



EVALUATION OF LOCAL INDUSTRY OF BANGLADESH INCLUDING SHIPBUILDING

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Abstract: Bangladesh as a country with large young population has an opportunity to get success in heavy and labour intensive industry. Bangladesh is a maritime nation with glorious shipbuilding history. But, we fail to keep pace with global shipbuilding industry. We need to study our business opportunity and challenges special emphasis on local shipbuilding. Present geopolitical situation and financial crisis may increase demand for low cost ships. This is an opportunity and is favourable for local shipbuilding. Estimated volume of future global shipbuilding market is around USD 200 billion, where small ship building market is around USD 20 billion. In near future, the world will need few thousand of merchant ships, where mostly are small to medium. Today's single hull oil tanker fleet is going to be replaced soon as per IMO requirement. There is a serious demand of container ships in all size. UNCTAD, WB, WTO, and OECD have detected the high demand of container ships in future. Small and medium container, tanker, cargo, multipurpose ships market up to 10000 DWT is suitable for local shipbuilding and we are capable of grasp 1% of global market share and that value is USD 2 billion.

Key-words: Global and niche market, GDP growth, mega-infrastructure, backward linkage, etc.

Introduction

Shipbuilding is a state supported strategic industry, and always an attractive sector for developing nations. Bangladesh as a country with large young population has an opportunity to get success in shipbuilding and revive her glorious history. Bangladesh being a maritime nation has failed to keep pace with global shipbuilding due to lack of appropriate strategy and viable shipbuilding policy. Local shipbuilding has got enough potential to capture a portion of global market share and can earn mentionable foreign currency by building and exporting quality ships. There are opportunities to have more employment in this sector. Country has abundance of easily trainable work-force. A little training can elevate the quality and competency of workforce into international standard. There is huge number of white color semi-skilled manpower is also available for any industry. Existing local shipyards of Bangladesh can manufacture quality ships with competitive price. Moreover, there is a golden opportunity to flourish backup industries to support local shipbuilding. There is also a chance to grow backup and forward linkage industries with foreign collaboration.

Bangladesh has export-import imbalance and export deficiency. We need to explore potential sectors to balance deficiency. Shipbuilding may be the new opportunity. Because, there is an opportunity for access duty free market of ships, into developed countries. Shipbuilding may be a dominant foreign currency-earning sector within next few years and that is suitable for Bangladesh. The foreign buyers especially in Western Countries (Europe and North America) have exhausted to China due to present geopolitical situation. They are searching new market and are imposing few mandatory requirements to using their own

equipment in the ordered ships. It creates hope for LDC and developing countries like Bangladesh. There are very few literatures, studies, and articles are available on local industry, particularly shipbuilding and those are focused mainly on history, potential, problem, and quality of local shipbuilding. There is no systematic study on local industry in general and shipbuilding in particular. So, an effort has been made to study the local industry with special emphasis on shipbuilding and depict the potential, challenges, prospect and suitable shipbuilding market for Bangladesh. Small niche market is suitable for local shipbuilders and if we can catch 1% of global market, that value will be USD 2 billion.

Manufacturing Industry Potential of Bangladesh

Bangladesh is a developing country in Southern Asia. The country is about the size of Iowa of USA and has a population of 165 million and making it the 12th most densely populated country in the world. The statistic shows that, among the total population in Bangladesh, 67.61% consists of age group 15-64 and which clearly states that the working group is higher in number and that has been shown in figure 1 below. Bangladesh’s unemployment has remained steady at 4.25% since last two decade. GDP growth of Bangladesh is also increasing steadily and continuously. Country is growing (or GDP growth) at an annual rate of 7.4% and Bangladesh’s economy is the 3rd fastest growing economy in the world and the fastest growing economy in Asia. Bangladesh expects to reach developing and middle-income country status by 2030. That’s why, local manufacturing industry are and will be the biggest contributing factors for this achievement. Manufacturing industry and service sector will remain as the prime source of employment in future.

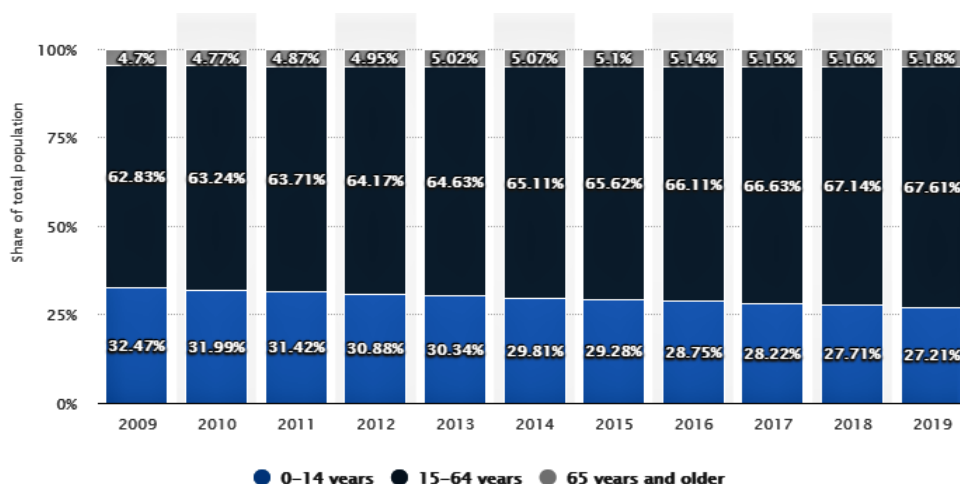


Figure 1: Age structure in Bangladesh from 2009 to 2019
 Source: Statista 2020, Published by H. Plecher, Oct 6, 2020

