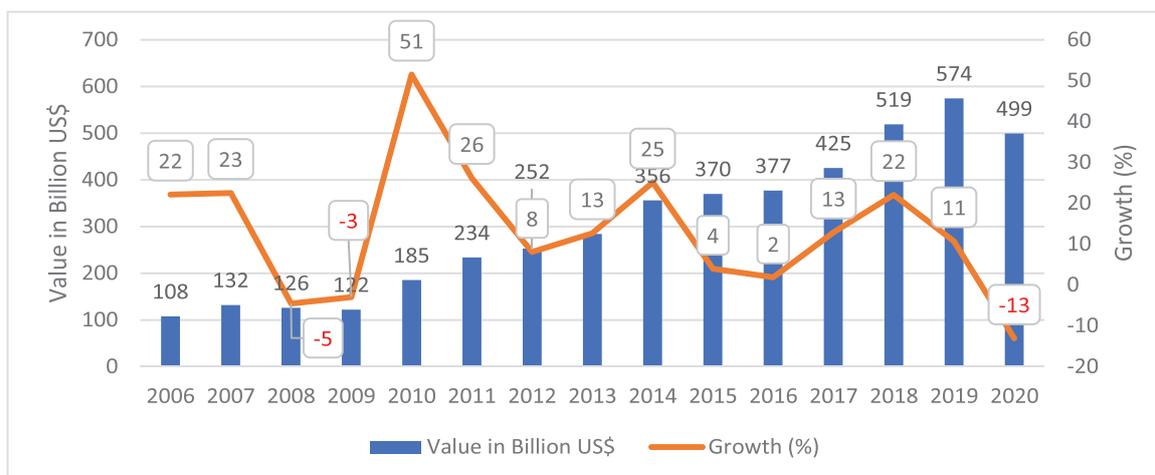
¹⁴³ <https://www.statista.com>, available at: <https://www.statista.com/outlook/tmo/it-services/worldwide>

¹⁴⁴ Bangladesh Investment Development Authority (BIDA), Retrieved on December 15, 2022

¹⁴⁵ Bangladesh Telecommunication Regulatory Commission, Retrieved on 15 December 2022

¹⁴⁶ Gross Domestic Product (GDP) of Bangladesh 2021-2022 (p), Bangladesh Bureau of Statistics (BBS), Retrieved on 15 December 2022Export status

Figure 47: World export scenario of software and IT-related services



Data source: International Trade Centre (ITC)

The sector experienced volatile export growth trends from FY 2015-16 to FY 2021-22 (in 7 fiscal years) in Bangladesh. Although, the sector attributed an average of 4.5 per cent growth during the same period of service export earnings. The global demand for data processing, hosting, and consultancy services were stoked by the coronavirus pandemic, and Bangladesh's export of computer services fetched \$592.06 million in fiscal 2021-22, up 94.91 per cent year-on-year and revenues from the sales of software, IT-enabled services like hosting and data processing, installation, maintenance and repair of computers and peripheral equipment services and computer consultancy services. But information services export dropped around 64 per cent year-on-year to \$0.36 million in FY 2021-22 (data source: EPB).

Import status of Bangladesh

Bangladesh has negligible telecommunication and information services import demand which was about US\$ 108 million in FY 2016-17 and US\$ 104 million in FY 2020-21. In FY 2016-17, import of telecommunication and information services constituted 1.45% of total service import which was 2.37% in FY 2020-21 (data source: BB).

Market access

One of the most frequently committed business and professional services categories for WTO members is computer-related services (CRS). Additionally, compared to other service sectors, it is one of the areas where cross-border supply (mode 1)¹⁴⁷ has fewer if any, restrictions and greater commitments. This reflects the industry's openness at the time the great majority of market access promises were made, in the middle of the Uruguay Round discussions, in the 1990s. Additionally, it acknowledges the reach and connections across IT organizations on a global scale.

Investment including FDI

The country has received about US\$28 million per fiscal year of foreign direct investment during the past decade for the computer software and the IT sector. The FDI in computer software and the IT services sector attracted 1.33 percent of total FDI inflows in services to Bangladesh in 2021 (data source: BB).

¹⁴⁷ Mode 1 — Cross border trade: from the territory of one member into the territory of any other member such as a user in country A receives services from abroad through its telecommunications or postal infrastructure. Such supplies may include consultancy or market research reports, tele-medical advice, distance training, or architectural drawings.

Gender perspective in Software and IT sector

The representation of women in the IT sector is still low, with few holdings leadership or ownership positions. According to BASIS (2017), women made up 19.6 percent of all IT sector employees in 2017, with only 2-3 percent being women entrepreneurs and 12 percent being professionals in the sector. Women are underrepresented in top positions (14.4 percent) but constitute a larger proportion of employees in entry (23.3 percent) and mid-level (18.5 percent) positions. The Ministry of Commerce has developed an action plan as part of the National Digital Commerce Policy, 2018, which includes providing specialized training for women entrepreneurs to facilitate their participation in digital commerce.¹⁴⁸ This will enhance women's inclusion in digital commerce and make their path towards employment smoother. The Export Policy 2021-2024 aims to increase women entrepreneurs' participation in exports by fostering effective linkages with export-oriented industries, developing their information technology and export-related skills, providing training for their participation in e-commerce, offering unsecured loans with easy terms and low-interest rates, and providing special and preferential incentive packages announced by the government. Additionally, loan disbursement facilities will be made available to women entrepreneurs.¹⁴⁹

The Ministry of Commerce (MoC) provided general training activities to 66 women and 174 men during the fiscal year 2021-22. Additionally, 5625 women are currently benefiting from the Ministry's activities under the E-Commerce Build Your Own Business project. As per MoC the total budget in 2022-23 for this department was \$57.54 million among which 17.98 percent (\$10.35 million) for women. However, there is a significant potential for women to take advantage of the expanding opportunities in the IT sector, including through public training programs. The Women ICT Frontier Initiative (WIFI) by UNESCAP has developed ICT training modules for women, which are being translated into Bangla and expected to reach 25,000 women. Additionally, the Women's Forum on Women in IT by BASIS is working towards developing the professional capacity of women employed in the IT sector and those leading IT firms.

Policies governing the sector

Bangladesh government declared "ICT products and services" as "National Product of the Year 2022" at the Dhaka International Trade Fair (DITF) aimed at encouraging product-based export and also simultaneously stressed the need for taking appropriate measures to strengthen the software and IT-related services sector and help explore its export potential.

8th Five-Year Plan: The 8FYP has given special emphasis on the export of ICT services, including software development. A program of digitizing public services, which includes employee training, will facilitate a quicker acceptance of e-services in the public sector. A special effort will be made to improve ICT education and employee availability. Through investments in technology parks and government funding of ICT research and development, a focus will be placed on the production of ICT soft goods for export. 8th FY plan also includes a special section for telecommunication sector strategies which has included digital transformation, fourth industrial revolution (4IR), future networks and 5G, domestic and international transmission capacity, utilizing the potential of space technology, ensuring digital security and privacy, bridging the standardization gap, creating internet of things (IoT) and machine to machine (M2M) communication ecosystem, cloud infrastructure for future computing needs, bridging 'digital divide', address the changing demands for digital skills, enhance research and development and manufacturing of telecommunication and IT equipment and products and restructuring institutional framework.

¹⁴⁸ Gender Budget Report FY 2022-23, Finance Division, Ministry of Finance, 2022.

¹⁴⁹ Women's Participation, Constraints, and Opportunities for Trade in Bangladesh, Australian Aid, Partnership for South Asia, World Bank Group, 2016.

Export Policy, 2021-24: The software and IT-related services sector is the top prioritized sector in service. Several points are mentioned in the policy including the supply of investment credit at a reduced rate of interest on a high-priority basis; moratorium on income tax along with others.

National Industrial Policy 2022: The software and IT-related services sector has been considered one of the highest-priority service sectors.

Other Policies and Strategies related to the Sector: National Digital Commerce Policy, 2018, Digital Business Identity (DBID) Registration Guide 2022, National Blockchain Strategy: Bangladesh (2020), Data Centre Guide 2020, National Internet of Things Strategy Bangladesh (2020), National Strategy for Artificial Intelligence Bangladesh (2020).

Sector-Specific Incentives:

- 10% export subsidy for the export of software, ITES and the individual freelancer gets 4% export incentives against software and ITES;¹⁵⁰
- Lower custom duty (CD) in cellular phone parts and machinery imports for manufacturers (SRO-116-AIN/2021/05/Customs);
- Lower duty and taxes in importing computer parts, accessories, PCB, PCBA, and related digital goods for local manufacturing (SRO-127-AIN/2021/16/Customs);
- Up until June 30, 2024, there is a tax holiday for income from the nationwide telecommunication transmission network (NTTN), information technology-enabled services providers, and operators;¹⁵¹
- Producers of hardware products such as motherboards, cases, UPSs, speakers, sound systems, power supplies, USB cables, CCTVs, and pen drives are eligible for a 10-year tax break.

Impact of COVID-19 on the sector

Although, the markets for computer and information services exported from Bangladesh to the world are limited. All of the major markets have been severely buffeted by COVID-19. The major impacts of Covid-19 in a holistic approach might be a fall in revenue, rises in net operating losses of ICT firms and the possibility of bankruptcy, sudden shock and fall in productivity, high rate of unemployment, fall in investments, a major blow to the freelancers, lower bandwidth, disruption of revenues of the ISPs, the rise of import of digital devices and rise in time shipment's arrival due to global supply chain breakdown, and fall in the local production of digital device.

Smaller spending for software solutions as a result of businesses tightening their belts during the economic downturn caused the market to decrease in 2020. However, the pandemic has also helped businesses understand how urgent it is to become digital. Beyond the continued increase anticipated for 2021, which will see expenditure on business software moving closer to the 500 billion US dollar benchmark, the software will continue to play an increasingly larger role as the engine of digital transformation in the years to come.¹⁵²

Challenges and opportunities of the software and IT-related service sector: findings from the SWOT analysis

SWOT analysis identified the following major strengths, weaknesses, opportunities, and threats that could impact the growth of the software and IT-related service sector:

¹⁵⁰ Bangladesh Bank (BB), available at: <https://www.bb.org.bd/mediaroom/circulars/fepd/sep192022fepd26.pdf>

¹⁵¹ <https://bida.gov.bd/information-technology>

¹⁵² Statista.com available at <https://www.statista.com/markets/418/topic/484/software/#statistic1>.

Table 30: SWOT analysis of software and IT-related service sector

<p>Strengths</p> <ol style="list-style-type: none"> 1. Cost-competitive young workforce 2. Low infrastructure cost (i.e., internet cost, electricity, hardware, etc.) 3. Setup of Hi-Tech Park at different levels 4. Capacity to adapt new technology 5. Quick learning 6. Social contributions through applications, web portals and other digital initiatives like Surokkha, MyGov, a2i, Union Digital Centre etc. 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Insufficient supply of quality ICT HR 2. Low level of training and skills in the workplace 3. Limited collaboration between academia and industry 4. Lack of IT friendly curriculum at school, college 5. Inadequate power supply 6. Insufficient Cyber security 7. High attrition rate 8. insufficient mechanism for quality testing, certification and accreditation. 9. Absence of widely used international payment solutions like PayPal
<p>Opportunities</p> <ol style="list-style-type: none"> 1. Demographic dividend 2. Growing IT infrastructure Including establishment of IT village 3. Nationwide connectivity 4. A favorable policy structure (SMART Bangladesh, top priority sector in Export Policy 2021-2024, incentives, etc.) 5. Reduction of VAT and exemption from corporate income tax 6. An increasing domestic and international demand 7. Startup and Freelancing opportunity 8. NRB (Non-Resident Bangladeshi) community 9. To some extents, low-cost market entry 10. Expanding scope of e-commerce 11. Leveraging 4IR technology 	<p>Threats</p> <ol style="list-style-type: none"> 1. Stringent imposition of IPR (intellectual property rights) due to LDC graduation after 2026 2. Unregulated entry of foreign firms in Bangladesh to source local IT human resource (HR) 3. Brain drains to foreign countries 4. Language barrier 5. Unfavorable labour law 6. Bottleneck to access finance 7. Lack of friendly start-up ecosystem 8. Costly imported materials 9. Lack of cross-border eCommerce policy and data protection policy

Source: Ranked based on stakeholders' prioritization from Stakeholder Consultation

Key strengths

Cost-competitive young workforce and low infrastructure cost: The study identified that a cost-competitive young workforce and low infrastructure cost (i.e., internet cost, electricity, hardware, etc.) are the key strengths of the sector.

Setup of Hi-Tech Parks: Hi-Tech Parks set up by the government also strengthened the industrial base of this sector. Bangladesh Hi-Tech Park Authority has been working for socio-economic development by establishing Hi-Tech Parks/ Software Technology Parks /IT Training and Incubation Centers in different areas of the country to ensure employment of the country's huge youth population and create skilled human resources. 28 Hi-Tech Parks (HTP)/Software Technology Parks (STP)/IT Training and Incubation Centers across the country have been set up so far.

Capacity to adapt new technologies and quick learning: Entrepreneurs' capacity to adapt to new technology and quick learning ability are also regarded as the strengths of this sector. An educated, trainable and young workforce working in this sector possesses the required skill sets to compete in the global scenario.

Moreover, this sector made significant contributions through applications, web portals and digital initiatives like Surokkha, MyGov, a2i, Union Digital Centre, etc. to the national and social development of Bangladesh.

Key weaknesses

Insufficient supply of quality ICT HR and inadequate training and skills in the workplace: The study found that there is a lack of qualified personnel in various activities of the ICT sector, which includes data entry, software development, graphics animation, communication and other ICT-related activities. The majority of the current workforce excels in pure technical tasks, such as programming and networking. The industry faces the shortage of a strong pool of mid-level product/project managers due to training inadequacy.

Limited collaboration between academia and industry and lack of IT-friendly curriculum at school, and college: Though every year a large number of IT graduates enter the market, most of them are not well acquainted with the industry needs due to lack of proper training and industry-oriented education. Lack of IT-friendly curriculum at school, and college, limited collaboration between academia and industry and insufficient training and skills development activities are creating skill gaps in this sector.

Moreover, issues like inadequate power supply and insufficient cyber security are limiting this sector's prospects. Additionally, the absence of widely used international payment solutions like PayPal and other online payment systems is restricting access to the global IT industry.

Key opportunities

Growing IT infrastructure Including establishment of IT villages: The establishment of IT villages can be a major opportunity for the software and IT-related services sector in the future. Construction of Hi-Tech Parks, Software Technology Parks, IT Training and Incubation Centers across the country is underway which will facilitate FDI, Human resource development to ensure IT skilled resources to lead the Hi-tech and software technology sector.

Nationwide connectivity: Nationwide internet and cellular connectivity and tech-savvy young workforce are providing ample opportunities for entrepreneurship, outsourcing and freelancing in this sector.

Favorable policy structure: Favorable policy structures like SMART Bangladesh vision, designation as a top priority sector in Export Policy 2021-2024, incentives, reduction of VAT and exemption from corporate income tax present opportunities for entrepreneurship and IT business development as well as expansion. Driven by the government's SMART Bangladesh vision, demand for digitalized and IT products is increasing in the domestic market.

Also, global demand for IT products and services is accelerating as the study found out that the software and IT-related services exports grew on average (CAGR) by 11.54% from 2006 to 2020. Moreover, the government has drafted a digital commerce act experiencing the phenomenal growth of this sector which may impact IT sectoral growth profoundly.

Key threats

Stringent imposition of IPR: Stringent imposition of IPR (intellectual property rights) due to LDC graduation after 2026 is likely to create many challenges for sustaining the growth of the IT sector.

Brain drains to foreign countries: Insufficient opportunities and facilities for qualified IT experts result in a brain drain curbing the sector's capacity to provide advanced IT services. Not only do the developed countries have more advanced and growing technology markets, but they also offer relevant training and education programs. As a result, a prospective software engineer, data analyst, or IT expert sees a much brighter and more valuable future abroad than in a country like Bangladesh, where the Fourth Industrial Revolution is just starting to take hold.

Unfavorable labour law: Existing labour law has not adequately addressed the labour-related issues of this sector including flexible working hours, work from home, benefits systems, etc. that may lead to violation of labor rights.

Moreover, unregulated entry of foreign firms in Bangladesh to source local IT human resources threatens the IT sector with potential adversities. IT personnel lack adequate language skills which limits their scope to explore international markets. IT entrepreneurs face challenges to get access to traditional collateral-based loans which hinders their business expansion. Lack of cross-border eCommerce policy and data protection policy challenge the seamless operations of IT businesses.

Tourism Sector

Overview

Tourism is a potential and growing industry in Bangladesh but yet it has not been flourished as expected compared to the neighboring countries in South and South East Asia. Tourism sector of Bangladesh has grown with the pace of economic growth in the past decade, as many people are having sizeable disposable income. Total contribution of tourism and travel sector to the GDP of Bangladesh was USD 8.59 billion in 2016 (4.3 percent of the GDP) and was forecasted to rise by 7.1 percent per annum raising the total amount to USD 18.2 billion by 2027¹⁵³ (4.7 percent of the GDP) (WTTC, 2017). In FY 2020-21,¹⁵⁴ the export of travel sector was amounting to USD 218.69 million which was USD188.41 million in the previous year of the same period. It implies an annual growth of 52% since after the breakout of Covid-19 pandemic and the sector is rebounding back to its growth path.

Along with many other sectors, tourism has a huge but unrealized potential. It could become one of the major exports earning service sectors of Bangladesh if its potentials could be properly realised. Tourism sector is closely interconnected with many other service sectors, and has the capacity, by its very nature, to generate positive effects on various areas of socio-economic development of the country. In addition, cultural diversity and the inherent welcoming nature of Bangladeshi people have created a favourable environment to attract foreign tourists and augment foreign exchange earnings. To expand the tourism sector country-wide, the government of Bangladesh has designed several policies, like the Mid-Term Budgetary Framework (MTBF) under the umbrella of the 7th FYP. In addition, the government also declared tourism as an industry, and the year-2016 as the “Tourism Year” with several fiscal and monetary incentives for the development of this sector. Tourism is also considered as a special development service sector under the Export Policy 2021-2024.

According to World Travel and Tourism Council (WTTC), the direct contribution of Travel and Tourism to world GDP increased by US\$1 trillion (+21.7% rise) in 2021. In 2019, the Travel & Tourism sector contributed 10.3% to the global GDP. The direct contribution of Travel and Tourism to GDP was USD 7,833 million (2.2% of total GDP) in 2021 for Bangladesh and its total contribution to employment was 1.73 million (2.6% of total jobs). Along with this, international visitors spent USD 167.2 million in 2021 in Bangladesh.¹⁵⁵

Table 31: Overview of tourism sector

Feature	2019	2020	2021
Total contribution of Travel & Tourism to GDP and Employment in Bangladesh			
GDP	3.00% BDT 835.0 BN USD 9813.7 MN	1.90% BDT 529.9 BN USD 6227.8 MN	2.20% BDT 666.5 BN USD 7833.4 MN
Employment	1.86 MN 2.9% of total jobs	1.61 MN 2.6% of total jobs	1.73 MN 2.6% of total jobs
Domestic vs International Spending			
International visitors spend in Bangladesh	USD 369.6 MN 0.7% of total export	USD 197.5 MN 0.5% of total export	USD 167.2 MN 0.4% of total export
Inbound Arrivals	India (53%)		India (60%)
	China (16%)		Saudi Arabia (8%)
	Pakistan (8%)		Malaysia (5%)
	United States (8%)		Thailand (4%)
	South Korea (5%)		Kuwait (3%)
	Rest of the world (11%)		Rest of the world (3%)
Outbound Departures	India (60%)		India (44%)
	Saudi Arabia (8%)		Saudi Arabia (12%)

¹⁵³ World Travel & Tourism Council (WTTC) data 2017

¹⁵⁴ EPB Export Data 2020-21

¹⁵⁵ WTTC, “Travel and Tourism Economic Impact 2021

Feature	2019	2020	2021
	Malaysia (5%)		United Arab Emirates (10%)
	Thailand (4%)		Kuwait (6%)
	Kuwait (3%)		Singapore (3%)
	Rest of the world (20%)		Rest of the world (24%)

Source: World Travel and Tourism Council (2021), "Bangladesh 2022 Annual Research: Key Highlights

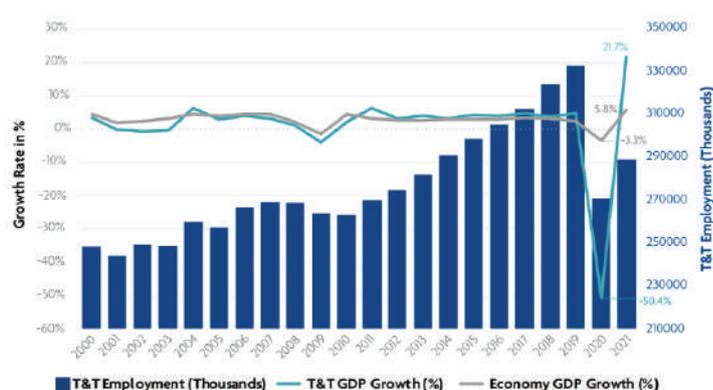
The country is endowed with stunning coastlines and beaches, archeological sites, historical landmarks, and religious locations, as well as hills, islands, woods, and jungles. It also has a picturesque interior with numerous waterways and agricultural fields. It boasts lovely heritage and historical treasures, as well as stunning beaches, notably the world's longest beach. In order to best utilize its natural resources, the nation has created amenities including modern hotels, motels, rest house, youth hostels, restaurants, and communication technologies that can be found at practically all tourist destinations. Some of the better-known tourist spots are: Sundarbans - home of the Royal Bengal Tiger, Sylhet - the land of two leaves and a bud, Mahastangarh - the ancient seat of Buddhist rule, Mainamati - the seat of lost dynasties, Kuakata -where the sun rises and sets in the sea, Cox's Bazar - the tourist capital and St. Martin's Island - pearl in the sea. The only coral island of Bangladesh, Saint Martin's is situated in about 8 km west of the north-west coast of Myanmar at the mouth of the Naf River. The people of Saint Martin's Island called this island as 'Narikel Jinjira'. The Mouza name of this island is 'Jinjira Dwip'. There is surrounding in another coral island of Saint Martin's – which is Chera Dwip.

Overview of global tourism sector

According to World Travel & Tourism Council (WTTC), tourism has directly or indirectly contributed to creating 1 in 4 jobs across the world, implying 10.3% of all jobs amounting 333 million jobs are created by the tourism sector. The sector also comprises 10.3% of global GDP amounting US\$9.6 trillion in 2021. Meanwhile, WTTC Economic Impact Report shows that international visitors spent US\$1.8 trillion in 2019 which is 6.8% of total export across the globe. After the break out of Covid-19 pandemic, the tourism sector faced acute loss amounting to US\$4.9 trillion in 2020. It was estimated by the report that in 2020, 62 million jobs were lost due to pandemic. After that in 2021, the tourism sectoral contribution to GDP increased by US\$ 1 trillion

It is depicted in the Travel and Tourism Economic Impact Report 2022 that before the pandemic breakout, the growth rate of Travel & Tourism sector outpaced the growth of the global economy for nine consecutive years. After a devastating fall of 50.4% in the pandemic period, the sector recovered by 21.7% in 2021 as shown in the figure 48. Meanwhile the global economy bounced back by 5.8%

Figure 48: Travel & tourism (T&T) economic impact timeline, 2000 – 2021



Bangladesh is a middle-income country; where tourism can play a vital role in its GDP growth. Tourism is a growing industry in Bangladesh which has a bright prospect. Meanwhile, the direct contribution of Travel and Tourism to GDP was USD 7,833 million (2.2% of total GDP) in 2021 and its total contribution to employment 1.73 million (2.6% of total jobs).¹⁵⁶ In 2019, the Travel & Tourism sector contributed 10.3% to global GDP¹⁵⁷ while it becomes 5.3% in 2020 and 6.1% in 2021.