In 2019, the share of agriculture in Bangladesh's gross domestic product was 12.68%, industry contributed approximately 29.65% and the services sector contributed about 52.85% and that has been shown in figure 2 below. Average minimum labour cost around the globe in USD has been shown in figure 3 below and that is lowest in Asia and even in world. If Bangladesh can develop skill workforce with modern technology and knowledge, it will act as prime-mover of the national development in near future for the country. On the other hand, if we fail to do so, this huge population will be the burden of the nation. We need to formulate, develop and adopt appropriate policy and strategy to capitalize the huge population as human resource.

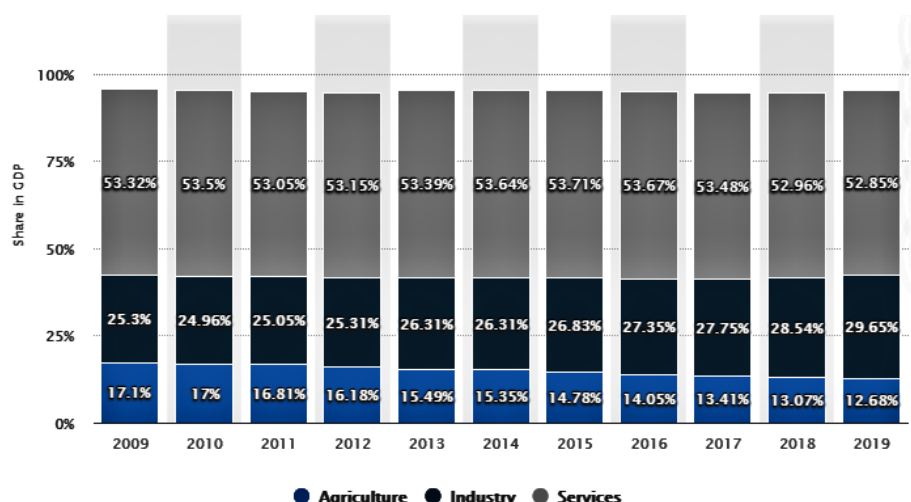


Figure 2: Bangladesh GDP breakdown by sectors
Sources: Statista 2020, Published by H. Plecher, Jul 28, 2020



Figure 3: Average minimum labour cost around the globe in USD¹

QIMA is a quality control company which offers supplier audit, laboratory testing and product inspection services in Asia, Africa, Australia, Europe and North and South America. They operate in 95 countries and help more than 17000 global brands, retailers, manufacturers, and food growers achieve quality excellence in the consumer goods, food, and life sciences sectors. According to a report compiled by QIMA, Bangladesh has come 2nd on a list comparing the ethical auditing practices of major manufacturing countries. Again report 2020 in Review, ‘Global Trade COVID Disruption Reveals Changes in Consumption Habits and Rampant Ethical Risks, as China Sourcing Beats the Odds’ Vietnam came in third, followed by Thailand, Pakistan, Turkey, China, India and Brazil. China was seventh on the list behind Pakistan and Turkey (QIMA 2022). Bangladesh obtained second position in the list gives us hope and motivate the nation. There are few distinct advantages, which can boost up our manufacturing industry. Such as:

- Competitive and cheap labour.
- Our work force is easy to train and can develop skill quickly.
- We have preferential market access around the globe.
- Country develops emerging supply chain.
- Sizeable domestic market grown up.
- Government is utilizing China-India opportunity.

[1] **Blacksmith International (2022) Global supply chain**, available at: <https://blacksmithint.com>, (Accessed on 29 Jul 2022).

- We have proven ability to scale up.
- We have macro-economic stability.
- We have successfully developed our export culture.