¹⁵⁶ World Travel and Tourism Council (2021), "Bangladesh 2022 Annual Research: Key Highlights" PP 1-2

¹⁵⁷ World Travel and Tourism Council (2021), "Travel and Tourism Economic Impact 2021

Export-import trend of tourism sector

Bangladesh has earned USD 218.13 million from foreign traveler in FY 2020-21. This was increased by 31.07% to USD 285.90 million in FY 2021-22. From Bangladesh Bank Statistics, tourism import data is available since FY2015-16. Here, a downward trend is seen in expenditure of Bangladeshi tourist.¹⁵⁸ In FY 2019-20, Bangladeshi travelers spent USD 135.86 million which was decreased by 54.5% to USD 61.82 million in FY 2020-21.

Figure 49: Tourism export and import payment in USD million



Source: EPB and Bangladesh Bank Import Payment of Services

Gender perspective in Tourism Sector

Women's involvement in the tourism sector is very low in Bangladesh though the participation of women has been steadily increasing in recent years. While there are still socio-cultural barriers that limit women's participation in the industry, there has been a positive shift towards greater inclusion and empowerment. In the hospitality sector, women have been able to find employment in a variety of roles, including as hotel staff, such as receptionists and housekeeping staff. However, there is still a need for increased participation of women in other areas such as tour guides, operators, and travel agents. To address this, the government and various organizations are providing training and education opportunities to women interested in these fields. Overall, there is a growing recognition of the value and importance of women's involvement in the tourism sector, and efforts are being made to create a more inclusive and diverse industry.¹⁵⁹

Impact on Environment

Tourism has some environmental impacts also. Sometimes, pollution is caused by emissions from vehicles and boats used for tourists. By discarding waste or fuel overboard, waterborne vessels also produce an unacceptably high level of noise, which can be classified as pollution. Moreover, discarding waste or fuel overboard, waterborne vessels also cause pollution to Bangladesh's fauna, the Bay of Bengal's water quality, the coastal regions.

¹⁵⁸ Bangladesh Bank

¹⁵⁹ Tourism as a Driver for Promoting Gender Equality? A Case Study of Participation of Women in the Tourism Labour Market in Cox's Bazar, Bangladesh, Thomas GOMES, Adam BLAKE, Journal of Hospitality and Tourism Issues 2(2), 178-189, 2020.

Policies regulating the tourism sector

Bangladesh government has reformulated the National Tourism Policy 2010 with some major changes based on the previous policy of 1992 to make the policy effective and create employment opportunities in the tourism sector. The Government of Bangladesh has prescribed controlled ecotourism as a protective form of tourism, especially for the key biodiversity areas and protected areas, including the coastal and maritime areas. Consequently, various formal documents have recognized controlled/managed ecotourism, including several legal documents (e.g., the National Tourism Policy, 2010; Coastal Development Strategy, 2006; Vision 2041; Seventh and Eighth Five Year Plans; National Forestry Policy, 1994 and 2016 (draft); National Biodiversity Strategy and Action Plan of Bangladesh, 2016–2021, and so on).

Bangladesh tourism policy 2010 & Bangladesh tourism board act 2010: The tourism policy is formulated with guidelines for development objectives and marketing tactics, offering the right framework for overall decision-making that begins at the individual level. In order to provide direction for the development of Bangladesh's tourism industry, the Bangladesh Tourism Policy 2010 was adopted. The National Tourism Policy still hasn't been implemented after 12 years of its formulation. The policy calls for the Cox's Bazar-Teknaf, St. Martin's Island, and Sonadia Islands to be promoted as premier tourist destinations.

Export Policy 2021-24: Currently, Bangladesh is prioritizing an export-led growth strategy to retain the momentum of ongoing economic development. To this end, the Ministry of Commerce recently formulated a new export policy for the FY 2021-2024, emphasizing Bangladesh's transformation to developing nations club, the challenges of the Fourth Industrial Revolution (4IR), and offsetting the potential impacts on the economy posed by the pandemic. To facilitate product diversification, the policy identifies ICT, Software, BPO, freelancing, and tourism as the most potential sectors.¹⁶⁰

Incentive for tourism sector

National budget of fiscal year 2022-2023 proposed following initiatives:

- An incentive package amounting to US\$102.24 million for the tourism industry, to help it recover from the impacts of the Covid-19 pandemic.
- Steps to set up Sabrang Tourism Park, Naf Tourism Park and Sonadia Eco-Tourism Park in Cox's Bazar with accommodation and recreational facilities maintaining international standards.

Covid-19 impact on tourism sector

To reduce the spread of this Covid-19 pandemic, all countries-imposed lockdowns, restricted domestic and international travels. Meanwhile, Banna, H. (2020) pointed out that travel restriction and tourism activities remained closed from Mid-March of 2020. However, COVID- 19 has brought about a marked change in the lifestyle and economy of Bangladesh¹⁶¹ as Bangladesh government announced lockdowns that brought most businesses to a close. Travel and tourism were two of the first business sectors to be affected by COVID-19. Travel restrictions were imposed on all tourist destinations. Hotel, motel, restaurant, and transport sector activities were mostly postponed due to the country-wide lockdown.

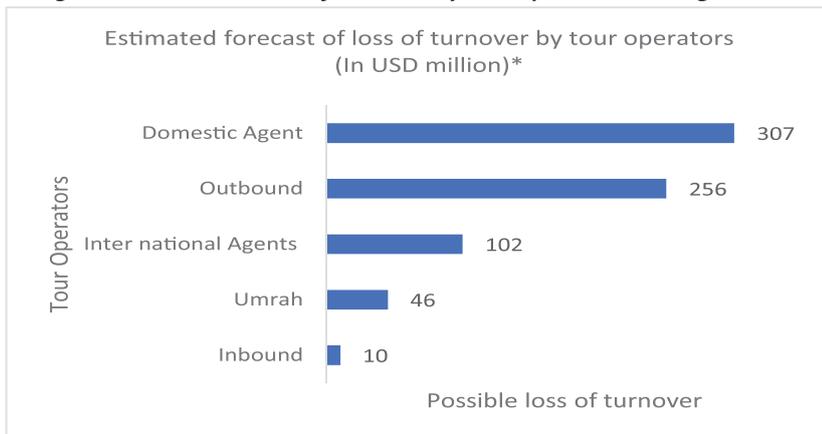
¹⁶⁰ Export Policy 2021-24

¹⁶¹ Banna, H. (2020). "Minimizing the economic impact of Coronavirus in Bangladesh".

According to the Tour Operator Association of Bangladesh (TOAB), as of April 2020, tour operators had lost close to US\$153 million and had eliminated 5000 jobs. In Bangladesh, the tourism and travel industries employ over 4 million people directly or indirectly.

According to the International Air Transport Association (IATA), the worldwide air transport industry's income had been declined by 11% in 2020, or US\$163 billion (IATA, 2020). Up until June 30, 2020, there were more than two million flight cancellations. The IATA (2020) predicted that roughly 25 million aviation-related jobs were at risk globally, with the aviation sector responsible for approximately 65.5 million jobs. The UNWTO predicted that the Bangladeshi tourist sector would lose USD 470 million in 2020. Pacific Asia Travel Association's (PATA) Bangladesh Chapter has estimated that more than 0.3 million people working in the travel and tourism sectors were at risk of losing employment.¹⁶²

Figure 50: Estimated loss of turnover by tour operators in Bangladesh



Source: Pacific Asia Travel Association (PATA)

With restricted travel and cancellation of business flights, the luxury hotel industry has faced the domino effect of economic fallout. The occupancy rates of luxury hotels declined by staggering amounts in April. While the hotels would have witnessed occupancy rate of 80% in usual times, the COVID-19 plunged to an average of 30%.¹⁶³ The figure shows the change in occupancy level of luxury hotels in Bangladesh due to COVID-19.¹⁶⁴

Challenges and opportunities of the tourism sector: findings from the SWOT analysis

SWOT analysis identified the following major strengths, weaknesses, opportunities, and threats that could impact the growth of the tourism sector:

Table 32: SWOT analysis of tourism sector

Strengths	Weaknesses
<ol style="list-style-type: none"> 1. Potential tourism growth in coastal and maritime zone 2. Attractive tourist spots including cultural, archaeological heritage and historical places 3. Attractive tourist spot including its natural beauty, greenery and hospitality of people 4. Religious tourist spot (Buddhist, Islamic, etc.) 5. Available accommodation and restaurant facilities at tourist sites 6. Stimulating growth in related sectors 7. Increasing communication network 8. Longest coastline along with the facilities of the blue tourism 	<ol style="list-style-type: none"> 1. Lack of entertainment facilities 2. Inadequate service personnel having multilingual skills and product knowledge 3. Lack of Security 4. Inadequate tourism-based product development 5. Under-promoted tourist destination 6. Problems related to hygienic food 7. Absence of foreign investment in the tourism sector of Bangladesh 8. Higher cost of products, services and imported tourist vehicles 9. Lack of cooperation between the tour operators and service providers

¹⁶² COVID-19 impact on the Tourism Industry in Bangladesh – Pacific Asia Travel Association (PATA)

¹⁶³ <https://www.lightcastlebd.com/insights/2020/06/covid-19-tourism-a-tragic-end-to-the-thriving-industry/>

¹⁶⁴ IATA (2020). "IATA Updates COVID-19 Financial Impacts -Relief Measures Needed." Available at: <https://www.iata.org/en/pressroom/pr/2020-03-05-01/>

* 1 USD = 97.81 BDT, BBS 2022-23

Opportunities	Threats
<ol style="list-style-type: none"> 1. Social and Cultural values for sustainable tourism development 2. Economic growth with increasing purchasing power 3. Expansion of religious tourism 4. Globalization and digital dissemination of information to brand tourism sector 5. Scope for expansion of tourism both domestic and international (inbound and outbound) 6. Potential tea, coastal, backwater and marine tourism 7. Upcoming three tourism special zones 8. Utilizing digital platform for branding and promotion 9. Investment in tourist destinations 	<ol style="list-style-type: none"> 1. Underdeveloped tourism infrastructure 2. Backdated legislation and policy related to tourism 3. Strong competition within the SAARC region 4. Current global economic recession 5. VISA complexity for foreign tourists and takes longer time for on-arrival visas 6. High rate of VAT and IT/AIT is applied in the tourism business 7. Lack of payment system in foreign currency

Source: BFTI findings generated from KII and Stakeholder Consultation

Key strengths

Potential tourism growth in coastal and maritime zone: Bangladesh's coastal and maritime zone has enormous potential for tourism growth. The country's longest sea beach, Cox's Bazar, attracts thousands of tourists each year, and other beautiful beaches such as Kuakata and Saint Martin's Island offer additional opportunities for seaside tourism. The Sundarbans, the world's largest mangrove forest, is another major attraction in the coastal region, with its unique flora and fauna drawing nature enthusiasts and researchers from around the world. Additionally, the Bay of Bengal offers opportunities for adventure tourism such as water sports, fishing, and boating. However, there is a need for infrastructure development, particularly in transportation, accommodations, and facilities, to fully realize the potential of the coastal and maritime zone for tourism. With the right investments and policies, the coastal and maritime zone of Bangladesh can become a major tourism destination, contributing to the economic development of the country and the preservation of its natural and cultural heritage.

Table 33: Attractive tourist spots including cultural, archaeological and historical places

Name of the division	Location in Bangladesh	Places to visit
Barisal	Southwest	Kuakata
Chittagong	Southern	Patenga Sea Beach, War Cemetery, Port, Cox's Bazar, St. Martins Island, Himchori and Inani Beach, Parki beach, Lalmai, Moinamoti and Shalbon Bihar, Chittagong Hill tracks (Rangamati, Khagrachari, Bandarban and Kaptai)
Dhaka	Capital city	Shaheed Minar, Jatiyo Smritisoudho, Ahsan Manzil, Jatiya Sangshad Bahavan
Khulna	Southwest	Sundarban
Rajshahi	Northern	Mahasthangarh, Varendra Museum
Rangpur	Northern	Kantagir Temple, Sayedpur railway junction
Sylhet	Northeast	Jaflong, Ratargul, Madhabkunda waterfall, Satchari National Park, Bisanakandi, Srimongal, Lawacherra Rain Forest

Coastal and Maritime Tourism (CMT) Bangladesh has huge potential. Estimations have indicated that the overall tourism sector will grow at an annual rate of 6.1% from 2017 to 2027. Though all the tourism are not treated as a part of the blue economy (WTTC 2017), CMT is likely to play an important role in such growth considering its current contributions and potential. The Organization for Economic Co-operation and Development (OECD, 2016)¹⁶⁵ projected the global growth of CMT is likely to be 9.3% per year from 2018 to 2027. Additionally, tourism in urban areas will experience considerable growth during this period, which will ultimately lead to CMT development on various beaches, like Patenga, Cox's Bazar, Himchori, Inani, St. Martin, Moheshkhai, the Sundarbans, Kuakata, Bhola, and Monpura.

Increasing communication network expand the growth of tourism: Train service between Dhaka and Cox's Bazar will facilitate tourism. By tying the Cox's Bazar district to Bangladesh's railway system, the Asian Development Bank argued, this project will not only help the country's economy by developing the beach town into a popular tourist destination, but it will also make it easier for people to access sub-regional markets and trade. The initiative will improve Cox's Bazar's tourism, which will in turn improve the socioeconomic conditions of the area. Similar opportunities have emerged thanks to the completion of the Padma Bridge which links 21 districts in the southeastern region creating opportunities to boost tourism.

Stimulating growth in related sectors: The tourism value chain can stimulate growth of other sectors that are organically connected such as transportation, food and beverage, hotels & restaurants, handicrafts, etc. Therefore, tourism can have a significant positive economic impact on Bangladesh. Bangladesh's graduation to a middle-income country is expected to further fuel this growth. It can significantly contribute to the creation of employment opportunities, particularly in rural areas where unemployment rates are high. Additionally, tourism generates revenue for the government through taxes and fees. As tourism grows, it can also encourage private sector investment, further boosting economic growth. Furthermore, tourism can promote cultural exchange and understanding, leading to the preservation and promotion of Bangladesh's unique heritage and traditions. Overall, the economic benefits of tourism in Bangladesh have the potential to make a significant impact on the country's development.

Key weaknesses

Lack of entertainment facilities: Shortage of required infrastructure, international standard accommodations, and smooth transportation affects both the domestic and international tourists. Tourism sector should be provided with an effective transportation system, lodgings, and infrastructure that meet international standards in order to promote sustainable tourism in Bangladesh. The beach environment is hardly welcoming to western tourists. Since westerners are accustomed to specific beach clothing do not go with social and religious conservatism. Many tourist destinations lack hotels, motels, restaurants, pubs, and transportation according to international standards. The tourism industry in Bangladesh should provide visitors with contemporary recreational facilities for the tourists such as boating, wind surfing, horse racing and other amusements.

Inadequate skilled human resources: Skilled human resources are still a big challenge for sustainable tourism development in Bangladesh. The trained and expert Bangladeshi human resources are serving foreign country's tourism sector, while our tourism related industries are depended on foreign human resources. To address this problem, local communities and stakeholders need to be familiar with and be sensitive to cultures and life style of other countries for attracting foreign tourists. In order to develop skilled human resources Bangladesh Parjatan Corporation (BPC) established National Hotel & Tourism Training Institute (NHTTI) in 1974. Since then, NHTTI has been offering 2-year diploma courses in hotel management. In 2003, among Private Universities, IBAIS University has come forward to provide higher education in Tourism & Hotel Management by introducing Bachelor of Tourism & Hotel Management program. Later, Dhaka University also has introduced BBA, MBA and Ph.D. programs in Tourism and Hospitality Management. But there is a gap between academia and the industry. In addition, effective communication, being sensitive to different cultures and values, are crucial in tourism. More institutions should be established in public and private sectors to cater to this critical need.

165 OECD. 2016. The Ocean Economy in 2030. Paris: OECD.

Underdeveloped domestic tourism: The cost of hotel rooms in Cox's Bazar has significantly increased in the past three years, with a medium-sized room now costing TK 1500 per day compared to TK 800 before. The rent of air-conditioned rooms has also risen from TK 1500 to between TK 2200 to 2500. Additionally, the price of food in restaurants and transportation to and from Cox's Bazar has increased. Despite the price hikes, there has been no improvement in the quality of services. The beach area that attracts tourists is only five kilometers out of 120 kilometers and is in disrepair, with no protection set up for travelers in the remaining area. Tourists also face security issues and erratic electricity service after dusk. The situation is similar in Sylhet, another popular tourist destination, where travelers face hassles despite the increased prices of food, lodging, and transportation.

Under-promoted tourist destinations in Bangladesh: Bangladesh Parjatan Corporation (BPC) publishes advertisements in specialized journals and special interest magazines. According to BPC representatives, Bangladesh is not promoted as a tourism destination on any international TV channels, foreign newspapers, or respectable national news magazines. Even the local TV and print media advertisements have been dramatically reduced.

Key opportunities

Bangladesh's graduation to a developing country will offer enormous opportunities for the development of tourism, both internal and external. With its rich cultural heritage, diverse landscape, and vibrant cities, the country offers a unique experience for travelers. The longest sea beach in the world, Cox's Bazar, and the world's largest delta, the Sundarbans, are just a few of the country's stunning natural attractions. Additionally, Bangladesh has a rich history with numerous archaeological sites which provide a glimpse into the country's past. Despite challenges, including infrastructure development, safety and security, and environmental concerns, the government of Bangladesh has taken steps to promote tourism and encourage investment in the sector. As a result, the prospect of tourism in Bangladesh is bright, with the potential for significant growth in the coming years.

Upcoming three tourism special zones: BEZA (Bangladesh Economic Zones Authority) has been working to establish three Special Tourism Parks in Bangladesh's Cox's Bazar district: a) Sonadia Eco-Tourism Park, b) Naf Tourism Park, and c) Sabrang Tourism Park. Developers from Thailand, Singapore, Japan, and Bangladesh have also expressed interest in constructing the NAF and Sabrang Tourism Park. Through the creation of tourism parks, it is expected that Bangladesh's existing tourism status would improve from three to two digits (The Travel & Tourism Competitiveness Index 2019 ranking). The establishment of these parks will employ around 200,000 people over the next eight years and produce over USD 2.5 billion in annual financial activity.¹⁶⁶

Religious & historical tourist spots (Buddhist, Islamic, etc.): Religious tourism is also huge potential for Bangladesh. Religious tourism is a popular type of travel around the world with millions of people taking part in pilgrimages each year. Travelers engage in various religious activities such as visiting holy sites, attending religious festivals or ceremonies, or participating in spiritual retreats. Religious tourism provides opportunities for travelers to strengthen their faith, connect with like-minded individuals, and gain a better understanding of different cultures and traditions. Popular religious destinations include Jerusalem, Mecca, the Vatican, and the Ganges River in India.

¹⁶⁶ Bangladesh Economic Zone Authority, <https://www.beza.gov.bd/special-tourism-park/>

Religious tourism in Bangladesh is a significant aspect of the country's tourism industry. Bishwa Ijtema which takes place every year is a unique congregation of Muslims from around the world. The country's dominant religion is Islam, and many visitors come to explore its Islamic heritage and religious sites. One of the most popular destinations is the Baitul Mukarram Mosque, the national mosque of Bangladesh, in Dhaka. Other notable sites include the Lalbagh Fort, which features an impressive mosque and tomb, and the Shah Jalal Shrine in Sylhet, which attracts both Muslim and non-Muslim visitors. Bangladesh also has a significant Hindu population, and travelers may wish to visit the Dhakeshwari Temple, one of the oldest temples in the country. There are also Buddhist Monasteries in several places that should attract people of Buddhist faith from around the world while Armenian Church is also a religiously important for religious tourism.

Extended promotion opportunities across the globe through digital platform: The digital platform now-a-days is the most accessible means to plan and execute seamless travels around the world in terms of helping tourists buy travel products (Benckendorff and Black, 2000). Using Internet, tourists can select destinations, forward orders, buy airline tickets and make payments through electronic process. Similarly, tourism firms can post their tour packages; illustrate pictures of destinations and hotel rooms; send booking-confirmation notices and invoices.

Key threats

Underdeveloped Tourism Infrastructure: Travel and Tourism Competitiveness Report published by World Economic Forum in 2019, ranked Bangladesh 120 amongst the 140 countries. Bangladesh is at the bottom of the table if ranked in the context of South Asia, where India (34), Sri Lanka (77) and Nepal (102) are—not surprisingly—ahead of us, and we only have Pakistan behind us, ranked 121. The research claims that, Bangladesh's infrastructure for tourist services is among the worst in the world. Bangladesh's ranking in this particular category has remained stable at 133 over the past two years making no appreciable progress in constructing infrastructure in this sector.

E-Visa procedures and lack of facilities in the payment system for foreign currency: Difficulties faced by tourists in getting visas discourage them to visit Bangladesh. Bangladesh government should make visa policy easier for foreign citizens to grow their interest to visit Bangladesh. E- Visa procedures and facilities of the payment system in foreign currency should be introduced for reducing visa complexities of foreign tourist.

Higher VAT and taxes are levied at various levels: As described earlier, Tourism is a rapidly growing sector globally. However, in Bangladesh, VAT and taxes are levied at multiple levels, including service sub-sectors associated with tourism, resulting in double taxation for service providers and receivers. The BPC pays a total of 25 percent VAT and taxes, including 15 percent VAT on the value of services rendered, 5 percent on supply tax on the purchase of goods for providing services, and 5 percent on revenue receipts. The total burden of VAT and income tax on the organization's income, as well as the salaries and allowances of employees, make it impossible for the organization to sustain.

Backdated legislation and policy related to tourism: Bangladesh Tourism Board Act, 2010 does not have new dimensions of product development, marketing and operational management regarding present tourism industry perspective. The power in the act is insufficient to make the board fully functional, especially in terms of decision-making, implementing projects and capacity building of the relevant stakeholders. The stakeholders further suggested to include the sufficient power in this act like the Nepal Tourism Board. Tourism Sector is expanding in Bangladesh and now the sector has many diversified products along with new services. National Tourism Policy 2010 lacks policy support options for the sector like income tax rebates, duty exemption on imported equipment, tourist buggies, and restaurant equipment, and reduced duty on imported liquor and beer. Moreover, the policy lacks indicative ideas about financing especially lower-interest loans with easier conditions.

Strong competition within the SAARC region: Many of Bangladesh's South Asian neighbors face political unrest, terrorist attacks, bomb explosion. Despite that, their tourism industry has been continuously flourishing and contributes a significant share to country's GDP. ¹⁶⁷ Bangladesh has a lot to learn from its neighbours in terms of fostering the growth of tourism sector. It is important to rightly position the country to the world on one hand, and a strategic approach on the other, to attract specific segments of the international tourists and customize the facilities that cater to their touristic aspirations.

¹⁶⁷ Current Status of Tourism Industry in Bangladesh: An Empirical Evaluation, page 46, retrieved from Scientific Research Journal (SCRJ), Volume 1, Issue 1, August 2013

Nursing and Midwifery Services

Overview of the sector

Global scenario

Globally, nurses make up 59% of health professionals, with a present stock of 27.9 million nursing personnel. The nursing workforce is relatively young, but there are differences in age structures across regions, with the Americas and Europe having substantially older age structures. One out of six nurses globally are expected to retire in the next 10 years, with 17% of nurses being aged 55 or over. To address nursing shortages by 2030, an 8% increase in the total number of nurse graduates per year is required, alongside improved capacity to employ and retain graduates. Additionally, 31 high-income OECD countries are projected to have a potential shortfall of up to 3.2 million nurses by 2030.¹⁶⁸ An average of around a 10% increase per year in the number of nursing graduates is required to address the shortage, and an improved labour market absorption capacity could result in an average increase of 8.8% per year in graduates.¹⁶⁹

The current trajectory towards 2030

On current trends, there will be a global shortage of 5.7 million nurses by 2030, with Bangladesh and some other low and lower middle-income countries facing the largest shortages.

Additionally, 31 high-income OECD countries are projected to have a potential shortfall of up to 3.2 million nurses by 2030. An average of around a 10% increase per year in the number of nursing graduates is required to address the shortage, and an improved labour market absorption capacity could result in an average increase of 8.8% per year in graduates.¹⁷⁰

Table 34: Fact sheet current status of nurses and midwives in the world evidence in 2020

The global nursing workforce is 27.9 million, of which 19.3 million (69%) professional nurses, 6.0 million (22%) associate professional nurses and 2.6 million (9%) who are not classified either way.
The world does not have a global nursing workforce commensurate with the universal health coverage and SDG targets. Over 80% of the world's nurses are found in countries that account for half of the world's population. The global shortage of nurses was estimated to be 5.9 million nurses in 2018. An estimated 5.3 million (89%) of that shortage is concentrated in low- and lower middle-income countries, where the growth in the number of nurses is barely keeping pace with population growth, improving only marginally the nurse-to-population density levels.
Ageing health workforce patterns in some regions threaten the stability of the nursing stock.
About 97% of countries reported that the minimum duration for nurse education is a three-year programme, when 53% of those reported having advanced practice roles for nurses
One nurse out of every eight practices in a country other than the one where they were born or trained. The international mobility of the nursing workforce is increasing.
Nine out of 10 nurses globally are female, with important regional variations: in the African Region the female–male ratio is 3:1.
One out of six of the world's nurses are expected to retire in the next 10 years; this percentage is substantially higher in the Region of the Americas (24%), posing a further replenishment challenge.
Nurses represent on average 59% of health professionals, ranging between 49% in the Eastern Mediterranean Region and 68% in the Western Pacific Region.
As 17% of nurses globally are aged 55 years or over and therefore expected to retire within the next 10 years 4.7 million new nurses will have to be educated and employed over the next decade just to maintain the status quo.
A total of 71% countries reported having a national nursing leadership position with responsibility for providing input into nursing and health policy.

¹⁶⁸ <https://mobinajaffer.ca/blog/2020/05/20/facts-about-the-nursing-industry/>

¹⁶⁹ State of the World's Nursing, Investing in education, jobs and leadership, WHO, 2020

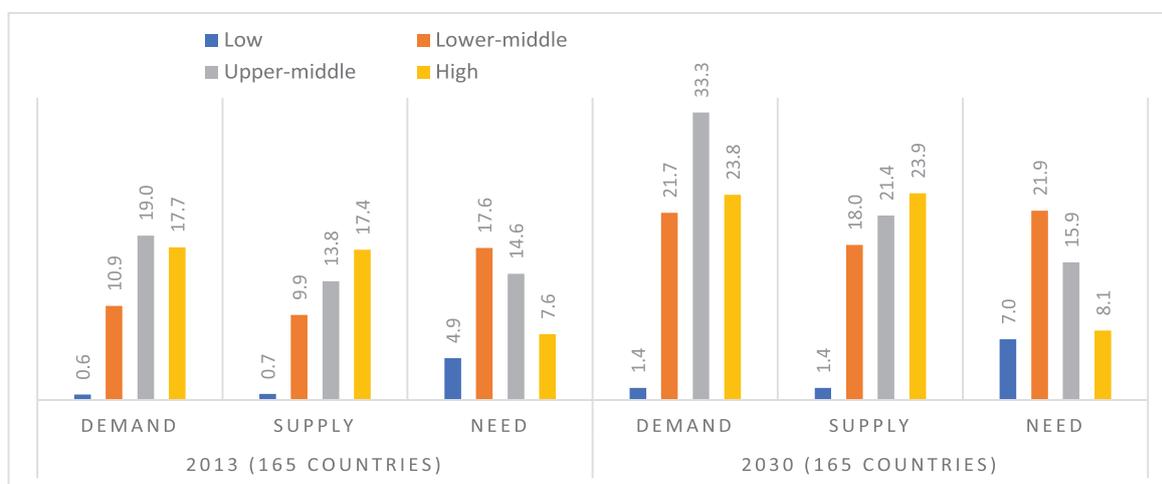
International nurse migration and mobility

International mobility of health professionals has increased in recent decades due to trends in demography, epidemiology, finance, and health policy; this mobility is predicted to continue to accelerate. One in eight nurses (13%) were born or received their nursing education in a different country. High-income countries have a higher percentage (15.2%) of foreign-born or foreign-trained nursing staff compared to other income groups (<2%). There is a need for proper education and training to match the current and anticipated needs of health systems for nursing services to be exported. The duration of nursing education globally is predominantly three or four years, but there is considerable variety in minimum education and training levels. Capacity constraints, such as faculty shortages, infrastructure limitations, and availability of clinical placement sites, also pose challenges.¹⁷¹

Addressing the shortage of nurses, collaborative approaches, such as pooling resources and expertise can help alleviate the global shortage of nurse educators. For example, Thailand's Programme of Higher Nursing Education Development collaborates with China and has expanded to 10 countries in East and South-East Asia.¹⁷² One of the approaches is building global skills partnerships. The adoption of global skills partnerships is a central tenet of the Global Compact, aimed at building bilateral agreements to leverage opportunities from migration by matching the demand for and supply of workers with targeted educational support in countries of origin.¹⁷³ The harmonization of education standards and licensure examinations across various countries is exemplary. For instance, efforts to harmonize nursing degree structures in the EU began in the late 1970s and have resulted in a three-cycle educational structure with harmonized academic qualifications across all disciplines, achieved through sectoral directives and the Bologna Agreement.¹⁷⁴

Supply and demand for nurses and care providers

Figure 51: Estimated global demand and supply of health workers, by WHO/World in income group, 2013 and 2030 (in million)



Source: Global Health Workforce Labor Market Projections for 2030, World Bank Group, 2016

170, 171 State of the world's nursing 2020: investing in education, jobs and leadership, WHO, 2020.

172 State of the world's nursing 2020: investing in education, jobs and leadership, WHO, 2020

173 <https://alabrava.net/the-world-will-be-short-18-million-nurses-by-2030/>

174 <https://www.coursehero.com/file/p7mnpvv/may-also-be-an-incentive-to-migrate-Push-factors-include-absence-of-job/> State of the world's nursing 2020, WHO, 2021

The demand for healthcare workers in low-income countries is projected to increase from 0.6 million in 2013 to 1.4 million in 2030, while the supply is expected to remain constant at 1.4 million. In high-income countries, the demand for healthcare workers is expected to increase from 17.7 million in 2013 to 23.8 million in 2030, with a corresponding increase in supply from 17.4 million to 23.9 million.¹⁷⁵ In the world Bank report, it is estimated that there was a total demand for 48.2 million healthcare professionals (nurses, midwives, doctors and others) and the supply is 41.8 million, and a need of 6.4 million. By 2030, the demand is expected to increase to 80.2 million, the supply to 64.7 million, and the need to 15.5 million.¹⁷⁶

Table 35: Estimated global health workforce supply versus “need” as defined by WHO for 2013 and 2030.

Regions	2013 (165 countries)			2030 (165 countries)		
	Supply (S)	Need (N)	Diff (S-N)	Supply (S)	Need (N)	Diff (S-N)
WHO Region						
Africa	1,874,830	5,891,071	-4,016,241	3,066,666	8,910,473	-5,843,806
America	8,385,480	5,439,623	2,945,857	12,742,856	6,246,463	6,496,393
Eastern Mediterranean	2,690,443	3,797,769	-1,107,326	4,611,408	5,055,625	-444,217
Europe	12,692,401	5,628,533	7,063,868	16,803,264	5,786,268	11,016,996
South-East Asia	5,772,250	12,433,083	-6,660,833	10,168,591	14,712,987	-4,544,397
Western Pacific	10,294,627	11,538,553	-1,243,926	17,261,342	12,270,476	4,990,867
WB Region						
East Asia and Pacific	11,141,638	13,692,899	-2,551,261	18,250,702	14,734,499	3,516,203
Europe and Central Asia	12,594,176	5,578,223	7,015,953	16,640,618	5,722,567	10,918,050
Latin America	4,140,233	3,287,004	853,229	5,784,767	3,825,876	1,958,892
Middle East & North Africa	2,570,885	2,354,695	216,190	3,846,948	3,032,910	814,038
North America	4,245,248	2,152,619	2,092,629	6,958,089	2,420,587	4,537,501
South Asia	5,357,579	11,745,586	-6,388,007	10,293,688	14,248,390	-3,954,702
Sub-Saharan Africa	1,660,273	5,917,606	-4,257,333	2,879,315	8,997,462	-6,118,146

Source: Global Health Workforce Labor Market Projections for 2030, World Bank Group, 2016

Table 36: Number of nurses globally and density per 10 000 population, by WHO region, 2018

WHO REGION	Number of countries reporting headcount/total	Number of nursing personnel ^a in millions	Density per 10,000 population
Africa	44/47	0.9	8.7
Americas	35/35	8.4	83.4
South-East Asia	11/11	3.3	16.5
Europe	53/53	7.3	79.3
Eastern Mediterranean	21/21	1.1	15.6
Western Pacific	27/27	6.9	36.0
Global	191/194	27.9	36.9

According to WHO guidelines, Table (36) represents the number of nurses worldwide and their density per 10,000 population. The survey revealed that African countries had the lowest number of nurses, while Eastern Mediterranean countries ranked second with only 1.1 of nursing personnel per one million population. In contrast, the number of nursing personnel per one million in the American countries was 8.4, which was the highest number during the survey.

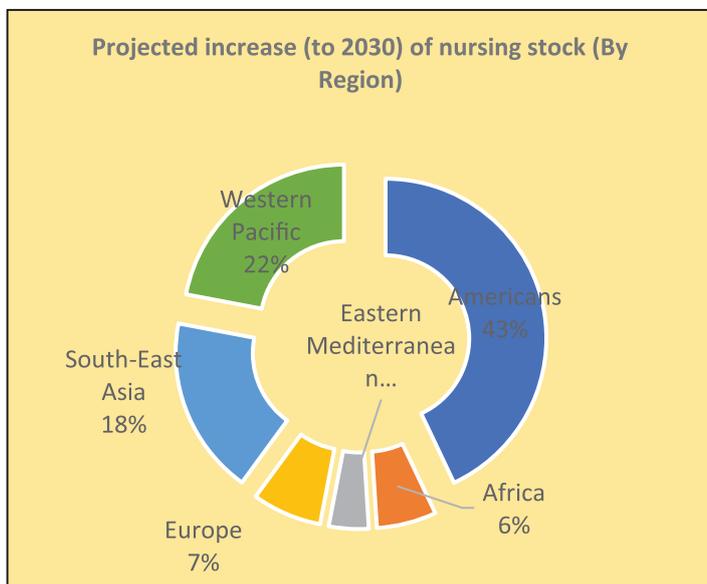
a. Includes nursing professionals and nursing associate professionals.

Note: stock data were not available for Cameroon, Comoros and South Sudan.

Source: NHTA 2019. Latest available density reported by countries between 2013 and 2018. For countries with a headcount reported between 2013 and 2017, to standardize all countries to year 2018, the headcount was reported by applying their latest available density to 2018 populations. The population size for each country and year used to compute density values was extracted from the 2019 revision of the *World population prospects* of the United Nations, Department of Economic and Social Affairs (263).

175, 176 Global Health Workforce Labor Market Projections for 2030, World Bank Group, 2016

Figure 52: Projected increase (to 2030) of nursing stock, by region



There is a projected shortage of 5.7 million nurses in African, South-East Asia, and Eastern Mediterranean regions by 2030, which can be addressed by increasing the number of nurse graduates by 8% per year on average. Without this increase, the world would have only 36 million nurses by 2030. WHO estimates that the number of nurses will increase by different percentages across regions, with the America seeing a 43% increase, while the Eastern Mediterranean region will only see a 4% increase. Figure (52) shows that there is a significant demand for nurses in the Eastern Mediterranean, Europe, and Africa.¹⁷⁷

Global scenario of midwifery sector

Table 37: Historical data number of midwives from Year 1970 to 2020 by region per 1000

Regions	Number of Midwives (Year 1970-2020) (In Million)
Africa	1.48
Americas	0.32
Eastern Mediterranean	0.70
Europe	10.10
South-East Asia	4.62
Western Pacific	1.58
Total	18.80

Source: WHO Data

Globally, there are approximately 27 million nurses and midwives, which represents nearly 50% of the workforce in global health. Table (37) shows that there were 1.48 million midwives in Africa, 0.32 million in the Americas, and 0.70 million in the Eastern Mediterranean as of 2020. South-East Asia has the second-highest number of midwives, followed by European countries. The World Bank data shows that till 2020 there was about 18 million midwiferies working in world and UNFPA estimates that a global shortage of 900,000 midwives, projected to fall to 750,000 by 2030 if all countries continue their current trajectory.¹⁷⁸

¹⁷⁷ State of the world's nursing 2020: investing in education, jobs and leadership, WHO, 2020.

¹⁷⁸ The State of the World's Midwifery 2021, WHO. <https://doi.org/10.1186/s12960-021-00694-w>

Demand of different types of nurses and midwives

The demand for nursing professionals is on the rise due to several factors. One such factor is the aging global population, which requires increased healthcare services. Additionally, the COVID-19 pandemic has highlighted the crucial role of nurses in providing care and has led to an increase in demand for their services. Another factor contributing to the demand for nursing is the increasing prevalence of chronic illnesses, which require ongoing care and monitoring. Furthermore, advancements in healthcare technology and treatments have created new opportunities for nurses to specialize in various areas of healthcare, further driving demand. Overall, the demand for nursing professionals is expected to continue growing in the coming years, creating ample career opportunities in the field. There are different types of nurses in demand in the global market, such as Nurse Practitioners (NPs), Certified Registered Nurse Anesthetists (CRNAs), Certified Nurse Midwives (CNMs), Clinical Nurse Specialists, Registered Nurses (RNs), and Licensed Practical Nurses (LPNs)/Licensed Vocational Nurses (LVNs).

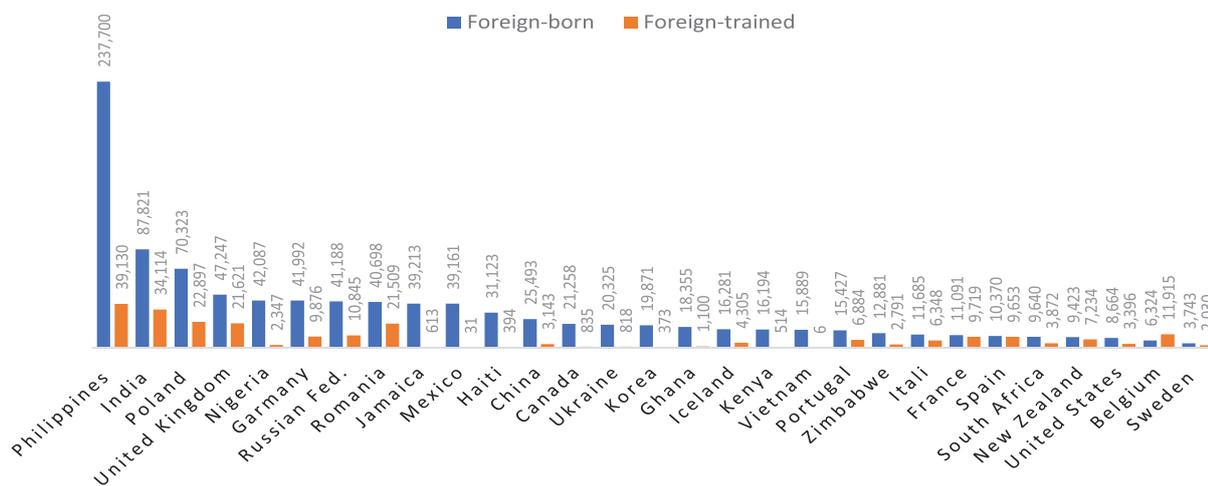
There is a huge demand of nurses and midwives for aging global population. According to WHO the global population of people aged 80 or above is expected to reach 4% by 2050, which is five times of the current figure. Around one in eleven people in more developed regions will be 80 or above by 2050. The population of individuals aged 60 or above will double to 2.1 billion by 2050. The percentage of elder generations in the global population is estimated to be 22% by 2050. In selected industrialized countries, approximately 16% of males and 37% of females aged above 80 live alone and require continuous care from a trained caregiver.¹⁷⁹

US Bureau of Labor Statistics predicts a 9% job outlook for registered nurses until 2030, with approximately 194,500 job opportunities every year. General medical and surgical hospitals employ the most RNs, comprising 31% of the workforce in the industry. Other common work environments for nurses include:

- Physician offices: 7% of nurses, or 192,300 RNs
- Home health care services: 11% or 173,790 RNs
- Outpatient care centers: 15% of nurses, roughly 147,720 RNs
- Nursing care facilities: 9% of the workforce, or 131,320 RNs¹⁸⁰

Export and import scenario of nursing and midwifery sector

Figure 53: Top 20 countries of origin comprise non-OECD as well as the OECD or EU countries.



Source: Health at a Glance 2021: OECD Indicators

179 World Population Ageing, Department of Economics and social Affairs, UN, 2019

180 <https://post.edu/blog/the-demand-for-nurses/>

About one-third of physicians and nurses working in OECD countries are mostly from the Philippines, with approximately 2337.7 thousand being foreign-born and about 39 thousand being foreign-trained. India ranks second in terms of the number of foreign-born or trained healthcare professionals working in OECD countries, while Poland ranks third.¹⁸¹ Another one-third of foreign-born or trained physicians and nurses in OECD countries come from non-OECD higher middle-income nations. Lower-middle-income nations contribute about 30% of migrant doctors and nurses, while low-income nations contribute 3-6% of the total.¹⁸²

Table 38: Top countries for immigrant registered nurses

Country of Origin	Number of Registered Nurses	Share of All Immigrant RNs	Share of All RNs
Philippines	142,800	29.3%	4.5%
India	32,400	6.7%	1.0%
Nigeria	21,200	4.4%	0.7%
Jamaica	21,200	4.3%	0.7%
Mexico	18,900	3.9%	0.6%

The Philippines is the leading exporter of registered nurses (RN) worldwide, accounting for 29.3% of all immigrant RNs and 4.5% of all RNs. India and Nigeria follow in second and third place with 6.7% and 4.4% of immigrant RNs, respectively. The Philippines is also the top exporter of healthcare professionals, including RNs, home health aides, physicians, and surgeons, comprising 13.5% of all foreign-born healthcare workers and 2.2% of all healthcare workers. Mexico ranks second and India ranks third in the export of healthcare workers. In Saudi Arabia, 43% of nurses were foreign-born and 55% were Saudi nurses, in line with the data that indicated that 50% of midwives were both Saudi and foreign-born.

Table 39: Top five countries to import nurses

SL	Country	Total nursing staff	% foreign nurses total	Total number of foreign nurses	Export Country
1.	USA	2,689,000	14%	364,000	Philippines, India, Canada, Nigeria
2.	UK	648,003	10%	364,000	Philippines, India, South Africa
3.	Italy	341,015	2%	6,730	Romania, Poland, Albania, Tunisia
4.	Malaysia	42,613	2%	813	Albania, Bangladesh, India, Indonesia, Myanmar, Pakistan, Philippines
5.	Singapore	14,831	16%	2,397	Malaysia, China, Philippines, India, Myanmar

The United States is the leading country in terms of importing nurses, with imported nurses comprising 14% of its total nursing workforce. The United Kingdom is in second place, importing 10% of its total nurses from other countries. Italy ranks third in terms of importing nurses.

Source: Malaysia, Thailand, Singapore: Ayaka Matsuno. Nurse Migration: The Asian Perspective. ILO/EU Asian Programme on the Governance of Labour Migration Technical Note. 2011

¹⁸¹ Health at a Glance 2021: OECD Indicators, OECD Publishing, Paris, <https://doi.org/10.1787/ae3016b9-en>, OECD 2021.

¹⁸² Contribution of migrant doctors and nurses to tackling COVID-19 crisis in OECD countries, OECD, 2020.

Bangladesh Overview

Export of nurses from Bangladesh

Table 40: Nurse migration for overseas employment (1985-86), 1991-2004 and 2021-22

Destination	1985-1986		1991- 2004		2021-2022
	Number	%	Number	%	Number
Saudi Arabia	364	38.24	957	80.08	
Kuwait	348	17.76	24	2.01	1000
Libya	223	16.98			
Iran	223	10.88			
Bahrain	166	8.11	23	12.80	
Iraq	165	8.04			
Oman			20	1.67	
UAE			14	1.17	
Malaysia			153	12.80	
Others			4	0.33	
	2050	100	1195	100	1000

Source: Rosie Majid Ahsan and AS Najmul Ahmad, 2000 and BMET 2004, KII

Between 1991-2004, 20,825 female workers migrated from Bangladesh through formal channels. Almost half of these workers were unskilled, working as housemaids and cleaners, while around 44% were semi-skilled as garment and factory workers. Only 5.74% of the female migrant workers were nurses, with the majority (87%) going to Middle Eastern countries and the rest to the Far East, particularly Malaysia. Comparison of time series data shows a sharp decline in the numbers and in the destinations of nurses from Bangladesh over the years.¹⁸³

Demand for Bangladeshi Nurses

The study reveals a significant need for skilled nurses in Middle Eastern countries, particularly in Saudi Arabia, the UAE, Oman, and Kuwait. Saudi Arabia has a particularly high demand for nurses, estimated at around 25,000 per year.¹⁸⁴ This demand is expected to continue for the next 20 years. While there is also a high demand for nurses in Kuwait, Bangladesh cannot fulfill this need as the basic requirement is a BSc in nursing. Immigrant nurses in the UAE are required to pass a challenging professional exam, which no Bangladeshi nurses have attempted in recent times .

Existing Demand, Supply and Capabilities of Nursing Institutions in Bangladesh

Table 41: Summary statistics of current status of Bangladeshi nurses, midwives and institutions

SL	Name of the Course	Govt. (DGNM)		Autonomous/ Military Nursing Institute		Private		Total
		No of Institutions	No of seat	No of Institutions	No of seat	No of Institutions	No of seat	
1	Diploma in Nursing Science and Midwifery (03 Years Duration)	46	2730			335	16,780	19,510
2	Diploma in Midwifery (03 Years Duration)	60	1775			105	3810	5,585
3	B.Sc in Nursing (04 Years Duration)	13	1200	7	235	148	7180	8,380

¹⁸³ Migration of Skilled Nurses from Bangladesh: An Exploratory Study, Salahuddin M Aminuzamman, Development Research Centre on Migration, Globalisation and Poverty University of Sussex, 2007.

¹⁸⁴ Health Report of Saudi Arabia, MoH, 2022

Reportedly there are about 86,800 doctors in Bangladesh. If international standards are to be reached and maintained, this would demand 258,000 nurses. According to BNMC, there are reportedly 83,955 registered nurses and midwives in the country. The international standard for nurse-patient ratio is 1:4 for general care and 1:1 for intensive care whilst the international nurse-doctor ratio is generally reversed, at about 2:1. In the case of Bangladesh, the general nurse-patient ratio is 1: 13. According to WHO, for every 1000 people there is need of 3 nurses, however, currently Bangladesh has 0.5 nurses per 1000 people. ¹⁸⁵ Bangladesh has four primary nursing education systems, which include: (i) Bachelor's and Master's degrees in nursing, (ii) a three-year diploma in nursing, (iii) a one-year diploma in midwifery (for women), and (iv) a diploma in orthopedic nursing (for men). These programs are accredited by the Bangladesh Nursing Council and follow a curriculum that was last updated in 1990. The Nursing College, affiliated with the University of Dhaka, provides a four-year undergraduate program in General Nursing and Public Health Nursing, as well as a Master's degree in Clinical Nursing. Currently, Bangladesh has the capacity to produce approximately 40,000 nurses and midwives across the public and private sectors in 720 institutes. ¹⁸⁶

Comparison of nursing and midwifery education systems of Bangladesh and the Philippines

The nursing and midwifery education systems in Bangladesh and the Philippines have both similarities and differences. They are both regulated by national bodies, but differ in the structure and duration of programs. The major comparisons are as follows-

In Bangladesh, nursing education and training are provided by public and private nursing institutes and colleges, and the four-year Bachelor of Science in Nursing program focuses on theoretical knowledge and practical skills. Meanwhile, midwifery education is a two-year diploma program offered at nursing institutes and colleges.

In contrast, the Philippines offers nursing education through a four-year Bachelor of Science in Nursing program in universities and colleges, while midwifery education is available as a separate two-year program or as a degree option within the Bachelor of Science in Nursing program.

Overall, the nursing and midwifery education systems in Bangladesh and the Philippines share some commonalities but differ significantly in structure and duration. These differences may reflect the specific healthcare needs and priorities of each country.

Access to International Market

The table (42) shows the technical requirement for nursing positions in the US and Canada. Most other developed countries have similar requirements.

Table 42: technical requirement for nursing positions in the US and Canada

United States of America	Canada
◆ Education, registration and license (a recognized nursing degree)	◆ Credential verification
◆ Qualifying the Commission on Graduates of Foreign Nursing Schools (CGFNS) Examination	◆ Qualifying in Canadian Registered Nurse Examination
◆ Qualifying the NCLEX-RN examination	◆ Language proficiency (IELTS academic module and gain a mark of 6.5)

¹⁸⁵ Labor Market in South Asia: Skill Gap Analysis for HRD Policies in Health Sector, Hina Sheikh, Mariam Anees (PhD), Dr. Arshad Mahmood Uppal, Abdul Haseeb, SAARC Human Resource Development Center, Islamabad-Pakistan, 2007.

¹⁸⁶ BNMC Statistics

United States of America	Canada
<ul style="list-style-type: none"> ◆ IELTS score of 7 in speaking and an overall band of 6.5. ◆ Visa screen certificate. ◆ At least two years of experience. 	<ul style="list-style-type: none"> ◆ A three-year diploma in Nursing (15 total years of education), and Nursing License in your home country <i>or</i> a two-year diploma in Nursing (14 total years of education), & Nursing License in your home country or aboard ◆ At least a two-year university degree at the Bachelor's level (14 total years of education), and Nursing License in your home country.

Gender perspective in Nursing and Midwifery Sector

Over the past three years, the recommendations of the Public Service Commission (PSC) have led to the recruitment of 15,000 senior staff nurses, of whom 90% are women. In order to accomplish the Sustainable Development Goals (SDG) targets for eliminating maternal and child mortality established by the Honorable Prime Minister, 2,600 midwives who have completed the Diploma in Midwifery have also been recruited.

To ensure high-quality patient care, approximately 12,000 newly recruited nurses have received foundation training over the past three years, including 1,080 women. Furthermore, 870 nurses have received specialized training in intensive care units (ICU) to develop specialized nurses in the country to handle the Covid-19 situation, with 800 of them being women. Overall, women constitute 90% of the department's activities, with 76,454 women employed. The Department of Nursing and Midwifery has taken several measures to improve the healthcare sector of the country. One such initiative is increasing the number of women health workers. Additionally, the grade of nurses has been elevated to second class, resulting in better opportunities and benefits for them.

As of March 31, 2022, there were 76,454 registered nurses and 6,285 midwives working in various public and private healthcare facilities and post-graduate institutions throughout the country. These skilled professionals play a crucial role in providing quality healthcare services to the people.

Moreover, a total of 16,351 Community Health Care Providers (CHCP) have been trained to work in community clinics, improving women's access to health care at the local level. Community-Based Health Care (CBHC) Outpatient (OP) is divided into two categories: CBHC (community clinic related) and Upazila Health Care (Upazila related). UHC OP, for instance, has increased the capacity of upazila health complexes. In the fiscal year 2022-23 the total budget for this sector was \$ 800.65 million among which 63.2 percent (\$506.98 million) for women.¹⁸⁷

Policies governing the sector

The nursing services act for armed forces, 1952: Under this Act, the College of Nursing was established along with post basic nursing course for diploma nurses. Directorate General of Nursing (DNS) was established and recruitment rules for DNS were developed.

The Ordinance of Bangladesh Nursing Council (BNC), 1983: The ordinance established guidelines for nursing and allied health qualifications, including minimum standards for basic and post-basic training, course durations, teacher qualifications and experience requirements, and standardized examination mechanisms.

¹⁸⁷ Gender Budget Report FY 2022-23, Finance Division, Ministry of Finance.

Nurses and Midwives Act 2011: National licensing exam for BSc Nursing graduates started.

BNMC-Act—2016: BNC upgraded to Bangladesh Nursing and Midwifery Council (BNMC) and DNS to a separate Directorate General of Nursing and Midwifery.

National Policy Guidelines for Midwives, 2018: This policy ensures excellence in midwifery education and facilitates a functional and dynamic midwifery workforce capable of providing quality services related to reproductive health, pregnancy, birth, and newborn.

Government's general incentive for nursing and midwifery sector

sector specific incentives and policies: Health care service providers will enjoy a tax holiday on their first ten years on income from health care services. This will be only applicable for businesses that will start providing services between July 1, 2021 and Jun 30, 2030. (BIDA), though there are some conditions as follows-

- Hospitals should be located outside Dhaka, Narayanganj, Gazipur and Chattogram district
- Exemption will be allowed for income from treatment and diagnostics services only, other income (if any) will not be eligible
- The hospital should have a minimum of 250 beds with separate units available for children and newborns, women and maternal health, oncology and well-being, and preventive medicine Or, must be a specialized hospital with at least 200 beds

Covid-19 effect of the Sector

The COVID-19 pandemic had demonstrated, the performance of any health system depends critically on the availability of an adequate number of skilled and motivated healthcare professionals. The COVID-19 crisis had highlighted the crucial function and commitment of frontline healthcare workers while also shedding attention to the pervasive problem of staff shortages. Some of the major findings are given bellow:

- During the Covid-19 there was considerable disparity between the number of doctors and patients. WHO estimated that only 3.05 doctors and 1.07 nurses were working per 10,000 people in Bangladesh.
- Among all the frontline service providers during Covid, the highest rate of death was observed for doctors in Bangladesh.
- During and after Covid-19 a higher number of people were affected mentally with four major mental health issues. Rates of loneliness, depression, anxiety and sleep disturbance were 71%, 38%, 64% and 73%, respectively.
- The rate of nurses graduating also slowed down and the demand for nurses increased.¹⁸⁸ The number of graduating nurses is supposed to be 40,805 every year if the enrollment is done properly.¹⁸⁹

Challenges and opportunities of nursing and midwifery sector: findings from the SWOT analysis

SWOT analysis identified the following major strengths, weaknesses, opportunities, and threats that could impact the growth of the nursing and midwifery sector:

¹⁸⁸ Protective measures against COVID-19 for nurses and midwives in Bangladesh, Mohammad Abbas Uddin, Rabeya Basri, Mala Reberio, MedCrave, 2022. Impact Of Covid-19 On Essential Health Services In Bangladesh, Brac, 2020

¹⁸⁹ Analysis of the health, economic and environmental impacts of COVID-19: The Bangladesh perspective, Sneha Gautam Shamsunnahar Setu Mohd Golam Quader Khan Md. Badiuzzaman Khan, Evilser, 2022.

Table 43: SWOT analysis of nursing and midwifery sector

<p>Strengths</p> <ol style="list-style-type: none"> 1. International standard curriculum and high quality of education on nursing and midwifery at undergrad, post-graduation and diploma level 2. Capacity to enroll 35000 nurses annually 3. Strong infrastructure (Institutional and clinical capacity, IT access, etc.) 4. Strong partnerships of the management with local clinical agencies 5. Easier entry to profession through relevant education and training. 6. Strong local health system through community clinic 7. Strong collaboration between govt., private sector and NGOs 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Inadequate faculties to implement specific curriculum 2. Lack of utilizing available resources 3. Lack of knowledge and inadequate information required for licensing examinations of nurses set by the destination countries 4. Limited clinical space for hands-on training and practice as per educational need 5. Lack of knowledge on second/foreign language and communication skills 6. Shortage of skilled nursing and midwifery trainer 7. Absence of enabling environment and motivation at the workplaces 8. Limited scope to improve professional knowledge and skills at the workplaces 9. Lack of continuous assessment of the ongoing global market demand 10. Absence of effective platforms to facilitate export of services
<p>Opportunities</p> <ol style="list-style-type: none"> 1. High demand of job placement for the nurses and midwives at home and abroad. 2. High demand of elder care services 3. Government policy support to the nursing and midwifery professionals in case of both education and service 4. Competitive salary at abroad 5. Social and professional acceptance at abroad 6. Increasing number of specialized nurses 7. Increasing social support 8. Opportunities for higher education such as M.Sc, MPH and PhD in Nursing 9. Accreditation of nursing education programs 	<p>Threats</p> <ol style="list-style-type: none"> 1. Imposition of safeguard measures by WHO on exporting nurses from Bangladesh. 2. Stiff competition in international health workforce 3. Social restrictions and mindset disfavoring the professional image. 4. Less compliance of International Labour Organization (ILO) conventions about social safety of the professionals of this sector in some countries. 5. Lack of promotional activities both home and abroad 6. Insecurity of workplace

Source: BFTI findings generated from KII and Stakeholder Consultation

Key strengths

International standard Curriculum and high quality of education on nursing and midwifery at undergrad, post-graduation and diploma level: The nursing and midwifery programs in Bangladesh are developed in collaboration with international organizations such as WHO, UNFPA, and Canadian Association of Schools of Nursing, and follow international standard curriculum. The stakeholders of this sector agreed that the programs maintain excellent quality. Capacity to enroll 35000 nurses annually: As per BNMC statistics, currently Bangladesh has 859 public and private institutes and capacity to enroll 35,000 nurses annually.

Strong infrastructure (institutional and clinical capacity, IT access, etc.): Nursing and midwifery institutes are well equipped with clinical capacity for practice, IT access for online admission and other educational facilities. Major public nursing and midwifery institutes are sufficient with qualified faculties and infrastructures.

Strong partnerships of the management with local clinical agencies: Bangladesh has the strong local community clinic across the country and the local people can get minimum level of clinical facilities and KII findings reveal that the local private and government clinics have a strong partnership of the management.

Easier entry to profession through relevant education and training: Ministry of Health, DGNM and BNMC follow a standard procedure for entrance examination for nursing and midwifery graduation level they offer different short term (six and one year) course and they can have easier access to profession in private clinics.

Strong local health system through community clinic: Bangladesh has established more than 13,000 community clinics (CCs) to provide primary healthcare with a plan of each covering a population of around 6,000,¹⁹⁰ with this strong local health system, people can have minimum level of clinical service all over Bangladesh.

Strong collaboration between govt., private and NGOs: DNMC, BNMC, MoH all are closely working with WHO to provide international standard health service across Bangladesh. Stakeholders revealed that Save the Children, BRAC and other community based private NGOs have strong collaboration with the government in this regard.

Key weaknesses

Inadequate faculties to implement specific curriculum: The KII findings revealed that the number of specialized curriculums for specialized courses are introduced at minimum level and the nursing and midwifery institutes do not have adequate number of faculties.

Lack of utilization of available resources: Different stakeholders from different nursing institutes expressed concern about the utilization of available resources of public institutes. The findings show that the nursing institutes have enough resources but they do not have adequate number of skilled workforces.

Lack of knowledge and information required for licensing examinations of nurses set by the destination countries: During the KII the stakeholder and nursing students expressed their concern that they have limited information on licensing examinations of nurses set by the destination countries and they have limited resources too.

190 Community clinics in Bangladesh: A unique example of public-private partnership, Baizid Khorshid Riaza , Liaquat Ali , Sk. Akhtar Ahmad, Md. Ziaul Islam , Kazi Rumana Ahmed, Sharmin Hossain, Heliyon, <https://doi.org/10.1016/j.heliyon.2020.e03950>, Science Direct, 2020

Limited clinical space for hands-on training and practice as per educational need: The nursing and midwifery service have two sectoral dimensions - one is publicly owned institutes and another is private owned institutes. Publicly owned institutes have satisfactory level of clinical space for hands-on training and practices, however private owned institutes have limited clinical space for hands-on training and practices.

Lack of knowledge on second/foreign language and communication skills: If Bangladesh wants to export more nurses and midwives, the nurses and midwives should know the export destinations' countries' language, curriculum and examination processes. The KII findings revealed that there is a gap about second/foreign language and communication skills.

Lack of skilled nursing and midwifery trainer: Public and private nursing and midwifery institutes greatly feel the limitation of skilled nursing and midwifery trainer and both private and public stakeholder agreed that the faculties have limited skilled trainer.

Absence of enabling environment at the workplaces: Numerous stakeholders have brought up the shortage of night shift nurses in hospitals and clinics during public consultations. As a result of this shortage, the working environment for nurses may occasionally be unsatisfactory.

Limited scope to improve professional knowledge and skill at the workplaces, lack of continuous assessment of the ongoing global market demand, lack of motivation in working place, absence of effective platforms to facilitate export of services and lower male-female ratio of nurses and midwives are the other major weaknesses of the sector.

Key opportunities

High demand of job placement for the nurses and midwives in home and abroad: As of the end of 2019, there were 255 public hospitals, 5,054 private hospitals and clinics, and 9,529 diagnostic centers under the registration of Directorate General of Health Services (DGHS) ¹⁹¹ and globally there is huge demand too. As nursing and midwifery is technical profession and there is high guarantee of job placement in the hospitals and clinics.

Government policy support to the nursing and midwifery professionals in case of both education and service: Government has initiated different policy support for nurses and midwives like enrollment in the government position, availability of scholarship, etc. to support the nursing and midwifery professionals in case of both education and service.

Competitive salary at abroad: The average starting salary of hospital and community registered nurses between 2006-16 was over 40,000 USD ¹⁹² as well as according to the U.S. Bureau of Labor and Statistics (BLS), registered nurses in the United States in 2020 made an average salary of \$75,330. The information shows a great prospect of competitive salary abroad.

Social and professional acceptance abroad: Nursing and midwifery service are noble profession in the world, in abroad there is no social stigma about nursing and midwifery profession. The high-income group countries tend to have more nurses than the lower income countries.

¹⁹¹ Healthcare, BIDA, available at <https://bida.gov.bd/healthcare>

¹⁹² International Council of Nurses Workforce Forums, Howard Catton, ICN Director, Nursing and Health Policy, 2018

Increasing number of specialized nurses: As discussed before, there are currently six different types of specialist nursing courses offered by DGNM, and that number is steadily growing. The results of the KII and public consultations suggest that there is a growing need for specialized courses, and nurses are particularly interested in doing specialized nursing courses.

Increasing social support: The study suggests that, there is a rising interest among the general public in the nursing profession, particularly in rural areas, where interest is higher than in urban areas.

Opportunities for higher education such as M.Sc, MPH and PhD in Nursing: Now DGNM offers higher education such as M.Sc, MPH and PhD in Nursing which enabling the nurses grow their careers and find better job replacement in home and abroad.

Key threats

Imposition of safeguard measures by WHO on exporting nurses from Bangladesh: As per WHO rule, for every 1000 people 3 nurses will be needed; as per World Bank data till 2020, Bangladesh has 0.5 nurses for every 1000 people, thus a safeguard measure is imposed by WHO on exporting nurses form Bangladesh.

Stiff competition in international health workforce: Philippines is the leading country in exporting nurses worldwide, contributing 29.3% of all immigrant RNs and 4.5% of all RNs worldwide. India is second with a 6.7% share of immigrant RNs and 1% of all RNs worldwide. Nigeria comes in third with 4.4%, while Bangladesh is facing stiff competition in the international health workforce.

Social restrictions and mindset disfavoring the professional image: Nursing and midwifery professions in Bangladesh face social stigma and are considered lower-level jobs, which negatively impacts the profession's image and discourages people from pursuing it.

Less compliance with ILO conventions about social safety of the professionals: According to ILO, The Nursing Personnel Convention, 1977 (C 149) and the Nursing Personnel Recommendation, 1977 (R 157), is not implemented properly and this is a negative compliance issues for Bangladesh.¹⁹³

Lack of promotional activities both at home and abroad: The lack of significant promotion by the government or private sector is a major threat to Bangladesh's potential to export a large number of nurses and midwives.

Insecurity at workplace: Workplace bullying of nurses is a widespread and worsening issue with negative impacts on healthcare organizations, the health system, and employee performance.¹⁹⁴

¹⁹³ ILO Nursing Personnel Convention No.149, International Labour Organization, 2005

¹⁹⁴ Workplace bullying among nurses in Bangladeshi government hospitals, Liton Roy and A.K.M. Dawlat Khan, Asian Journal of Medical and Biological Research, ISSN 2411-4472 (Print) 2412-5571.

Sector specific LDC graduation related challenges

Following table represents the challenges that each of the 12 sectors are likely to experience after LDC graduation:

Table 44: Sector specific LDC graduation related challenges

SL	Sectors	LDC graduation related challenges
1.	Ready Made Garments (Knitwear and Woven)	<ul style="list-style-type: none"> ◆ May cause significant decrease in Bangladesh exports of apparel to the EU, Canada, Australia, UK, Japan, South Korea etc due to loss of preferential tariff. ◆ The rules of origin will be more stringent. ◆ Bangladesh will not be able to provide cash incentives for export.
2.	Pharmaceuticals & API	<ul style="list-style-type: none"> ◆ The Pharmaceuticals sector may face significant hurdle as it mainly depends on the Trade-Related Aspects of Intellectual Property Rights (TRIPS) of WTO which provides special exemption in patent protection and licensing requirements for pharmaceutical products of LDCs till 1 January 2033. ◆ Bangladesh will lose access to special technology transfer schemes and will have to comply with the full requirements for the use of special Compulsory Licensing to export medicines. ◆ Bangladesh will have to also bear higher fees of global IP registration systems such as the Patent Cooperation Treaty.
3.	Leather and Leather Goods	<ul style="list-style-type: none"> ◆ Based on WTO Tariff Analysis Online (TAO) in the EU market leather goods are now enjoying zero tariffs but after LDC graduation MFN tariff rate (5%) will be applied. ◆ Similarly in Japan's market preferential tariff of 4.04% will be replaced by MFN rate of 10.57% after LDC graduation. ◆ However, after the graduation both zero tariff and export incentives will cease to exist which will increase the product price decaying the appeal to current markets. ◆ After graduating from LDC status, Bangladesh will no longer enjoy the rules of origin benefits in GSP facilities provided by different countries.
4.	Non-Leather Footwear	<ul style="list-style-type: none"> ◆ Bangladesh is likely to face increased tariff rates in exporting nations due to stricter rules of origin. ◆ Bangladesh won't be eligible to provide export subsidies, which may result in a significant reduction of export earnings and slow sector growth for non-leather footwear exporters. ◆ Bangladesh will lose access to duty-free markets in several countries like the EU, UK, Japan, Canada, Russia, and Australia, etc. which may put profits from these markets at risk.
5.	Light Engineering Including Electronics and Electrical Sector	<ul style="list-style-type: none"> ◆ The LE sector may face uncertainty as the preference to the major export markets will be withdrawn ◆ it will ultimately surge the pressure in terms of export competitiveness.

SL	Sectors	LDC graduation related challenges
6.	Plastic sector	<ul style="list-style-type: none"> ◆ Bangladesh's export may suffer due to loss of the Duty-free, Quota-free (DFQF) market access in different countries like EU, UK, Japan, Canada, Russia, Australia and etc. ◆ Plastic sector will face stringent Rules of Origin in most of the developed and developing countries. ◆ Bangladeshi plastic products may face repercussions becoming less competitive in the international markets.
7.	Shipbuilding Sector	<ul style="list-style-type: none"> ◆ Bangladesh will no longer be eligible to provide export subsidies on non-agricultural products, including the 10% export subsidy on ships. ◆ Bangladeshi products will be less competitive in international markets. ◆ After graduating from LDC status, complying with human rights and labor rights conventions will be challenged.
8.	Agro Products and Processed Foods	Bangladesh will not be able to provide cash incentives for agro products after graduation.
9.	Fisheries Sector	<ul style="list-style-type: none"> ◆ Subsidies on fuel for marine fishing trawlers may not be provided. ◆ Cash incentives for export of sea borne fisheries will not be continued. ◆ Bangladesh will no longer be eligible for grants and low-interest loans under official development assistance (ODA) from developed nations.
10.	Livestock Sector	<ul style="list-style-type: none"> ◆ Bangladesh will not be eligible to provide export subsidies after graduation. This may lead to sluggish growth of the sector, since govt. support is still required for livestock sectors. ◆ Bangladesh will lose duty-free market access in different countries like UK, EU, Japan, Canada, United Arab Emirates, Canada, Thailand, Maldives, Kuwait, Australia etc. ◆ Bangladeshi meat and dairy products will be less competitive in the international markets once the preferential treatment for Bangladeshi products is no longer applicable. ◆ Bangladesh will no longer be eligible for grants and low-interest loans under official development assistance (ODA) from developed nations.
11.	Software & IT related Services Sector	◆ Bangladesh will need to ensure computer and related services (CRS) related to compliance required under the TRIPS agreement as well as other international treaties.
12.	Tourism Sector	Sector specific challenges are found but no LDC graduation specific challenges are evident.
13.	Nursing and Midwifery Services	Sector specific challenges are found but no LDC graduation specific challenges are evident.

Trade Roadmap for sustainable graduation and implementation matrix

In light of the upcoming graduation-related challenges, a roadmap for 12 sectors has been proposed that aims to provide a detailed guideline of the steps that need to be undertaken to combat the challenges and overall development of the sectors to increase competitiveness. Some of the interventions proposed as a part of the roadmap would require multi-sectoral support for successful implementation. This roadmap incorporated actions and interventions based on the stakeholders' opinions and feedback. The roadmap is presented in a tabular format with six separate columns that provide an overview of required actions in terms of Objectives, Recommended Intervention(s), Specific Action (s), Lead Ministries/Agencies, Supporting Ministries/Agencies and a specific timeline. Proposed trade roadmap for sustainable graduation is available in the Annexure.

Implementation arrangement

The implementation of the trade roadmap of 12 sectors in Bangladesh requires a well-coordinated effort between various government agencies, ministries and stakeholders. The trade roadmap recommends specific interventions with clear objectives for each sector and outlines specific actions to achieve those objectives. The trade roadmap also recommends lead ministries/divisions for each sector, as well as their supporting ministries/divisions. It also indicates the lead ministry/division is responsible for implementing monitoring the roadmap in association with supporting ministries/divisions within the proposed timeline. The main tasks of the lead agencies will be to identify priority areas of trade roadmap, review the actions and timeline of the roadmap including implementation of the action plans.

Resource mobilization plan

A resource mobilization plan is essential for implementing the trade roadmap as it enables the identification and allocation of resources necessary to achieve the desired goals and objectives. The lead ministries or agencies may primarily assess the required, available and expected funding sources and funding gaps for the implementation of the trade roadmap. According to the assessment, the lead agencies may prepare a resource mobilization plan considering their allocated budget and request Finance Division for allocating additional fund, if required. The Finance Division will assess the funding request and allocate the resources available. Moreover, The Economic Relations Division (ERD) may negotiate with development partners for necessary financial support as required by the lead ministries.

Monitoring & Evaluation mechanism

An effective monitoring and evaluation (M&E) mechanism is crucial to implement the trade roadmap successfully. The trade roadmap has included specific actions and a timeline to measure progress towards achieving its goals and objectives. In addition, the lead agency will constitute a committee to monitor the progress of the implementation of the roadmap. A focal person may be engaged from the lead Ministry/Division who can coordinate the monitoring activities. The lead agencies should regularly collect data, analyze it, and report on progress to ensure that the roadmap is on track. A central coordination committee led by Ministry of Commerce comprising relevant ministries/divisions can be established for ensuring effective monitoring and evaluation of the implementation of the roadmap. The committee may meet in every six months to monitor and evaluate the progress of the roadmap. The central committee of the Ministry of Commerce will apprise the National Committee on LDC Graduation under Prime Minister's Office about the progress of the roadmap. Establishing clear communication and collaboration among the stakeholders are crucial to the success of the M&E mechanisms.

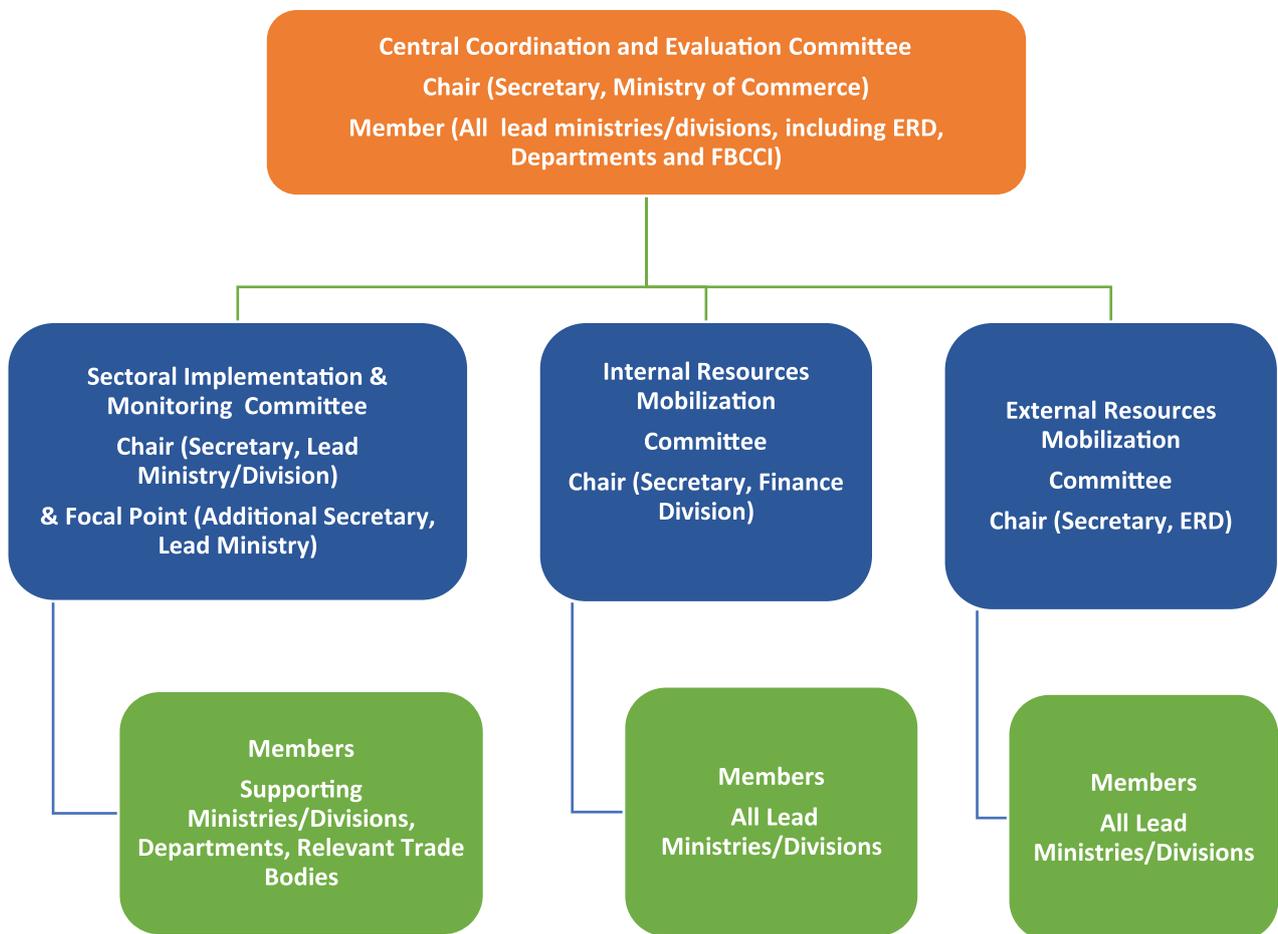
Integration in national plans and budget

It is imperative to integrate the trade roadmap into the country's national plans and budgets to ensure the successful implementation of the roadmap in Bangladesh. This entails assimilating the trade roadmap's objectives and goals into relevant national policies and strategies. Furthermore, sector-specific ministries or divisions must allocate adequate budgetary resources towards implementing the trade roadmap. Regarding financial support, the lead ministry/division may contact Finance division, Economic Relations Division and Respective division of the Planning commission.

Proposed Implementation, Monitoring and Evaluation and Resource Mobilization Arrangement:

The following diagram depicts the outline of implementation, monitoring and evaluation and resource mobilization arrangement for the proposed roadmap:

Figure 54: Proposed Implementation, Monitoring and Evaluation and Resource Mobilization Arrangement



Conclusions

Export is the lifeline of the economy of Bangladesh. Export diversification along with developing sectoral competitiveness will be the fulcrum in sustaining Bangladesh's economic growth during and after the LDC graduation. The study explored the trade performance of the country over the years and outlined potential impediments to LDC graduation. Moreover, updates and actions taken on the interventions on the DTIS 2016 recommended four-pillar strategy to address the trade-related challenges of Bangladesh are delineated in this study. Based on the detailed existing literature review, key informant interviews and stakeholder consultations, The study analyzed trade-related graduation challenges and prospects of the 12 sectors of goods and services, including Readymade Garments (Woven and Knitwear), Pharmaceuticals and API, Leather and Leather Goods, Non-Leather Footwear, Light Engineering including Electronics and Electrical Products, Shipbuilding, Plastic Products, Agro-products and processed foods, Fisheries and Livestock, Software & IT related Services, Tourism, Nursing and Midwifery Services. The study highlights sector-specific strengths, weaknesses, opportunities, threats, and strategies to overcome them to realize the export potential and sustain export-led growth. Also, the study proposed trade roadmaps for each sector that aim to overcome trade-related graduation challenges as well as build sectoral competitiveness for sustainable graduation and economic growth.

References

- Ahmed, Z., Sarker, M. A., Rahman, M. Z., Lei, B., & Mukta, M. Z. N. (2018). Fisheries extension in Bangladesh and local extension agent for fisheries: A micro level assessment of farmers' Attitude. *International Journal of Fisheries and Aquatic Studies*, 6(4), 92-103. <https://www.fisheriesjournal.com/archives/2018/vol6issue4/PartB/6-3-10-821.pdf>
- Akter, N., Akter, M. K., & Turale, S. (2019). Barriers to quality of work life among Bangladeshi nurses: a qualitative study. *International Nursing Review*. Advance online publication. <https://doi.org/10.1111/inr.12540>
- Alam, A. K. M. N. (2010). Department of Fisheries Technology Bangladesh Agricultural University, Mymensingh. National Food Policy Capacity Strengthening Programme. Post-harvest Loss Reduction in Fisheries in Bangladesh: A Way Forward to Food Security. Retrieved from http://fpmu.gov.bd/agridrupal/sites/default/files/Nowsad_Alam-PR5-08.pdf
- Apiccaps - Associação Portuguesa Ind. Calçado Componentes Artigos Pele Sucedaneos (APICCAPS). (2021). The World Footwear 2021 Yearbook. Retrieved From <https://www.worldfootwear.com/getmedia/?f=d2YyMDIxMjAyNjU1MTk4Ny5wZGY=&imfd=MjAyNg==&fo=UHVibGlj>
- Arriola, C., Kowalski, P., & van Tongeren, F. (2021). The impact of COVID-19 on directions and structure of international trade. *OECD Trade Policy Papers*, (252). <https://dx.doi.org/10.1787/0b8eaafe-en>.
- Asia Pacific Observatory on Public Health Systems and Policies. (2015). Bangladesh Health System Review. *Health Systems in Transition*, Vol. 5, No. 3.
- Asian Development Bank (ADB). (2012). Women at Work (ADB Brief NO.68). Retrieved From <https://www.adb.org/sites/default/files/publication/203906/women-work.pdf>
- Australian Aid, Partnership for South Asia, World Bank Group. (2016). Women's Participation, Constraints, and Opportunities for Trade in Bangladesh. Rederived From <https://documents1.worldbank.org/curated/en/378451611554787475/pdf/Women-s-Participation-Constraints-and-Opportunities-for-Trade-in-Bangladesh.pdf>
- Bangladesh Bank (BB). (2022). FEPD Circular No. 26: Export subsidy/Cash incentive for the financial year 2022-2023. Retrieved from <https://www.bb.org.bd/mediaroom/circulars/fepd/sep192022fepd26.pdf>
- Bangladesh Bank (BB). Monetary Policy Department. (2022). Major Economic Indicators: Monthly Update April 2022.
- Bangladesh Bureau of Statistics (BBS), Statistics and Informatics Division (SID), Ministry of Planning. (2018).
- Bangladesh Statistics 2018. Retrieved from http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/a1d32f13_8553_44f1_92e6_8ff80a4ff82e/Bangladesh%20%20Statistics-2018.pdf
- Bangladesh Bureau of Statistics (BBS). (2019). Survey of Manufacturing Industries. Retrieved From http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b343a8b4_956b_45ca_872f_4cf9b2f1a6e0/2022-02-24-04-32-b25cbe0e82109a3b6eb0b4c76553d206.pdf

Bangladesh Bureau of Statistics (BBS). (2022). Gross Domestic Product (GDP) of Bangladesh 2021-2022 (p). Retrieved on 15 December 2022, from http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/057b0f3b_a9e8_4fde_b3a6_6daec3853586/2022-05-10-08-39-8796d375a266de9952d293604426cd1c.pdf

Bangladesh Bureau of Statistics (BBS). (2022). Statistical Yearbook Bangladesh 2021 (41st edition). Retrieved from http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b2db8758_8497_412c_a9ec_6bb299f8b3ab/2022-06-15-10-49-3cf641425dd693f9e954de5ae9470775.pdf

Bangladesh Foreign Trade Institute (BFTI). (2016). Sector-based Need Assessment of Business Promotion Council-Leather Sector.

Bangladesh Foreign Trade Institute (BFTI). (2018). Export potentials of trade in services of Bangladesh, identifying opportunities and challenges.

Bangladesh Foreign Trade Institute (BFTI). (2019, May). Non-Tariff Measures/Barriers Faced by Bangladesh While Exporting to Major Export Destinations. Retrieved from https://bfti.org.bd/?page_id=52

Bangladesh Garment Manufacturers and Exporters Association (BGMEA). (2018). BGMEA Gender Equality and Women's Empowerment Survey. <http://www.bgmea.com.bd/home/page/BGMEA-Gender-Equality-and-Women-Empowerment-Survey-2018>.

Bangladesh Investment Development Authority (BIDA). (2019). Retrieved on December 08, 2022, from <https://bida.gov.bd/light-engineering>

Bangladesh Investment Development Authority (BIDA). (2020). Agribusiness Growth by Nature. Agribusiness Sector Profile, Available at: <https://bida.gov.bd/storage/app/uploads/public/625/658/1db/6256581db4fd1719994967.pdf>

Bangladesh Investment Development Authority (BIDA). (2020). Agro Processing. From <https://bida.gov.bd/agro-processing>

Bangladesh Investment Development Authority (BIDA). (2020). Agro & Food Processing Industries. Available at: <https://bida.gov.bd/storage/app/uploads/public/628/c73/ca9/628c73ca9b17a677576784.pdf>

Bangladesh Investment Development Authority (BIDA). (2020). Bangladesh Investment Handbook. Retrieved from <https://bida.gov.bd/storage/app/uploads/public/616/574/5b4/6165745b4594f798677522.pdf>.

Bangladesh Investment Development Authority (BIDA). (2020). Non-leather footwear sector profile. Retrieved from <http://www.bida.gov.bd/webroot/resources/page/sectors/footwear-sector-profile.pdf>

Bangladesh Telecommunication Regulatory Commission (BTRC). (2022, December 15). available at <http://www.btrc.gov.bd/site/page/347df7fe-409f-451e-a415->

Barua, P., & Sarker, S. (2010). Operational problems of aquaculture technologies in Chittagong region of Bangladesh. *Fishing Chimes*, 30(8).

BCAS. (2016). The State of Environmental Pollution and its Impact on Health in Dhaka City. Bangladesh Center for Advanced Studies.

BELA. (2017). Environmental pollution by tanneries in Bangladesh: A critical review. Bangladesh Environment Lawyers Association.

Berland, A., Richards, J., & Lund, K. D. (2010). A Canada-Bangladesh partnership for nurse education: Case study. *International Nursing Review*.

Berland, Alex. (2014). *Advancing Nurse Education in Bangladesh*. Centre for Policy Research, IUBAT—International University of Business Agriculture and Technology, Dhaka, Bangladesh. Retrieved from https://www.researchgate.net/publication/313715175_Advancing_Nurse_Education_in_Bangladesh

BRAC Institute of Governance and Development, BRAC University. (2019). *COVID-19 Pandemic Outbreak Impact Analysis on Footwear Sector in Bangladesh*.

Business Initiative Leading Development (BUILD). (2022). *Leather Sector Export Roadmap, A strategic framework for accelerated export growth*. Export Statistics Pocketbook 2020-21. Export Promotion Bureau (2022).

Chandra, K. J., Chowdhury, A. R., & Das, D. R. (2010). Shrimp culture practices at farmers level in Bagerhat District. *Progressive Agriculture*, 21(1-2), 173-185. <https://www.banglajol.info/index.php/PA/article/view/16766/11797>

Chittagong Port Authority (CPA) News. (2018). *Shipbuilding in Bangladesh: Rewriting history of a golden past, a potential future*. Women in the maritime sector: where Bangladesh stands, Vol 03, Issue 01, April.

Chowdhury, M. T. H., Sukhan, Z. P., & Hannan, M. A. (2010, September). Climate change and its impact on fisheries resource in Bangladesh. In *Proceeding of International Conference on Environmental Aspects of Bangladesh (ICEAB)*, Japan.

Department of Fisheries Bangladesh Ministry of Fisheries and Livestock. (2019-20). *Yearbook of Fisheries Statistics of Bangladesh 2019-20*. Retrieved from https://fisheries.portal.gov.bd/sites/default/files/files/fisheries.portal.gov.bd/download/fa8a7744_bb11_4472_8afe_425083d221c8/2021-09-15-09-10-577655ff2458bff8c7377e82e7ed4c43.pdf

Department of Fisheries. (2020). *Annual Report*. Retrieved from https://fisheries.portal.gov.bd/sites/default/files/files/fisheries.portal.gov.bd/publications/85db2215_1dde_4108_8b7e_1fba761bb28f/2022-07-25-06-47-df3096627f187d56212530b671113147.PDF

DinarStandard. *Dubai Economy and Tourism (DET)*. (2022). *State of the Global Islamic Economy Report*. Available at: https://cdn.salaamgateway.com/reports/pdf/State+of+the+Global+Islamic+Economy+Report+2022_V2_Updated.pdf

Export Competitiveness for Jobs (EC4J) Project. (2018). *Bangladesh Light Engineering Sector Export Roadmap*.

Export Promotion Bureau. (2022). *Export Statistics Pocketbook 2020-21*.

Faruk, M. A. R., Alam, M. J., Sarker, M. M. R., & Kabir, M. B. (2004). Status of Fish Disease and Health Management Practices in Rural Freshwater Aquaculture of Bangladesh. *Pakistan Journal of Biological Sciences*, DOI:10.3923/pjbs.2004.2092.2098.

- Finance Division, Government of Bangladesh. (2022). Economic Review 2022. Retrieved from https://mof.portal.gov.bd/sites/default/files/files/mof.portal.gov.bd/page/f2d8fabb_29c1_423a_9d37_cdb500260002/16_BER_22_En_Chap07.pdf
- Finance Division, Government of Bangladesh. (2022). Gender Budget Report FY 2022-23.
- Finance Division, Government of Bangladesh. (2022, June 9). National Budget Speech 2022-2023.
- Food and Agriculture Organization (F.A.O). (2022). Women in Agriculture in Bangladesh. Retrieved from <https://www.fao.org/3/cb3439en/cb3439en.pdf>
- Gautam, S., Setu, S., Quader Khan, M. G., & Badiuzzaman Khan, M. (2022). Analysis of the health, economic and environmental impacts of COVID-19.
- Gomes, T., & Blake, A. (2020). Tourism as a Driver for Promoting Gender Equality? A Case Study of Participation of Women in the Tourism Labour Market in Cox's Bazar, Bangladesh. *Journal of Hospitality and Tourism Issues*, 2(2), 178-189.
- Gürel, E., & Tat, M. (2017). SWOT Analysis: A Theoretical Review. *The Journal of International Social Research*. doi: <http://dx.doi.org/10.17719/jisr.2017.1832>
- Hodges, R. J., Buzby, J. C., & Bennett, B. (2011). Postharvest losses and waste in developed and less developed countries: opportunities to improve resource use. *Journal of Agricultural Science*, 149, 37-45.
- Industry Arc. (2022). Non-leather Products Market - Industry Analysis, Market Size, Share, Trends, Application Analysis, Growth and Forecast 2022 – 2027.
- Innovation Consulting. (2020). Polyurethane (Pu) Leather: The Potential Frontier of Export Industry. Retrieved from <http://innovision-bd.com/polyurethane-pu-leather-the-potential-frontier-of-export-industry/>
- Institute of Chartered Accountants of Bangladesh (ICAB). (2022) Bangladesh Dairy Industry: A Lucrative Sector for Investment Heterogeneity, publication of the Institute of Chartered Accountants of Bangladesh available at: <https://www.icab.org.bd/publication/news/4/449/Bangladesh-Dairy-Industry:-A-Lucrative-Sector-for-%20%20Investment-Heterogeneity>
- International Finance Corporation (IFC), Ministry of Commerce. (2019). Leather Sector Export Roadmap.
- International Finance Corporation (IFC), World Bank. (2019). Leather Sector Export Roadmap: A strategic framework for accelerated export growth, EC4J Project.
- International Labour Organization (ILO), UN Women. (2018). Enterprise level survey. Study on the Ready-made Garment Sector in Bangladesh.
- International Labour Organization (ILO). (2017a). Improving Working Conditions in the RMG Sector Phase-II: Baseline Study Report.
- International Labour Organization (ILO). (2017b). Women in the Non-Leather Footwear Sector in Bangladesh: Challenges and Opportunities.
- International Labour Organization (ILO). (2017C). Hazardous chemicals and waste in the non-leather footwear sector in Bangladesh.

- International Labour Organization (ILO). (2022). Future of Work for Female Garment Workers in Bangladesh.
- International Trade Centre (ITC). (2022, July 26). ITC trade map. <https://www.trademap.org>
- Islam MS, Jahan H, Al-Amin AKMA (2016). Fisheries and aquaculture sectors in Bangladesh: an overview of the present status, challenges and future potential. *Journal of Fisheries and Aquaculture Research*, 1(1): 002-009. <https://doi.org/10.6084/m9.figshare.9738689>
- Islam. Saiful, Agro and Farming, Agricultural Extension Services in Bangladesh. Retrieved from, <https://agricultureandfarming.wordpress.com/2013/11/07/agricultural-extension-services-in-bangladesh/>
- Joarder, T., Parvage, M. A., Rawal, L. B., & Ahmed, S. M. (2021). A Policy Analysis Regarding Education, Career, and Governance of the Nurses in Bangladesh: A Qualitative Exploration. *Policy, Politics, & Nursing Practice*, 22(2), 114-125.
- Kashem, M. A., & Faroque, M. A. (2010). Agricultural Technology: A Challenge to Way Forward Sustainable Development.
- Khan Rony, M. K. (2021). Diploma in Nursing or Bachelor of Science in Nursing: Contradictory issues among nurses in Bangladesh. *Belitung Nursing Journal*, 7(1), 57-58.
- Khan, W. (2014). Leather Industry in Bangladesh: Opportunities and Challenges. *American Journal of Trade and Policy*, 1, 119-126. <https://doi.org/10.18034/ajtp.v1i3.373>
- Khatun, F., & Rahman, M. (2018). Quantifying Postharvest Losses of Tomato: A Farm Level Study in Selected Areas of Bangladesh.
- Light Castle and Centre of Excellence for Leather Skill Bangladesh Limited. (2020). Impact of COVID-19 Pandemic on Leather and Footwear SMEs.
- Liu, J.X., Goryakin, Y., Maeda, A. et al. Global Health Workforce Labor Market Projections for 2030. *Hum Resour Health* 15, 11 (2017). <https://doi.org/10.1186/s12960-017-0187-2>
- Ministry of Agriculture, Government of the People's Republic of Bangladesh. (2018). National Agriculture Policy.
- Ministry of Commerce, Government of Bangladesh. (2018). Export Policy (2018-2021).
- Ministry of Commerce, Government of Bangladesh. (2021). Export policy (2021-24).
- Ministry of Commerce, International Finance Corporation, The World Bank Group. (2022). Leather Sector Export Roadmap: A Strategic Framework for Accelerated Export Growth.
- Ministry of Industries, Government of the People's Republic of Bangladesh. (2022). Agro-food Processing Industry Promotion Policy.
- Ministry of Industries, Government of the People's Republic of Bangladesh. (2016). Industrial Policy 2016.
- Mollah, M. R. A., Hawlader, M. M. H., et al. (2018). Assessment of technological knowledge on pre-and postharvest agricultural management system and its economic impacts in Bangladesh. *Universal Journal of Agricultural Research*, 6, 79-90.

- Monselise, S. P., & Goren, R. (1987). Preharvest growing conditions and postharvest behavior of subtropical and temperate-zone fruits. *HortScience*, 22, 1185-1189.
- National Committee on LDC Graduation, Prime Minister's Office, Government of Bangladesh. (February, 2023). Preparedness For Graduation with Momentum: Strategies for Coping with Challenges and Tapping New Opportunities
- Naser, M. N. (2020). International Union for Conservation of Nature. Forest Department. Bangladesh National Conservation Strategy. Retrieved from http://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/notices/c3379d22_ee62_4dec_9e29_75171074d885/6.%20Inland%20Fisheries_NCS.pdf
- Organisation for Economic Co-operation and Development (OECD). (2020). Contribution of migrant doctors and nurses to tackling COVID-19 crisis in OECD countries.
- Organisation for Economic Co-operation and Development (OECD). (2021). Health at a Glance 2021. <https://doi.org/10.1787/ae3016b9-en>.
- Ozone Cell. (2021). Department of Environment. Ministry of Environment, Bangladesh. National Cooling Plan for the implementation of the Montreal protocol. Retrieved from <https://www.undp.org/sites/g/files/zskgke326/files/2022-06/Bangladesh%20National%20Cooling%20Plan%20for%20the%20Implementation%20of%20the%20Montreal%20Protocol.pdf>
- Paul, B. G., & Vogl, C. R. (2011). Division of Organic Farming, Department of Sustainable Agricultural Systems, BOKU-University of Natural Resources and Life Sciences. Impacts of shrimp farming in Bangladesh: Challenges and alternatives.
- Planning Commission, Government of Bangladesh. (2021). The 8th Five Year Plan.
- Prasad, S. M. M., Nguyen-Huy, T., & Deo, R. (2021). Support vector machine model for multistep wind speed forecasting. In *Predictive Modelling for Energy Management and Power Systems Engineering* (pp. 335-389). Elsevier.
- Proadhan, M. M. H., & Khan, M. A. (2018). Management practice adoption and productivity of commercial aquaculture farms in selected areas of Bangladesh. *Journal of the Bangladesh Agricultural University*, 16(1), 111-116.
- Raihan, S., Lemma, A., Khondker, B. H., & Ferdous, F. B. (2017). Asia Foundation, Bangladesh Sectoral Growth Diagnostic.
- Rangpur Dairy & Food Products Limited. (2022). Financial statements of Rangpur Dairy & Food Products. Available at: https://rdmilk.com/themes/rd_milk/assets/psi-pdf/Annual-Report-2021-2022.pdf
- Riaza, B. K., Ali, L., Ahmad, S. A., Islam, M. Z., Ahmed, K. R., Hossain, S. (2020). Community clinics in Bangladesh: A unique example of public-private partnership. *Heliyon*, 6(11), e03950. <https://doi.org/10.1016/j.heliyon.2020.e03950>
- S. Majumder (2022), The Role of the Light Engineering Industry Sector in Achieving Sustainable Development Goals (SDGs) of Bangladesh. Rederived from <https://www.icmab.org.bd/wp-content/uploads/2022/04/The-Role-of-the-Light-Engineering-Industry-Sector-in-Achieving-Sustainable-Development-Goals-SDGs-of-Bangladesh.pdf>

- Sakib, H., & Afrad, M. S. I. (2014). Adoption of modern aquaculture technologies by the fish farmers in Bogra district of Bangladesh. *International Journal of Agriculture Innovations and Research*, 3(2), 414- 21.
https://ijair.org/administrator/components/com_jresearch/files/publications/IJAIR_550_Final.pdf
- Salahuddin, M. Aminuzamman. (2007). *Migration of Skilled Nurses from Bangladesh: An Exploratory Study*. Development Research Centre on Migration, Globalisation and Poverty, University of Sussex.
- South Asian Network on Economic Modeling (SANEM). (2021). *Policy Review/Policy Study/Policy Paper Preparation on Leather and Leather Goods Development Policy 2019*.
- Sarker, M. R., Rahman, S. M. A., Islam, A. K. M. H., Bhuyan, M. F. F., Supra, S. E., Ali, K., & Noor, K. M. A. (2022). Impact of COVID-19 on Small- and Medium-sized Enterprises. *Global Business Review*.
- Shamsuzzaman, M. M., Islam, M. M., Tania, N. J., Al-Mamun, M. A., Barman, P. P., & Xu, X. (2017). Fisheries resources of Bangladesh: Present status and future direction. *Aquaculture and Fisheries*, 2(4), 145-156.
<https://www.sciencedirect.com/science/article/pii/S2468550X16300260>
- Sousa, A., Scheffler, R. M., Nyoni, J., & Boerma, T. (2013). A comprehensive health labour market framework for universal health coverage. *Bulletin of the World Health Organization*, 91, 892–894.
- Textile Today Analysis. (January 8, 2020). Man-made fibre: A great room to invest for Bangladesh textile and apparel millers. Retrieved from
<https://www.textiletoday.com.bd/man-made-fiber-a-great-room-to-invest-for-bangladesh-textile-and-apparel-millers/>
- Uddin, M. (2022). Future bright for RMG sector after record year. *The Daily Star*.
<https://www.thedailystar.net/recovering-covid-reinventing-our-future/blueprint-brighter-tomorrow/news/future-bright-rmg-sector-after-record-year-2960541>
- Uddin, M. A., Basri, R., & Reberio, M. (2020). Impact of Covid-19 On Essential Health Services in Bangladesh. BRAC.
- United Nations Conference on Trade and Development (UNCTAD). (2020). *Effective Market Access for Least Developed Countries' services exports* (p. 29). Retrieved from
https://unctad.org/system/files/official-document/ditctncd2019d1_en.pdf
- United Nations Department of Economic and Social Affairs (UNDESA). (2020). *Assessment of the impacts of the graduation of Bangladesh from the category of Least Developed Countries (LDCs)*.
- United States Department of Agriculture (USDA), Foreign Agricultural Service (FAS), Bangladesh. (2013). *Bangladesh Animal Feed Rules 2013*. Retrieved from
<https://www.fas.usda.gov/data/bangladesh-bangladesh-animal-feed-rules-2013>
- Vera Ashley. (2021). *Knowledge of Leather Alternatives: An Exploratory Study: Implications for Education*. *Journal of Textile Science & Fashion Technology (JTSFT)*, ISSN: 2641-192X.
- World Bank. (2022). *Creating a Green and Sustainable Growth Path for Bangladesh*. Retrieved from
<https://www.worldbank.org/en/news/feature/2022/06/06/creating-a-green-and-sustainable-growth-path-for-bangladesh>
- World Bank. (2023, May 09). *Gender Data Portal*. World Bank, Available at:
<https://genderdata.worldbank.org/data-stories/flfp-data-story/#:~:text=The%20global%20labor%20force%20participation,business%20expansion%20or%20career%20progression>

- World Bank. (2016). Attracting Investment in Bangladesh—Sectoral Analyses, a Diagnostic Trade Integration Study.
- World Trade Organization (WTO). (2020). Trade impacts of LDC graduation. Retrieved from https://www.wto.org/english/news_e/news20_e/rese_08may20_e.pdf.
- World Trade Organization (WTO). (2021). LDC Graduation and the WTO: Assisting LDCs to Address the Trade-Related Implications of Graduation from LDC Status. Retrieved from https://www.gradjet.org/wp-content/uploads/2021/02/WTO_COVID19_TradeTrendsInGraduatingLDCs_5Feb.pdf.
- World Trade Organization (WTO). (2021). Trade impacts of LDC graduation: Insights from country-specific market access analyses. Retrieved from https://www.wto.org/english/res_e/booksp_e/trade_impacts_of_ldc_graduation_insights.pdf.
- World Trade Organization (WTO). (2022). Implementing the WTO agreement on fisheries subsidies. Retrieved from https://www.wto.org/english/res_e/booksp_e/implementfishagreement22_e.pdf
- World Trade Organization (WTO). (2022). World Trade Statistical Review 2022.
- World Trade Organization (WTO). (2022, September 03). Computer and related services, Available at: https://www.wto.org/english/tratop_e/serv_e/computer_e/computer_e.htm
- Zhang, X., Rashid, S., Ahmad, K., & Ahmed, A. (2014). Escalation of Real Wages in Bangladesh: Is it the Beginning of Structural Transformation? *World Development*, 64, 273–285. <https://doi.org/10.1016/j.worlddev.2014.06.015>

Annexure- Trade roadmap for sustainable graduation

1. Trade Roadmap for RMG sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1. Develop a skilled and industry-ready workforce	Establish industry-based training institute/s	<ul style="list-style-type: none"> Provide incentives in establishing industry-based training institute. Ensure collaboration with RMG manufacturers for setting up modern machinery and technology-based institute staffed with highly qualified trainers. 	Ministry of Industries (MoIND)	FD, MoC, BTEB, NSDA, BGMEA, BKMEA, RMG factories.	12 - 36
2.Improve productivity	Adopt upgraded technologies, production processes including digitization and automation	Make realistic assessment for upgraded technology uptakes in Bangladesh's RMG industry context; assess investment requirements including potential sources of fund; learn best practices from competing countries such as China, Vietnam.	Ministry of Commerce (MoC)	NPO, ICTD, BKMEA, BGMEA	24
	Improve product design locally through Research and Development (R&D)	Provide technical support services such as bringing in international design experts, establish required infrastructure in order to enhance product design capability of local manufacturers.	Ministry of Industries (MoIND)	NPO, BGMEA, BUFT, BKMEA, BGMEA	12
3. Ensure environmental and social compliance	Promote environmentally complied factories	Continue preferential tax facility for the green factories.	National Board of Revenue (NBR)	MoC, MoIND, FD	24
	Introduce safety net program taking collective initiative from public and private sector to establish workers' welfare fund with a proper management system in place.	<ul style="list-style-type: none"> Respective ministry and trade organizations to ensure individual enterprises create welfare funds for workers' wellbeing. Workout the specifics for administration of the fund. 	Ministry of Labour and Employment (MoLE)	MoC, FD, BGMEA, BKMEA	12-36

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
4. Simplify procedure for the bond license holder to release goods, machinery, etc. by full automation.	Ensure effective management of an automated system at customs with right people in place.	<ul style="list-style-type: none"> • Introduce shifting system in customs houses to ensure faster customs assessment. • Introduce Key Performance Indicator (KPI) of relevant staff for their services for processing. • Prioritize releasing of raw materials in the ports. • Arrange separate shed to store the products according to warehouse standard. • Develop zone wise ICD according to density of the industry nearby rail station. For example, an ICD to be set up in Gazipur area to facilitate the industry in Gazipur, Savar, Sreepur, Mymensingh, Tangail. 	National Board of Revenue (NBR)	MoC, FD, Customs Department, BKMEA, BGMEA	06- 12
5. Retain the preferential market access	Negotiate preferential market access with potential countries	Sign Memorandum of Understandings (MoUs), Free Trade Agreement (FTA), Preferential Trade Agreement (PTA), Comprehensive Economic Partnership Agreement (CEPA).	Ministry of Commerce (MoC)	MoFA	Continuous
6. Diversify product basket and market	Take focused efforts for manmade fibre (MMF) and other natural fibre to catch up with the growing market in this space.	Provide incentives in research and capacity building for ensuring faster growth in manufacturing MMF based products	Ministry of Commerce (MoC)	FD, NBR, DOT, BUTEX, BUFT, Relevant Industry Associations and Manufacturers.	12 - 36
		Accelerate R&D efforts to develop jute fibre for industrial usage particularly for RMG.	Ministry of Textiles and Jute (MoTJ)		
		Develop creative design capacity to cater to international markets.	Ministry of Industries (MoIND)		
	Identify promising markets for specific products;	Conduct international market research	Ministry of Commerce (MoC)		

2. Trade Roadmap for the Pharmaceutical and API sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1. To develop skilled workforce	Skill and reskill the existing workforce	<ul style="list-style-type: none"> • Conduct technical need assessment • Develop training curriculum • Organize training resources including identification of effective trainers • Schedule training events 	Medical Education and Family Welfare Division (MEFWD)	DGDA, UGC, TMED, NSDA, NPO, DGDA, BAPI and pharmaceutical Manufacturers	36
	Introduce industry oriented practical curriculum at vocational, and tertiary educational institutions	<ul style="list-style-type: none"> • Engage with targeted institutions involving respective ministries or boards, and industry representatives to review current curriculum. • Form a committee of experts to revise the curriculum • Ensure curriculum harmonization for API and pharmaceutical study in tertiary education 			
2. To develop technical know-how	Investment in R&D and API molecules synthesis	<ul style="list-style-type: none"> • Invest in R&D & reverse engineering, technical knowhow of API, lab technicians & accreditation • Exempt tax on R&D investment • Develop new molecules • Incentivize bioequivalence test laboratory, CRO, chemical synthesis, lab technicians and accreditation specialists • Engage BCSIR in Bioequivalence test • Promote common facilities for API synthesis • Raise capacity of Contract Research Organization (CROs) to conduct clinical trials for biosimilar and biotech products. • Establish research institutions capable of undertaking R&D activities like NIPER and CDRI in India (e.g., Bangladesh Institute of Pharmaceutical Education, Research and Development – BIPERD) • Facilitate Technology transfer through FDI 	Ministry of Industries (MoIND)	FD, BB, NBR, NPO, BIDA BSCIC, BAPI, BAB, Pharmaceutical and API industries.	72

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
3. To prepare for LDC graduation	Revise the patent protection act	<ul style="list-style-type: none"> • Embed TRIPS and pharmaceutical waiver elements for LDC in the Patent Act so that no legal issues can be raised now and later • Allow the patent registration of a product after November 2026 • Make use of relevant research exemption as per section 38 of Patent Act 2022 	Health Services Division (HSD)	MLJPA, DGDA, MoH&FW, DPDT, BAPI, Pharmaceutical and API industries.	18
4.To ensure quality control of pharmaceutical product	Strengthen the regulatory process of quality control	<ul style="list-style-type: none"> • Ensure quality of pharmaceutical product both for domestic consumption and Export. • Ensure standard API use for manufacturing pharmaceutical products. • Make mandatory registration for pharmacies to sell pharmaceutical products. • Ensure cool chain facilities for export 	Health Services Division (HSD)	DGDA, PCB	36
5.To become self-reliant in API production	Develop all types of infrastructure in API park	<ul style="list-style-type: none"> • Ensure all infrastructure and utilities facilities including uninterrupted electricity, gas connection, common effluent treatment plant (CETP), fire extinguisher, drainage system in the API park. • Establish common facilities for individual research center in API park • Establish common quality control facility in API Park 	Ministry of Industries (MoIND)	MoC, FD, MoPEMR, BSCIC	18
	Incentivize the local API manufacturing sector	<ul style="list-style-type: none"> • Ensure tax break, tax exemption, tax holiday and other bonded ware house related facilities as urged in API policy 2018 • Promote investment in R&D for API through tax holiday 	Finance Division (FD)	NBR, DGDA, BAPI, Pharmaceutical & API industries	26
	Facilitate known molecules registration	Get as many innovations and known molecules registration in public domain as possible, before graduation, to avoid implications of patent regime	Ministry of Industries (MoIND)		

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
6. To expand Market access both in traditional & nontraditional market	Promote pharmaceutical products export	<ul style="list-style-type: none"> Promote export through direct communication support by the Bangladesh embassy in foreign countries Arrange study visits to gain knowledge regarding stringent regulatory barriers in destination countries 	Ministry of Commerce (MoC)	MoFA, FTA Wing, Export Wing	Continuous
	Signing FTA and PTA with potential countries	<ul style="list-style-type: none"> Define the strategies for market access after graduation and sign FTA and PTA Expedite registration and marketing authorization of pharmaceutical product in abroad, where the Bangladesh embassy will provide catalytic support role to coordinate with the respective national regulatory authority (NRA). 			
7.To ensure investment friendly environment	Facilitate investment	<ul style="list-style-type: none"> Make regulatory procedure of business easier and reduce policy uncertainty especially for taxation Ensure easier process of BIDA investment policy for foreign investor Activate One Stop service of BIDA and BEZA Activate National Single Window of NBR 	Bangladesh Investment Development Authority (BIDA)	MoC, MEFWD, BEZA, RJSC, NBR, CCI&E, DGDA	36
8.To enable policy environment for patented drug production and accession	Strengthen DPTD (Department of Patents, Designs & Trademarks)	Strengthen DPDT as to disposal of patent issues in terms of pharmaceutical products in favor of Bangladesh.	Ministry of Industries (MoIND)	MoC, LPAD, DPDT	36
	Activate National IP policy 2018	Upgrade National IP policy 2018 keeping in the purview TRIPS flexibilities till November 2026			

3. Trade Roadmap for Leather and Leather goods sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
1.To increase the efficiency and productivity	Develop schemes for enhancing efficiency and productivity of the leather, leather goods and leather footwear manufacturing firms Initiate training programs for enhancing skill of mid-level officials and tannery, leather workers	<ul style="list-style-type: none"> Initiate performance-based tax incentives for manufacturing firms who will demonstrate yearly efficiency and productivity growth. Provide incentives on utility bills for exemplifying higher efficiency in energy usage. Ensure favorable policy support for permit, fees etc. Provide regular training programs for the workers and mid-level officials based on the industry needs. 	National Skills Development Authority (NSDA)	MoC, MoIND, MoPEMR, NBR, BTA, COEL, ILET, KUET, LRI, BCSIR and Business Associations	36
	Source technical know-how and digital technology from abroad and incorporating global best practices.	<ul style="list-style-type: none"> Explore neighboring country and top leather exporter's practices for adoption and replication. Facilitate digital technology adaptation in production and marketing process 	Ministry of Industries (MoIND)	LRI, COEL, BTA, BCSIR	Continuous
2.To ensure proper management for collecting raw hides and increase market efficiency for raw hide collection	Ensure utilization of abundant domestic raw hides Enhance capacity of the raw hide collectors, storer, tanners and merchants Reduce costs and lead time and improve raw material availability	<ul style="list-style-type: none"> Streamline the procurement process by providing funding and developing a more efficient collection, transportation and preservation facilities Establish of modern slaughterhouse Formalize the informal transactions of the small tanners, warehouse service providers, merchants and vendors by incorporating digital payments. Develop schemes for improving storage facilities for the raw hide storers Establish Strong backward and forward linkage industry required in terms of comparative advantage Provide incentives to backward linkage industry like accessories. 	Ministry of Industries (MoIND)	FD, BIDA, LGD, DLS, BB, NBR, SMEF, BTA, LFMEAB, BFLLEA	Continuous

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
3. To ensure adequate funds and accessibility of funds and improve financial access for SMEs	Set up special funds by financial institutions to lend at concessional rates as well as explore expanding existing funding sources Developing an SME credit scoring model	<ul style="list-style-type: none"> Establish credit facilities that offer conditional finance at concessional rates for meeting objectives such as compliance, value chain upgradation and promotion of market. Increase fund allocation for the leather sector in Export Development funds. Reduce bank interest rate for the manufacturers. develop own SME credit scoring models by commercial banks based on guidelines. 	Financial Institutions Division (FID)	BB , SMEF, Various Commercial Banks.	12-18
4. To ensure LWG certification for more tanneries	Develop policies, schemes and supporting environment for attaining LWG certification.	<ul style="list-style-type: none"> Target at least 50 tanneries for LWG certification. Give permission for Individual ETP development. Provide Low-cost financial loan facility to tanneries. 	Ministry of Industries (MoIND)	MoC, BB, BTA, BFLLEA	12
5. To improve Compliance across the industry	Develop social, environment, chemical, safety, occupational and health, compliance guidelines and certification schemes for ensuring ESQ and ESG.	<ul style="list-style-type: none"> Create awareness program for 360-degree compliance issues. Develop financial support scheme for factories who are interested and able to improve the ESQ, ESG compliance; particularly for fully compliant factories Establish international accredited laboratory facilities for quality compliance 	Ministry of Industries (MoIND)	MoC, MoLE, BSTI, BAB, BTA, LFMEAB, BFLLEA	24
6. To reduce the cost of imported inputs and components and improve backward linkage in leather footwear	Authorize business associations to review the utilization declarations provided by exporters; Encourage investments in the components manufacturing industry that can cater to the needs of manufacturers in Bangladesh.	Allow Special Bonded Warehouse facility for all export-oriented leather and leather goods manufacturers;	Ministry of Commerce (MoC)	FD, NBR, BTTC, BC, Trade associations	12
		Develop incentives for improving existing backward linkage industries. These incentives can range from tax holiday for the new investments and backward linkage industries.	Ministry of Industries (MoIND)		

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
7. Promote Women led entrepreneurship	Special fund and training program for generating women entrepreneurs	<ul style="list-style-type: none"> Identify women entrepreneurs in leather sector and creating a database. Conduct need assessment for training program for women entrepreneurs and initiate training programme Provide special incentives (like tax credit, low interest loan and etc.) for women led leather factories. Reduce corporate tax for women owned enterprises 	Ministry of Labour and Employment (MoLE)	MoIND MoC, MoWCA, BB, NBR BFTI, BWCCI, Business Associations	36
8. Initiating a SME supportive linkage development program	Scheme development and fund allocation for a linkage development program	<ul style="list-style-type: none"> Select at least 10 SME suppliers to work with by top leather goods, and footwear manufacturing businesses work closely with SMEs, share know-how, and standards to improve the SMEs, and include them in the export based global value chain. Provide special financial incentives and Tax rebates to leading firms for collaborating and assisting SMEs 	Ministry of Industries (MoIND)	MoC, FD, BB, NBR	36
9. To encourage high value addition production.	Develop supporting scheme and incentivize the leather goods and footwear manufacturer for producing and exporting high value products	<ul style="list-style-type: none"> Provide financial incentives based on the value addition and production diversification. Initiate special recognition programs for high value leather goods exporters. Promote investment in R&D for new product design through tax holiday 	Ministry of Industries (MoIND)	MoC, NBR, EPB, Business Associations	24
10. To encourage product and Market Diversification	Incentive program for new product development and new market entrance for existing and new exporters	<ul style="list-style-type: none"> Offer special scheme of cash/tax/incentives for exporting existing leather products to new countries up to 2029. Offer special scheme of incentives for new and existing exporters for exporting to new markets. 	Ministry of Commerce (MoC)	MoIND, FD, NBR, BB, EPB, Business Associations	18-24
	Rationalize tariff to minimize anti export bias	<ul style="list-style-type: none"> Provide taxes & duties exemption for the investor Rationalization of value added taxes 	Bangladesh Investment	FD, NBR, BB, Scheduled Bank	24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
		<ul style="list-style-type: none"> Reduce import duty on capital machineries 	Development Authority (BIDA)		

4. Trade Roadmap of the Non-Leather Footwear sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1. To strengthen skills development institutions	Upgrading the facilities at COEL, ILET and other similar institutions to address industry-specific needs	Conduct consultations with ILET, Dhaka University, KUET, BUET, and other similar institutions, including business associations, to assess the status of facilities and equipment and upgrade them accordingly.	National Skill Development Authority (NSDA)	BCSIR, BUET, KUET, SMEs, ILET, LFMEAB, LRI, EWU, COEL	36
2. To develop cluster hub infrastructure for non-leather footwear in different economic zone	Establish cluster hub and common facility center for SMEs	<ul style="list-style-type: none"> Conduct need assessment on establishing Common Facility Centre and establishing common design and pattern, Products, Sample, Testing. Provide access to technology and equipment like 3D printers, computer-aided design software. Monitor and evaluate the success of the cluster hub and facility center, and adjust the program as necessary. 	Ministry of Industries (MoIND)	BEZA, SMEF, BSCIC, COEL, Trade Bodies.	36-60
3. To Increase productivity	Conduct training of the trainer's programme (worker, mid and Top management)	<ul style="list-style-type: none"> Conduct a skills gap analysis to identify the skills that are currently lacking in the workforce Organize long and short-term training programmes for Worker, Mid and Top Management. Evaluate the effectiveness of the training program and adjust it as necessary. 	Ministry of Industries (MoIND)	BCSIR, SMEF, BUET, KUET, SEIP, COEL, ILET	36-60

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
4. To invest in research and development	Provide research and development grants to BUET, KUET, COEL, and similar institutions to undertake applied research while these institutions should also create their own revenue streams	<ul style="list-style-type: none"> Identify areas for research, with practical applications in the non-leather sector. Establish a research center to facilitate research and development Develop training programs to promote innovation and skill development in the non-leather sector 	Ministry of Industries (MoIND)	BESIC, EC4J Project, BSTI, BFTI, ILET, BUET, KUET, EWU, COEL	36
5. To improve interaction between academics and Non-Leather Footwear industries	Setting up a communication channel for regular interaction between industry and academia for Idea Development and Sharing	Organize knowledge-sharing events for non-leather footwear manufacturers to facilitate the sharing of knowledge and ideas.	Ministry of Industries (MoIND)	TMED, SHED, KUET, NSDA, BCSIR, BSCIC, LFMEAB, LRI, COEL, ILET and polytechnic institutes	Periodic
6. To enhance efficiency	Assist in upgradation of technology	Provide risk sharing and investment support in: <ul style="list-style-type: none"> a. Manufacturing technology upgradation b. Digital adaptation c. Adoption of technologies that ensure sustainability 	Ministry of Commerce (MoC)	MoIND, NSDA, DPDT	36-40
7. To improve raw material availability	Improve the supply of raw materials such PU, PVC, Upper Metatrails, Glu and different accessories	<ul style="list-style-type: none"> Establish strong backward and forward linkage industry for PU, PVC, Upper Metatrails, Glu and different accessories Provide incentives to backward linkage industry for PU, PVC, Upper Metatrails, Glu and different accessories. 	Ministry of Commerce (MoC)	MoIND, FD, NBR, BB, LFMEAB, BFLLEA	12-60

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
8. To ensure adequate funds and accessibility	Setting up of special funds by financial institutions or multilateral agencies to lend at reasonable rate and explore expanding existing funding sources	Create a fund for a credit line, especially for the small and medium-sized footwear manufacturers, allocate in Green Transformation fund and lowering bank interest rate for the manufacturers.	Financial Institutions Division (FID)	BB, SMEF, Various Commercial Banks	6-12
9. To improve Access to Finance	Develop an SME credit scoring model	Develop SME credit scoring models based on guidelines.	Financial Institutions Division (FID)	BB, SMEF, Various Commercial Banks,	36
	Develop channels to increase funding for non-leather sector manufacturers investing in new technology or compliance-related initiatives.	Increase fund allocation for the non-leather sector in Export Development funds and lower the Bank interest.	Financial Institutions Division (FID)	MoIND, MoC, BB	12
10. To ensure overall Environmental compliances	Assist manufacturers with better waste management and energy efficiency techniques.	Develop waste management system for plastic recycling and help private manufacturer develop their own energy efficiency techniques	Ministry of Labour and Employment (MoLE)	MoIND, MoC, FD, BSCIC, LFMEAB, BFLLEA	36-60
11. To improve social compliance	Assist manufacturers to improve social compliance	<ul style="list-style-type: none"> • Ensure standard working hours and wage. • Ensure safe working environment for women. • Implement special provisions (like part time working agreements, work from home facility, corporate child care facility) for women employees. 	Ministry of Labour and Employment (MoLE)	MoIND, MoWCA, BAB, LFMEAB BFLLEA	36
12. To ensure quality compliance	Strengthen the institutional capacity of standard testing institutions	Lower the use of harmful substances in consumer products Build capacity of BAB and BSTI for testing parameters of international requirements.	Ministry of Industries (MoIND)	MoC, BSTI, DIFE, BSCIC, SMEF, DCCI, Trade Bodies.	12-60

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
13. To reduce complications of importing raw materials for re-export	Simplify process of importing raw materials for re-exporting finished product	<ul style="list-style-type: none"> Simplify DoE's rules for clearance of raw materials for re-export and shorten the lead time (Weekend, and Holiday support to be required) Provide bonded warehouse facility for SMEs 	Department of Environment (DoE)	MoC, NBR, BB, SMEF	12-24
14. To improve policy environment for trade and investment	Ensure predictability and decrease planning risk for investments for ODM	Formulate supportive policy for enabling transformation from OEM to ODM.	Bangladesh Investment Development Authority (BIDA)	MoIND, MoC, NBR, FD, BTTC	12-18
15. To improve market access for the non-leather footwear manufacturers	Prepare detailed terms of reference for extensive export marketing.	Strengthen EPB as a center of export promotion and increasing the capacity accordingly.	Ministry of Commerce (MoC)	MOFA, EPB, Business Associations	12
16. To enhance the image of the industry/country in select markets abroad.	Bangladesh should engage country experts and PR agencies for major countries to conduct a year-long publicity through event/expo featuring leading non-leather footwear exporters and their key products.	Support manufacturers regarding advertisement in leading international magazines and electronic media to aid the general product - discovery process of export diversification.	Ministry of Commerce (MoC)	MoFA, EPB, Business Associations	36
17. To attract foreign direct investments from other countries	Improve the business enabling environment	<ul style="list-style-type: none"> Offer tax incentives and exemptions to foreign investors Streamline and simplify the process of starting and running business 	Bangladesh Investment Development Authority (BIDA)	MoFA, MoC, NBR, FD, BB, MoS, BLPA, Relevant business organizations	12

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
		<ul style="list-style-type: none"> Port facilities should be improved to reduce lead time Banking arrangements should be simplified and business friendly. 			
18. To Pursue for different types of agreements with potential countries	Negotiations in various forum	Pursue for different agreements i.e., FTA, PTA, RTA and etc. with potential countries	Ministry of Commerce (MoC)	MoFA, FTA Wing	Continued
19. To improve R&D for product design and development	Establish R&D facilities	<ul style="list-style-type: none"> Identify a set of international institutes for training and collaboration and promoting R&D facilities. Establish R&D facilities within the industry in accordance with market needs. 	Ministry of Industries (MoIND)	MoC, BUET, KUET, ILET, Business Association.	18-24
20. To improve fashion and design capability	Establish Design, Development and Fashion Centers for non-leather footwear sectors.	<ul style="list-style-type: none"> Conduct a feasibility study to identify the requirements of this design studio. Establish design studio. Hire experienced non-leather footwear designers with 3D design software and product development skills. Establish a product development process that encompasses ideation, research, concept development, design, and production. 	Ministry of Commerce (MoC)	MoIND, MoFA, BIDA, EPB, BFTI	24

5. Trade Roadmap for Light Engineering Sector including Electronics and Electrical Products

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1. Improve productivity and processes	Assess skills base of workforce and develop their skills.	<ul style="list-style-type: none"> Develop industry-based training center with highly qualified trainers. Conduct Training for Trainer (ToT) course for trainers; training for all kinds of machine operators. 	National Skills Development Authority (NSDA)	MoIND, FD, NPO, LEISC, BTEB	Continue

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
		<ul style="list-style-type: none"> Bring international training experts for ToT courses 			
	Build R&D capacity to improve product design	Provide technical and financial support to the local machinery manufacturers to invest in R&D for improving their design and production capacity.	Ministry of Industries (MoIND)	BUET, BITAC, Related Associations	12-36
2. Create Export Readiness Fund (ERF)	Provide SMEs with funds to mitigate risks they undertake to enter export markets.	Keep special budget allocation to support SMEs to penetrate export markets and cover the potential risks.	Finance Division (FD)	MoC, BB, SMEF	12-24
3. Improve quality of products adhering to compliance requirements	Establish testing and certification agencies	<ul style="list-style-type: none"> Commission a study to assess the feasibility of and requirements for setting up a testing and certification agency. Develop parameters for national compliance certification, fully aligned with international compliances in collaboration with association members Analyze requirements and approve the setting up of the agency under the manufacturers' associations and Light Engineering Product Business Promotion Council (LEPBPC) Ensure sufficient heat treatment facilities 	Ministry of Industries (MoIND)	BAB, LEPBPC, Related Associations	18 - 24
4. Improve environmental and social compliance	Raise industry awareness regarding compliance, its costs and benefits in accessing local and export markets; enforce existing regulations;	Provide cash and non-cash incentives to compliant factories; Industry association/s to take concrete programs to improve compliance in their member factories	Ministry of Industries (MoIND)	MoC, MoEFC, MoLE, FD, BB, Trade Associations	12- 48
5. Develop backward linkage to support the sector and reduce imports of raw materials	Ensure policy support for developing backward and forward linkage industries; Set up Light Engineering industrial parks for the sector	<ul style="list-style-type: none"> Conduct feasibility & location assessment for setting up of Light Engineering Industry Park. Ensure required infrastructures (Water, Power & Fuel, Connectivity). 	Ministry of Industries (MoIND)	MoC, NBR, BIDA, BEZA, BEPZA, Trade Associations	12-36

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
		<ul style="list-style-type: none"> Establish die and mould manufacturing facilities at the Light Engineering industrial parks Rationalize tariff structure for facilitating backward linkage development 			
6. To retain the preferential market access pursue different types of trade agreements with potential countries	Negotiate preferential market access with potential countries	Sign Memorandum of Understandings (MoUs), Free Trade Agreement (FTA), Preferential Trade Agreement (PTA), Comprehensive Economic Partnership Agreement (CEPA)	Ministry of Commerce (MoC)	MoFA, FTA wing	Continuous
7. Promote R&D for new product development	Provide financial support for carrying out R&D	Offer tax holiday for new product development through investment in R&D	National Board of Revenue (NBR)	IAT-BUET, EPB, MoFA, BITAC, Related Associations	Continuous

6. Trade Roadmap for Plastic Sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1.To develop a skilled and industry-ready workforce and technical know how	Establish adequate facilities for developing industry specific technical know how	<ul style="list-style-type: none"> Introduce petrochemical-based engineering and relevant programs or courses for developing skilled workforce Establish R&D center Exempt tax on R&D investment Establish design innovation center 	Ministry of Industries (MoIND)	MoC, UGC, BIPET BPGMEA BPFMEA, NSDA, NBR	Continuous
	Establish dedicated technical and vocational institutes to provide specialized trainings to the industries	Existing technical and vocational institutes to review their current curriculum and make necessary revisions to meet the industry needs to develop industry specific curriculum to provide specialized trainings on <ol style="list-style-type: none"> Operation or maintenance of industrial machinery 	National Skills Development Authority (NSDA)	MoC, BIPET BPGMEA BPFMEA, MoE	Continuous

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
		II. Latest plastic production technology III. Quality control IV. Product design V. Die & mould design and preparation of molds			
2. Improve infrastructure	Develop common facility center (CFC) for the industries especially for SMEs to access technologies they cannot afford and also to get works done	<ul style="list-style-type: none"> Equip CFCs with required machinery, tools, (CNC Milling, CNC Turning, Injection Moulding), etc. Develop services packages to offer to the industry Put in place managerial and technical human resources for management and operation Create revenue streams for the CFC to sustain over time Ensure industrial safety 	Ministry of Industries (MoIND)	MoC, BIPET BPGMEA BPFMEA	24-36
	Facilitate bulk import of raw materials	Establish central bonded warehouses.	Ministry of Commerce (MoC)	MoIND, FD, NBR, BB, BPGMEA, BPFMEA	24
3. To set up the proposed industrial park	Relocating the industries to industrial parks/special economic zones	<ul style="list-style-type: none"> Hand over the land for setting up a plastic industrial estate at Sirajdikhan upazila in Munshiganj. Develop required infrastructure to make the park operational for industry to relocate 	Ministry of Industries (MoIND)	MoC, BSCIC, BEZA	12-18
4. Improving product quality	Creating enough facilities for the industry to access their required testing and certification facilities	<ul style="list-style-type: none"> Raise awareness on the costs and benefits of quality products Make an assessment of the services and standards available currently and the kind of support needed, particularly for micro and small enterprises. Collaborate with trade associations- to develop parameters for national compliance 	Ministry of Industries (MoIND)	MoC, BSTI, BCSIR BUET, BPGMEA BPFMEA	18 - 24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
		certification, fully aligned with international compliances. <ul style="list-style-type: none"> Establish adequate number of accredited testing labs. 			
5. Sustainable Plastic Waste Management	Establish/adopt circular economy	<ul style="list-style-type: none"> Adopt a specific action plan for waste management Implement 3R policy (Reduce, Reuse and Recycle) and prepare a specific action plan for this. Introduce incentives for research and development of new designs and materials of recycle plastic; Reduce health hazards of collecting plastic wastes Provide state-of-the-art recycling facilities in the formal sector 	Ministry of Industries (MoIND)	FD, MoEFC, DGHS, NBR, NPO BPGMEA, BIPET	12-24
6. Reduce costs related to compliance	Extend RMG sectoral incentives on compliance to the plastics industry	Approach responsible stakeholders with the rationale for extending plastic sector compliance incentives (e.g., special funds, GTF, to the plastics industry.	Finance Division (FD)	MoC, MoIND, BB, NBR, MoLE, WTO, BPGMEA, BPFMEA	6
7. Make a strong policy and regulatory environment for the plastic Industry	Simplify cumbersome duty drawback system	5-year tax holiday for all new investments and corporate tax reduction to 10% in case of existing compliant companies as applicable to green garment factories.	Internal Resource Division (IRD)	FD, MoC, NBR	12-18
	Upgrade the Plastic industries to the 'Green Category' from 'Orange Category' in the List of Environmental Rules.	Negotiate for categorizing plastic sector as a green industry with reference to other countries, especially neighboring countries.	Ministry of Industries (MoIND)	MoC MoEFC BPGMEA BPFMEA	12-18
	Incentives for research and development	Incentivizing research and development through investment risk sharing	Finance Division (FD)	BB, Bank & Financial Institutions	12

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)	
8. Enhance Market diversification	Identify potential buyers for export and gain market information from established buyers	<ul style="list-style-type: none"> • Make a market intelligence platform available for the sector. • Gain access to HS Code-wise shipping intelligence 	Ministry of Commerce (MoC)	MoIND, EPB, EC4J Projects, BPGMEA, BFTI, FBCCI	72	
9. Boost Brand of Bangladesh and country image	Organise annual fairs and roadshows for showcasing products to local and international buyers	<ul style="list-style-type: none"> • Organise annual fairs and invite plastic products exporters to showcase their export quality products to international buyers. • Open trade center in different countries for promoting export of plastic goods. 	Bangladesh Investment Development Authority (BIDA)	MoFA, MoC, EPB, BPGMEA	Biannually	
	Prepare strong resource pool for branding of the industry	<ul style="list-style-type: none"> • Making country showcasing materials for branding (e.g. proper brochures/leaflets for branding purpose, presentation, promotional souvenirs) and digital contents • EPB to set budget for country branding and Promotion • Associations to provide necessary inputs 	Ministry of Commerce (MoC)	MoFA, EPB, BPGMEA	24	
	Promote the industry globally	Promote the plastic industry to the importing countries		Ministry of Commerce (MoC)	MoIND, MoFA, EPB and associations	24
		Develop a plastic industry development centre for supporting information, technology transfer and technical assistance.		Ministry of Industries (MoIND)	MoC, BPC, NPO	24
10. Improve access to finance	Creation of special fund for the sector	<ul style="list-style-type: none"> • Increase fund allocation for the plastic sector from Export Development Funds. • Extend existing EDF to 100% export-oriented and deemed-export oriented plastic manufacturing companies. • Introduce special reward schemes for enterprises engaged in recycling units • Provide financial support in R&D, human resource development and employee welfare. 	Financial Institutions Division (FID)	MoC, BB, BPGMEA	12	

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
11. Meeting environmental compliance	Introducing Environmental Management System (EMS) for creating awareness	<ul style="list-style-type: none"> Establish CETP for waste management Introduce Environmental Management System (EMS) in all the plastic industries to regulate the industries and the policy support is needed in getting certification on: <ol style="list-style-type: none"> ISO 14001 Business Social Compliance Initiative Code of Conduct SEDEX members ethical trade audit Good Manufacturing Practices for the production of food contact plastics 	Ministry of Industries (MoIND)	BIPET, BPGMEA BPFMEA	12-24
12. To ensure data availability	Inclusion of data related to deemed export of plastic	Introduce a deemed export calculation system for inclusion of data related to deemed export of plastic goods in total plastic export data.	Ministry of Commerce (MoC)	EPB, BPGMEA BGAPMEA	12-18

7. Trade Roadmap for the Shipbuilding sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1. To develop skilled workforce	Skilling and reskilling the workforce	<ul style="list-style-type: none"> Conduct technical skills need assessment Develop training curriculum Organize training resources including identification of effective trainers Schedule training events 	Ministry of Industries (MoIND)	TMED, NPO, UGC, NSDA, BSBA, Universities, and different shipbuilding industries	36
	Introduce industry oriented practical curriculum at vocational, and tertiary educational institutions	<ul style="list-style-type: none"> Engage with targeted institutions involving respective ministries or boards, and industry representatives to review current curriculum Form a committee of experts to revise the curriculum Institutionalize compulsory internship for graduate students 			

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
2. To ensure access to finance from formal sources	Introduce long term loan facilities in bank and NBFIs	Fixing long term debt repayment period	Financial Institutions Division (FID)	BB, All public ltd. & private ltd. Bank, and NBFIs	36
	Ensure Bank guarantee for export-oriented shipbuilding sector	<ul style="list-style-type: none"> • Create a dedicated fund for providing bank guarantees at minimal cost • Institutionalize the sovereign guarantee for export-oriented shipbuilding sector • Ensure bid bond guarantees & performance guarantees by bank 			
3. To modernize production process	Ensure technology up-gradation for production process	<ul style="list-style-type: none"> • Use upgraded technology for production process • Innovate and apply the latest modern technology in shipbuilding sector • Invest in R&D and training for technical people • Facilitate transfer of technology attracting foreign direct investment 	Ministry of Industries (MoIND)	TMED, NPO, NSDA, BIDA, BSBA, and other shipbuilding industries	72
4. To make the sector socially and environmentally compliant	Engage with industry, relevant ministry and other key stakeholders to introduce a robust compliance improvement program across the sector	<ul style="list-style-type: none"> • Raise awareness on the importance of compliance including its cost and benefit at all levels – from management to the workforce • Develop effective communication tools/medium for awareness building • Prepare a social and environmental compliance guideline and respective companies to draw a comprehensive implementation plan with specific targets and timeline to achieve them 	Ministry of Labour and Employment (MoLE)	MoEFC, MoIND, BSBA and Other shipbuilding industries	48
5. To improve occupational health and safety (OHS)	Implement OHS program in the sector	Individual companies to identify OHS issues in their respective shipyards and set specific targets and timeline to achieve them	Ministry of Labour and Employment (MoLE)	MoIND, BSBA and Other shipbuilding industries	24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
6. To develop backward linkage industry	Strengthen the backward linkage industry of the sector	<ul style="list-style-type: none"> Reform Duty structure of imported raw materials, quality steel, machinery and equipment Ensure testing facilities of all plate, grade and other input quality of ship 	National Board of Revenue (NBR)	MoIND, BTTC, MoS, BSBA	25
		<ul style="list-style-type: none"> Promote existing industry to produce IACS Class basic raw materials (steel, plate or equipment) for shipbuilding industry Promote production of Class vessels 	Ministry of Industries (MoIND)		
7. To reduce tax, VAT and duty burden on shipbuilding industry	Reduce tariff on imported raw materials	Allow tax- and duty-free raw materials import facilities	National Board of Revenue (NBR)	MoIND, MoC, BC	18
	Reduce corporate tax for shipbuilding sector like the RMG sector	<ul style="list-style-type: none"> Introduce preferential corporate tax for green and compliant industry like RMG Adopt tax holiday and other non-fiscal support-oriented action plan for backward and forward linkage industries 			
8. To implement National Shipbuilding Policy 2021	Ensure coordination among the stakeholders of the policy	Provide tax holiday and duty exemption from NBR on imported raw materials as urged in the policy	National Board of Revenue (NBR)	MoIND, FD	18
		<ul style="list-style-type: none"> Ensure bank guarantee facilities for bid guarantee, performance guarantee and other guarantee of payment for shipbuilding sector as suggested in the policy Ensure financing facilities from government with low interest rate as mentioned in the policy Create special fund for ensuring guarantee for shipbuilding sector as promised in the policy 	National Board of Revenue (NBR)	FD, BB All public Ltd. & private Ltd. Bank, and NBFi	36
9. To improve market access for domestic entrepreneurs	Define strategies for market access	<ul style="list-style-type: none"> Define the strategies for market access after graduation Provide policy supports for participating various fairs & international events Provide fiscal and nonfiscal support for participating in international tenders and other competitions 	Ministry of Commerce (MoC)	MoIND, EPB, different BSBA and shipbuilding industries	72

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
10. To ensure investment friendly environment in the sector	Attract domestic & foreign investment	<ul style="list-style-type: none"> Reform the regulatory process of investment Activate One Stop service of BIDA and BEZA Activate National Single Window of NBR 	Bangladesh Investment Development Authority (BIDA)	MoC, BEPZA, BEZA, RJSC, EPB	18

8. Trade Roadmap for the Agro and processed food Sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
1. To ensure human resource development in agro sector	Providing training	<ul style="list-style-type: none"> Provide season-based training to farmers Provide training for women and youth in agricultural food processing, marketing and packaging. 	Ministry of Agriculture (MoA)	MoWCA, DAE, MoYS, NSDA, BARI, BRRI, BARC, BWCCI, Trade bodies	24-36
	Strengthening DAE and Plant Quarantine Wing (PQW)	<ul style="list-style-type: none"> Engage more technical personnel in DAE and PQW Provide technical training to DAE and PQW officials 	Ministry of Agriculture (MoA)	DAE, PQW, NSDA	12-24
2. To ensure human resource development in Processed Food Sector	Introducing specialized subjects in educational institutes	<ul style="list-style-type: none"> Establish world class food processing industrial technology institutes with specialized courses in food processing technologies in association with universities and institutions in developed countries and FAO. Update the syllabus of food sciences in the degree and post graduate degree courses 	Ministry of Agriculture (MoA)	DAE, Multilateral agencies (F.A.O.), BAPA.	24
	Establish industry-based training institute	Allocate matching grant for establishing industry-based training institutes	Ministry of Industries (MoIND)	MoC, FD, BB	12 - 36
3. To Improve Access to Finance	Providing venture capital facility	Establish credit facilities that offer long term conditional finance at concessional rates to meet compliance, value chain up-gradation, etc.	Financial Institutions Division (FID)	MoC, BB, BIDA, Commercial Banks	6-12
	Provide credit facility on easy terms with low interest	<ul style="list-style-type: none"> Develop leasing programmes Provide financial support including tax incentives to foreign investors for setting up 			

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
		industrial units for food processing and packaging			
4. To ensure overall environmental compliances	Reduce environmental hazard related to harmful fertilizers and pesticides	<ul style="list-style-type: none"> Establish farmers' school at union level for safe use of chemical fertilizers and pesticides, GAP, competitiveness and etc. Engage scientists in developing knowledge to adjust with climate change, adaptation and disaster mitigation 	Ministry of Agriculture (MoA)	DAE, MoEFC, BFVAEA	36
5. To improve social compliance	Assist manufacturers to improve social compliance	Provide a safe working environment for the workers including standard working hours and wage.	Ministry of Agriculture (MoA)	MoC, BAPA	36
6. To ensure quality compliance	Improve compliance with SPS requirements and traceability of exportable agro products	Create database for traceability of raw materials available with the farmers, pesticides and fertilizers and other hazardous materials (e.g., salmonella-free food products export (e.g., betel leaves)	Ministry of Agriculture (MoA)	MoC, DAE, Development partners, Trade bodies	18 - 24
		<ul style="list-style-type: none"> Training to farmers on Good Agricultural Practices (GAP) Establish accredited laboratory in accordance with ISO/IEC-17025 Establish Vapor Heat Treatment Facility Establish laboratories for vegetables and fruits processing. 	Ministry of Agriculture (MoA)	DAE, PQW, BFSA	24
	Extend incentives on compliance	Incentivise industries in adoption of a self-regulatory approach in meeting the requirements on safety and quality.	Bangladesh Bank (BB)	FD, NBR	6
	Update related legislative	<ul style="list-style-type: none"> Update the legislations of Plant Quarantine Act and Rules, Pesticide Act and Rules Bio-pesticide regulations in accordance of IPPC and WTO; 	Ministry of Agriculture (MoA)	MLJPA, DAE, PQW	12 -18
7. Development of farming	Improve pre-harvesting process	Encourage farmers in adopting contract farming and Crop Zone farming.	Ministry of Agriculture (MoA)	DAE	Biannually

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
	Improve post-harvesting process	<ul style="list-style-type: none"> Development of post-harvest management e.g., packaging and agro-processing Incentivize research on technology development for post-harvest management 	Ministry of Agriculture (MoA)	DAE	12
8. To facilitate product diversification through R&D and technology upgradation	Incentivize R&D for diversification of agro-processed foods	<ul style="list-style-type: none"> Provide incentives in research and development in identifying new kinds of exportable agro products Provide support for technology upgradation Exempt tax on R&D investment 	Ministry of Agriculture (MoA)	MoC, FD, BB, DAE, EPB.	Continuous
	Incentives to set up high-tech machinery	Provide incentives in setting up of high-tech machinery in grass-root level.	Bangladesh Bank (BB)	NBR	6
9. To boost Bangladesh's brand and country image	Organise annual fairs for showcasing products to local and international buyers	<ul style="list-style-type: none"> Shortlist international trade fairs for participation in discussion with association members. Make Country showcasing materials (e.g. proper brochures/leaflets for branding purpose, presentation, promotional souvenirs), visual documentary Set promotional budget for country branding 	Bangladesh Investment Development Authority (BIDA)	MoFA, MoC, MoA DAE, EPB, Trade Bodies	Biannually
	Leverage economic zones	Build a special economic zone (SEZ) for the Agro-food industry for uninterrupted electricity or electricity at low price	Bangladesh Economic Zones Authority (BEZA)	MoC, MoA, FD	24-36
	Bangladesh's missions abroad to promote the industry globally	<ul style="list-style-type: none"> Promote the agro industry to the importing countries. Share the Food standard, import Policy, SPS requirement of the importing countries with the exporters 	Ministry of Foreign Affairs (MoFA)	MoA, MoC, EPB, BAPA	24
10. To prepare for LDC graduation	Initiate negotiation at WTO forums	Negotiate at WTO forums to include Bangladesh in the category of Net Food Importing Country	Ministry of Commerce (MoC)	MoA, BAPA, DAE	24
11. To reduce transportation costs and time	Reducing transportation costs for export of fruits and vegetables, flowers and other agro products by air	Rationalize air cargo fares in line with competitor countries.	Ministry of Civil Aviation and Tourism (MoCAT)	MoC, MoIND, MoA, DAE, CAAB, BBA	24-36

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supporting Ministries/Agencies	Timeline (In months)
12. Developing packaging, storage and standards	Establish multipurpose cold storages	<ul style="list-style-type: none"> Establishment of cold storage system in international airports Establish regional packaging house 	Ministry of Civil Aviation and Tourism (MoCAT)	MoA, MoIND	24-36
	Incentivize integrated cooling chain	Incentivize industries for setting up cooling chain system	Finance Division (FD)	MoC, NBR, Private organizations & trade bodies	6-12
13. To promote new technologies	Promoting emerging technologies for new agro-processed products	Develop centres of excellence for biotechnology-based food production and processing like Central Food Technological Research Institute (CFTRI) of India	Ministry of Agriculture (MoA)	MoC, BSTI, Trade Bodies	24-36

9 Trade Roadmap for the Fisheries and Livestock Sector

9.1 Trade Roadmap for the Fisheries Sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/Agency	Supportive Ministries/Agencies	Timeline (in months)
1. Establish hygiene fish landing center, arat, depot & service center	Upgrading / Modernization of fish landing centers, arat, depot & service center	<ul style="list-style-type: none"> Build required befitting infrastructural facilities Raise awareness on hygienic practices Ensure PPE provisions at the fish landing centers 	Ministry of Fisheries and Livestock (MoFL)	DoF	24
2. Establish an effective supply chain and marketing facilities	Introduce cold chain facilities for all through supply chain, harvesting, transportation & storage of fish.	<ul style="list-style-type: none"> Create investment opportunities for cold chain development Make insulated or refrigerated fish vans available Make required upgradation of fishing vessel (Including artisanal) on board facilities Make availability of safe ice Build adequate cold storage facilities in important fishing hubs 	Ministry of Fisheries and Livestock (MoFL)	DoF BAU, SAU, BMFA, Private Sector, BFFEA	24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supportive Ministries/ Agencies	Timeline (in months)
		<ul style="list-style-type: none"> Build/upgrade with cold storage hygiene facilities Effective monitoring tools development to ensure cool chain throughout the supply chain. Train relevant people in cold chain management. 			
3. Develop a skilled and industry-ready workforce	Develop skills development program including product diversification & value addition	<ul style="list-style-type: none"> Assess training needs Develop training curriculum Organize training events for fish farmers, fishermen, processing industries, other supply chain stakeholders & relevant officials. 	Ministry of Fisheries and Livestock (MoFL)	BFFEA, FTA, DoF, BFRI, NSDA	12
4. Leverage marine fisheries	Developing capability of harvesting marine fisheries	<ul style="list-style-type: none"> Ensure availability of deep-sea trawler for marine fishing Provide training to fishermen on marine fish including CCRF (Code of Conduct of responsible fishing) & other international regulations. 	Ministry of Fisheries and Livestock (MoFL)	BFFEA, DoF, BFRI, Trade Bodies	12
4. Build R&D capacity in fisheries sector	Establish state-of-the art R&D lab	<ul style="list-style-type: none"> Create pool of experts for conducting R&D Ensure quality testing of fish feed Develop testing facility for quality of safety of fish, feed & other aqua inputs. Establish mutual linkage & cooperation among DoF, research institute & universities 	Ministry of Fisheries and Livestock (MoFL)	BAU, SAU, DoF, BFRI BMFA	12
5. Ensure quality of end products	Incorporate latest technologies for quality, safety & traceability of fish & fisheries products.	<ul style="list-style-type: none"> Benchmark technologies currently being used. Conduct a pilot project on new technologies. Implement traceability 	Ministry of Fisheries and Livestock (MoFL)	DoF, BFRI	18

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supportive Ministries/ Agencies	Timeline (in months)
	Establish effective supply chain	<ul style="list-style-type: none"> • Ensure good governance • Minimize post-harvest loss • Accelerate information sharing among stakeholder 	Ministry of Fisheries and Livestock (MoFL)	DoF, BFRI, BMFA, Trade Bodies	12
	Develop fish vaccine and disease management system	<ul style="list-style-type: none"> • Identify major fish diseases • Assess the requirement of vaccines • Ensure availability of required vaccines. • Develop a well-coordinated disease management system 	Ministry of Fisheries and Livestock (MoFL)	DoF, BFRI, Fish farmers	12
6. Ensure access to finance	Increase the availability of finance for SMEs in the sector & make available finance for fishermen, farmers & other value chain actors.	<ul style="list-style-type: none"> • Set up special funds by financial institutions or multilateral agencies to lend at reasonable rates • Provide low interest loan. • Reduce utility charge (such as electricity) for production similar to agriculture. 	Financial Institutions Division (FID).	MoC, FD, BB, DoF	24
7. Increase production & quality of shrimp	Implement zoning system in shrimp production	<ul style="list-style-type: none"> • Identify and demarcate most feasible and dedicated area for shrimp aquaculture. • Ensure necessary logistics required for zoning • Create necessary processing & preservation facility in shrimp zone 	Ministry of Fisheries and Livestock (MoFL)	MoA, MoWR, MoEFC, BEZA, MoC, BB, MoIND, LGED	24
8. Ensure conducive policy environment for the growth of the sector	Make necessary reform of the existing policies and regulations	<ul style="list-style-type: none"> • Adopt relevant policy & regulations in corporation with international regulations • Review Export policy 2021-24 & import policy order 2021-24, The fish & Fishery Product (inspection & quality control) act, 2020, Fish feed act 2011, Marine Fisheries act 2020 & related rules & policies. 	Ministry of Commerce (MoC)	MoFL, BAU, SAU, BMFA	24

9.2 Trade Roadmap for the Livestock Sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
1. Dairy development	Develop smallholder dairy farms	Develop pro-poor models including appropriate contract farming schemes.	Ministry of Fisheries and Livestock (MoFL)	DLS, private sector	12-36
		Promote smallholder farming through integrated supply chain-based production, processing and marketing of milk and milk products	Ministry of Fisheries and Livestock (MoFL)	DLS, NDDB, private sector	12-24
		Build capacity of the marginal farmers and ensure of high yielding breed to increase productivity	Ministry of Fisheries and Livestock (MoFL)	BLRI, DLS, private sector	12-24
		Ensure healthy housing with adaptation of technologies	Ministry of Fisheries and Livestock (MoFL)	DLS, BLRI	6-12
		Ensure easy access to veterinary services	Ministry of Fisheries and Livestock (MoFL)	DLS	6-12
	Develop pasteurization centres	Conduct need assessment for the pasteurization and mini cold chain	Ministry of Fisheries and Livestock (MoFL)	DLS, BLRI	6
		Allocate fund for the pasteurization centres	Finance Division (FD)	BB, RDCD	6-12
		Establish accessible pasteurization centres	Ministry of Fisheries and Livestock (MoFL)	DLS, private sector	6-12
		Ensure maintenance of cluster based pasteurization plant and mini cold chain.	Ministry of Fisheries and Livestock (MoFL)	DLS, private sector	12-24
	Develop National Dairy Development Board	Make 'National Dairy Development Board' effective as a regulatory body to promote dairy development.	Ministry of Fisheries and Livestock (MoFL)	RDCD BLRI, DLS	6-12
2. Meat production	Improve productivity	Develop cattle breeds for increased productivity at farm level	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
		Ensure cross-breed and comfort of the cattle and upgrade the biosecurity of the animal	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
		Develop backward and forward linkage system to help improvement of existing cattle fattening system into private enterprises.	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
		Ensure healthy livestock housing with adoption of technologies	Ministry of Fisheries and Livestock (MoFL)	BLRI, DLS	6-12
	Improve establishment of mechanized slaughter houses	Establish mechanized slaughter houses around big cities, districts, municipality and Upazila headquarters, etc. to improve quality of meat	Ministry of Fisheries and Livestock (MoFL)	LGED, DLS and city corporation, Private org.	12-24
		Utilize the by-product like offal and blood	Ministry of Fisheries and Livestock (MoFL)	LGED, DLS and city corporation, Private org.	12-24
		Improve the quality of hides and skins	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
3. Poultry development	Improve productivity	Develop poultry breeds for increased productivity at farm level	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
		Ensure cross-breed and upgrade the biosecurity of the poultry birds	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
		Ensure production and consumption of safe meat and eggs	Ministry of Fisheries and Livestock (MoFL)	DLS	6-12
		Increase promotion of smallholder production and marketing of ducks and minor poultry species (e.g., Quail, Goose, Pigeon, Guinea fowl) in selected areas	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
4. Quality control of feeds and feed ingredients	Ensure enforcement of food safety regulations	Develop capacity of Bangladesh Food Safety Authority (BFSA) for better monitoring and enforcement	Ministry of Food (MoFood)	BFSA	12-18
		Ensure availability of good quality feed raw materials and marketing of the chicks and eggs	Ministry of Fisheries and Livestock (MoFL)	DLS	12-24
5. Marketing of milk, meat and egg	Ensure effective supply chain	Set up mechanisms to ensure production and sale of livestock products	Ministry of Fisheries and Livestock (MoFL)	BFSA, DLS	12-18
		Streamline the supply chain for seamless operation from farm to fork.	Ministry of Fisheries and Livestock (MoFL)	DLS, Private organizations	6
		Establish farmer's information network for trade related information and strengthen internet-based communication system for disseminating trade related information	Ministry of Fisheries and Livestock (MoFL)	DLS, NAB, Private organizations	6-24
		Obtain up-to-date information from different markets and ensure dissemination.	Ministry of Fisheries and Livestock (MoFL)	BLRI, private sector	6-12
6. Product diversification: Value addition in milk, egg and meat	Improve the quality of livestock products (milk, meat, egg)	Develop quality control systems across the livestock value to satisfy product standard requirements of exporting countries.	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
		Focus on value-added product development such as different kinds cheese, yogurt, butter, milk cream in solid form (dairy), etc; sausage, salamis (meat), Dehydrated chicken soup mix (poultry), etc. conforming to international standards	Ministry of Fisheries and Livestock (MoFL)	DLS	6-24
	Explore halal market	Establish Halal certification procedure and build capacity of enterprises to comply with Halal standards.	Ministry of Industries (MoIND)	MoC, MoFL MoFA, DLS	6-24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
7. Development of industry-ready skilled workforce	Build capacity of livestock workforce, govt. officials and industry experts	Arrange training for the DLS, MoFL and livestock-related industry officials as well as livestock entrepreneurs and workers in the processing industry.	Ministry of Fisheries and Livestock (MoFL)	DLS, NSDA	12-18
8. Market Diversification	Formulate incentive package for ensuring market diversification	Provide incentives for exporting to non-traditional market and exporting new products in existing market	Finance Division (FD)	MoFL, MoC, BB	6-24
	Mobilize Bangladesh missions and commercial counsellors	Mobilize Bangladesh missions and commercial counsellors for providing information of relevant markets	Ministry of Commerce (MoC)	DLS, MoFA	Continuous
9. Access to finance	Improve and ensure access to finance	Create the policy and regulatory framework for a movable collateral registry	Financial Institutions Division (FID)	BB	6
		Ensure adequate funds and accessibility of funds for livestock sector and providing all types of loans on minimal interest rate	Financial Institutions Division (FID)	BB	6
10. Enabling policy, regulations	Ensure policy support	Ensure favourable policy support for livestock sector	Ministry of Fisheries and Livestock (MoFL)	MoC, DLS	6-12
11. Improvement of veterinary services and animal health	Improve veterinary services	Ensure disease prevention, availability of quality bucks and semen for artificial insemination	Ministry of Fisheries and Livestock (MoFL)	DLS, NAB	12-36
		Reduce vulnerability of disease threat, seasonal influence, animal-based pandemics	Ministry of Fisheries and Livestock (MoFL)	DLS, NAB	12-36
	Establish disease diagnosis centres	Establish disease diagnosis centres at livestock clusters/upazila level for prevention and control of disease	Ministry of Fisheries and Livestock (MoFL)	DLS and Private companies	12-36
12. Improve R&D and information management	Improve information management	Introduce a single window depository and dissemination of all required documentation	Ministry of Fisheries and Livestock (MoFL)	DLS, BLRI, NAB	24-60
	Conduct Livestock Research and ensure extension services	Conduct research on animal production and animal health and provide extension services through proper planning, training and technology demonstration	Ministry of Fisheries and Livestock (MoFL)	BLRI, DLS, NSDA	12-24

10. Trade Roadmap for the Software and IT-Related Service Sector

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
1. Formulate IP laws	Protect trade data secret and protect generic resources, layouts, coding materials, design, protect and locally developed software.	Formulate: <ul style="list-style-type: none"> Data Protection Act; Software protection Act; Seek, if necessary, technical support from WIPO for drafting laws	Ministry of Industries (MoIND)	MoC, ICTD, LPAD, BACCO, BASIS, Business Associations	12 - 24
2. Support local companies and entrepreneurs	Develop conducive business environment	<ul style="list-style-type: none"> Exempt VAT for E-commerce businesses. Extend income TAX exemption and functionalize Software Quality Testing and Certification (SQTC) process; exempt duty for IT equipment imports 	National Board of Revenue (NBR)	WIPO, Industry Associations; Development Partners,	12
		<ul style="list-style-type: none"> Source software and IT services from local market as much as possible by GoB and private sector entities to relieve local firms from stiff competition from foreign companies. Formulate guidelines to make freelancing easier. 	Information and Communications Technology Division (ICTD)	BPC	12
3. Modify labor law	Introduce flexible working hours for IT sector; reform employee rules to accommodate industry needs	Incorporate night working hour clauses and some special provisions (like part time working agreements, work from home facility, corporate child care facility) for women employees	Ministry of Labour and Employment (MoLE)	PMO, BIDA, BEZA, BEPZA, MoC, MoWCA	12
4. Attract FDI and policy support for joint venture as well as takeover of startups by foreign companies	Formulate appropriate IT policy to attract FDI	Create provisions for joint ventures and merger/acquisition by foreign companies	Bangladesh Investment Development Authority (BIDA)	Business Associations	24
5. Increase BPO market share	Develop awareness and capacity for expanding BPO services	<ul style="list-style-type: none"> Introduce training programs for improving communication skill. Develop language courses and negotiation training programs to cater to the international BPO market 	Information and Communications Technology Division (ICTD)	Business Associations	24

Objectives	Recommended Intervention(s)	Specific Action(s)	Lead Ministry/ Agency	Supporting Ministries/ Agencies	Timeline (In months)
6. Utilize 4IR and smart technologies	Introduce smart technologies	<ul style="list-style-type: none"> Promote knowledge and skills on 4IR technologies Focus on Artificial Intelligence, Robotics, Microchip Designing and Manufacturing and Cyber Security. Introduce Smart healthcare, smart transportation, smart utilities, urban administration, public safety, agriculture, internet connectivity and disaster management 	Information and Communications Technology Division (ICTD)	DSA, BCC, CCA, IT Park Authority, Engineering/Technology, Universities/faculties, BUET, e-CAB	24
7. Create IT entrepreneurs	Establish nationwide IT incubator centers	Develop complete innovative eco-system for start-ups which will provide entrepreneurs, trainees, freelancers and potential startups with financial and logistical services, alongside mentorships. Establish effective linkages with academia and industry	Information and Communications Technology Division (ICTD)	e-CAB, BCC, BACCO, BASIS	24

11. Trade Roadmap for the Tourism Sector

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
1. To develop skilled workforce	Skilling, reskilling and upskilling the existing workforce	<ul style="list-style-type: none"> Provide technical training for skilling and reskilling the workforce Provide service-specific training program to develop required skills Strengthen internship system to create a cadre of tourism professionals Provide scholarship facilities for students in the tourism and hospitality management discipline 	Ministry of Civil Aviation and Tourism (MoCAT)	BTB, BPC, NSDA, UGC, Public and private universities	36

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
2. To promote new Market Access	Promote easy access to Visa for foreign tourists	<ul style="list-style-type: none"> • Increase list of Visa on arrival (VOA) countries • Allow tourist for VoA for all directly connected countries • Allow VoA in all land port • Implement easy e-Visa service • Visa access in River and Sea Port 	Ministry of Civil Aviation and Tourism (MoCAT)	SSD, MoHA	12
3. To promote new Product Development	Invest, facilitate development and training on new Tourist product	<ul style="list-style-type: none"> • Access to marine life and underwater access (Swatch of No Ground, Diving in Island) • Develop infrastructure for sports tourism (e.g., water sports, cycling, trekking) • Develop medical tourism in dental sector, old home and social company, physiotherapy etc. 	Ministry of Civil Aviation and Tourism (MoCAT)	BTB, MoS, FD	24
4. To preserve environment	Promote responsible, environment-sensitive tourism industry	<ul style="list-style-type: none"> • Raise awareness on the negative consequences of environmental pollution of different forms emanating from tourist behavior/practices; • Organize nature conservation campaigns mobilizing different stakeholders including relevant business entities, students, environmental activists, etc. • Organize periodical clean-up events through social mobilization in major tourist spots • Enforce environmental protection laws as applicable for tourism sector • Protect natural resources like rivers, hills and forests 	Ministry of Environment, Forest and Climate Change (MoEFC)	DoE, MoC, Certification authority of MoC, TDAB and Business Chambers	72
5. To increase private sector investment in tourism sector	Facilitate access to finance on easy terms to encourage private sector investment	<ul style="list-style-type: none"> • Arrange Special Fund • Introduce Moratorium Facility and easier process of bank loan 	Bangladesh Investment Development Authority (BIDA)	FD, FID, NBR, BB	36

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
		<ul style="list-style-type: none"> Provide cash incentive, reduce duty on transport and communication related vehicles before LDC graduation 			
		Reduce duty on restaurant equipment and alcoholic drinks in hotels, motels and restaurants having legal license	National Board of Revenue (NBR)	FD, BB	
6. To attract FDI	Make one-stop service provision to simplify processes for foreign investors	<ul style="list-style-type: none"> Ease the regulatory procedure of investment Make the regulatory procedure easier and reduce policy uncertainty especially for taxation, VAT and duties. Activate National Single Window of NBR 	Bangladesh Investment Development Authority (BIDA)	NBR, FD, BEZA, RJSC, CCI&E, NBR	36
7. To implement sector specific plan and strategies	Implement National Tourism policy and Tourism Board Act and Strategic plans	<ul style="list-style-type: none"> Update and implement National Tourism Policy 2010 identifying appropriate policy supports Update and implement Bangladesh Tourism Board Act 2010 Implement the suggestion of "Tourism Human Capital Development Strategy for Bangladesh: 2021-2030" Finalize draft Tourism Strategic Plan 	Ministry of Civil Aviation and Tourism (MoCAT)	MoC, BPC, BTB, Tourism Association and Industry	72
8.To increase domestic investment	Rationalize taxation and duty structure	<ul style="list-style-type: none"> Provide taxes & duties exemption for the investor Rationalization of value added taxes Reduce import duty on beverage, transport buggies, car, bus, Restaurant equipment and tourism materials 	Bangladesh Investment Development Authority (BIDA)	FD, NBR, BB, Scheduled Bank, BTB	24

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
9. To improve infrastructure, security and communication	Strengthen communication system of tourism place	<ul style="list-style-type: none"> Renovate and develop road & communication system of attractive tourist spots, resorts and tourism places. Facilitate driving safely on hilly terrains and accommodations with dining options Preserve and renovate recreational, traditional and archeological establishments. 	Ministry of Civil Aviation and Tourism (MoCAT)	LGED, BTB, BPC, LGD, TNO, UNO and Archeological Department	72
	Strengthen Security system	<ul style="list-style-type: none"> Ensure cybersecurity and physical security Improve IT infrastructure such as booking systems, payment gateways, and customer databases. 	Ministry of Civil Aviation and Tourism (MoCAT)	MLJPA, LGED, BTB, BPC, LGD, TNO, UNO and Archeological Department	
10. To create digital platform for tourists' easy access to information	Build a tourism-friendly website that helps easy access to information on Bangladesh's tourism sector.	<ul style="list-style-type: none"> Develop contents and design layout for the website Put in place people experienced in managing digital platforms to manage the website with regular updates 	Ministry of Civil Aviation and Tourism (MoCAT)	BTB, BTC, Public, and Different Tourism Private Organizations and Associations	12
11. To ensure sustainable development of tourism	Promoting Boutique Community Tourism	<ul style="list-style-type: none"> Promote boutique (10-15 guests max) community tourism and accommodation and provide some regulation waiver than that of hotels and rationalizing taxation/VAT. Reduce VAT on Non -AC hotels & accommodations 	Ministry of Civil Aviation and Tourism (MoCAT)	NBR, BTB, MoHA	12

12. Trade Roadmap for Nursing and Midwifery Sector

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
1. To increase number of nurses and midwives to conform to the WHO requirement to explore export of nurses and midwives overseas.	Ensure proper implementation of the existing national curriculum.	<ul style="list-style-type: none"> Formulate an implementation workplan Increase the number of seats for enrollment for meeting WHO requirements i.e., 3 nurses per 1000 Population. Increase the number of teachers 	Medical Education and Family Welfare Division (MEFWD)	MoC, DGNM, BNMC, Public and private Nursing and Midwifery Institutes	60
	Implement national nursing service strategy	<ul style="list-style-type: none"> Establish teachers' training institute Ensure continuous training of the teachers. 	Medical Education and Family Welfare Division (MEFWD)	DGNM, BNMC	60
2. To increase knowledge on second/foreign language and communication skills	Improve foreign language skill	<ul style="list-style-type: none"> Develop internal development policies of institutes, Develop own mechanism of learning at the institutes with proper implementation of the communicative English and other foreign languages 	Medical Education and Family Welfare Division (MEFWD)	BNMC, Multilateral donor and technical agencies, Respective Nursing institutions	Continuous
3. To strengthen the educational institutions	Improve infrastructural facilities	<ul style="list-style-type: none"> Ensure adequate faculties wherever necessary Provide facilities necessary such as Simulation lab Ensure sufficient clinical practice for public and private nursing institutes 	Medical Education and Family Welfare Division (MEFWD)	BNMC, DGNM, Respective Nursing institutions	Continuous
4. To harmonize the costs in different educational institutes;	Maintain uniformity of cost of educations in all the institutes	Formulate policies to monitor the academic cost management of institute.	Medical Education and Family Welfare Division (MEFWD)	MoE, BNMC, Nursing and Midwifery Institutes	6 -12
5. To develop skilled nursing and midwifery teaching faculties	Establish the teachers' training institutes	<ul style="list-style-type: none"> Review the existing training module Provide ToT at aboard Provide ToT at home Provide support in terms of teaching and academic equipment or logistics 	Medical Education and Family Welfare Division (MEFWD)	DGNM, BNMC, NSDA Multilateral donor/technical agencies	12-60
6. To improve teaching methodology, and curriculum	Collaborate with foreign universities and institutes	Set up a technical center for nursing and midwifery council in collaboration with international technical institutes.	Medical Education and Family Welfare Division (MEFWD)	MoC, MoE, MoHFW, DGNM, BNMC, Nursing and Midwifery Institutes	12-18

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
	Introduce specialized Masters and PhD programme;	<ul style="list-style-type: none"> Introduce specialized post-diploma/post-graduate courses in specialized areas Increase the number of specialized Masters and PhD programme; 	Medical Education and Family Welfare Division (MEFWD)	MoC, MoHFW, MoE,	12-60
7. To harmonize the education standards and licensure examination	Create the regional nursing alliances.	Harmonize the diversity and complexity in nursing and midwifery degree structures and curricular programmes.	Medical Education and Family Welfare Division (MEFWD)	MoHFW, MoE, DGNM	12-60
8. To enhance market access in export destinations	Improve access in global health workforce for Nurses and Midwives.	Identify potential export destinations for nursing and midwifery, focusing on developed countries in Europe and North America, and Consider signing bilateral trade agreements with them.	Medical Education and Family Welfare Division (MEFWD)	MoC, HSD, MoFA, BMET, MoEWOE	12
9. To boost image of the Nursing and midwifery services in Bangladesh.	Organise annual international exposure visit	<ul style="list-style-type: none"> Organise annual international exposure visit to the destination countries. Disseminate the experiences of the visit to the nursing institutes. 	Ministry of Expatriates' Welfare and Overseas Employment (MoEWOE)	MoFA, MoC, BNMC BMET, BOESL, BIDA	Biannually
	Promote the nursing and midwifery sector globally	<ul style="list-style-type: none"> Promote Bangladeshi nurses and midwives in potential destination countries Create an updated data platform on requirements in destination countries, to aid policymakers in making informed decisions on export. 	Ministry of Foreign Affairs (MoFA)	MoC, BNMC, BMET, BOESL	24
10. To facilitate foreign direct and local investments	Facilitate establishment of health care center through foreign investment	Collaborate with stakeholders to identify and approve measures for establishing a single window clearance mechanism for investment approvals and reforming government policies to attract investments.	Bangladesh Investment Development Authority (BIDA)	MEFWD, MoC, Multilateral donor agencies	12-24
11. To build a leadership and guiding strategy for nursing and midwifery resource development	Formulate policy for development of leadership and guiding strategy	<ul style="list-style-type: none"> Develop a clear resource development strategy Establish a coordination committee, and collaborate with external stakeholders to form a strong coalition for shared action. 	Medical Education and Family Welfare Division (MEFWD)	MoC, HSD, Private Health Care centers	18-36

Objectives	Recommended Intervention (s)	Specific Action (s)	Lead Ministries/ Agencies	Supporting Ministries/ Agencies	Timeline (In months)
12. To create a country-wide collaborative effort to advance nursing education	Create policy and strategies for advancing nursing education	<ul style="list-style-type: none"> • Assess strengths and weaknesses of capacity at each institute • Develop a plan to strengthen the capacity of the existing pool of educators 	Medical Education and Family Welfare Division (MEFWD)	MoC, Private Health Care centers	18-36