- Government give emphasis and more focus on job creation.
- Government notion and attitude are business friendly
- Mass people can easily learn and accept new technology (Leapfrogging technology)

Bangladesh will be benefitted extremely after completion of few mega infrastructures like Padma Bridge, which will be completed very near future. Such as:

- 4 Lane Dhaka- Chittagong Road
- Dhaka Metro Rail
- Dhaka elevated expressway
- Dhaka- Ashulia Elevated Expressway
- Terminal-3 of Dhaka Airport
- Purbachal 300 feet road
- Commuter Rail for Dhaka- Gazipur- Kalliakoir- Narayanganj
- Chittagong Port Infrastructure; Bay Terminal
- Deep Sea Port; Materbari Terminal

Manufacturing Success in Bangladesh

Bangladesh becomes the 2nd largest global RMG or apparel maker. Bangladesh has replaced Turkey as the 2nd biggest buyer of cotton in the world. Very recently Bangladesh has attracted attention of little renowned global industry like Samsung, Mitsubishi. Those brand industry has set up their factory in Bangladesh and producing electronics product like mobile set and house hold electronics goods. Some local electronics company like Walton is also successfully manufacturing and selling house hold electrical and electronics goods, motor bike, etc both in domestic and in foreign market. Bangladesh has the highest and easiest job creation potential, but that need proper education and skill development. Bangladesh with 180 million populations already creates potential domestic purchasing power. Those have multiplier effects on local banking, logistics and insurance sectors. Government detect few promising manufacturing sector in Bangladesh; such as: consumer durable, light engineering, mobile phones, pharmaceuticals, furniture, shipbuilding, garments, lather and shoes, food, agro, fast moving consumer goods, low cost vehicle, Plastic goods, etc.

Case Study of Manufacturing Industry and their Success Story

Case study of Local Motor Bike. Introduction of ride-sharing services in Dhaka and Chattogram (Pathao) in recent years has also contributed to a rise in demand for motorbikes. Again, in recent years a more open view has prevailed due to the government has reduced duties on imported parts (from 25% to 20%) and on imported models. Bajaj Auto is producing locally since 2015 and was immediately followed by TVS, Hero Motors, Suzuki and Yamaha. Honda opened its motorcycle plant in November 2018. The plant is expected to be increased in 2021 for a new capacity of 200000 units per year. Today over 80% of two-wheelers sold in Bangladesh are locally manufactured. In Bangladesh, the import duty is 45% keeping the motorcycles prices about 2.5 times higher than those in India. However, local manufacturers can enjoy a discount on this duty, if they produce at least one fifth of the bike in the country.

A decade ago, Bangladesh two-wheeler sales were below 10000 units per year. Then the industry evolved rapidly, and now new local brands, like Runner, Indian brands, like Bajaj, Hero Motor and TVS, and Japanese brands, like Suzuki, Yamaha and Honda are producing two-wheeler locally. In 2012 the market was already up 10 times compared with 5 years before, and kept growing steadily until 2016, when sales were almost quarter of a million. However, the new policy established by the government in 2017 transformed the industry and immediately boosted demand. In the following years the market boomed, doubling volume to hit 487000 units 2018 and finally over 549000 units in 2019.

Case Study of Samsung and Local Smartphone Industry. Noam Chomsky said, China is a great manufacturing center, But it's actually and mostly an assembly plant. So it assembles parts and components, high technology that comes from the surrounding industrial- more advanced industrial centers- Japan, Taiwan, South Korea, Singapore, the United States, Europe and it basically assembles them. Same word has been found truth for Vietnam. Samsung Electronics' mobile phone exports comprise almost 100% of Vietnam's mobile phone exports. In Vietnam, the company is running mobile phone manufacturing plants in Bac Ninh and Ho Chi Minh City. The two plants are the largest and most advanced among the company's nine mobile phone manufacturing plants across the world and that include those in South Korea, Indonesia, India, China and Brazil. At present, approximately 40000 and 70000 workers are working at the plants in Bac Ninh and Ho Chi Minh City respectively. In addition, Samsung Electronics' mobile phone supply from Vietnam accounts for more than 50 % of the company's global mobile phone supply.

Local demand of new handsets mobile in Bangladesh is 35 millions, where 9 mil smart phone and 26 mil feature phone. Bangladesh is becoming self-reliant in smart phone manufacturing very quickly. Local manufacturing factories are supplying over 7.5 mil handsets. Almost all big brands (10 brands) have set up manufacturing and assembling units in Bangladesh over the past few years. Now smart phone import decreased by 50% in this year. Country will be self sufficient in smart phone manufacturing within next couple of years. The secret of this success story was favourable government policy. Government offers tax holiday and VAT exemption on local handset production. At the same time, government imposed tariff on handset import. (Abbas Uddin Noyon & Shahadat Hossain Chowdhury; 29 November, 2020, 12:00 pm)

Constrain in Doing Business in Bangladesh

Cheap labour cost is important for doing business, but not everything. Speed to market and logistics, ease of doing business, socio-economic condition, geo-political situation, government policy, people attitude, local culture are the most important consideration for doing business in any country. There are several constrains to doing business in Bangladesh. Let's see the status of ease of doing business (EODB) around the globe and that has been shown in figure 4 below. We need to look and do more on labour welfare, labour policy and Industries as a whole. Country has constrained in efficiency, productivity, good governance and justice. Nation have image crisis and have not national standard and brand value except RGM. If we can also look to the average international sea shipping time around the globe and which has been shown in figure 5 below. Again, logistics performance index rank around the globe has been shown in figure 6 below. In all those cases, the position and status of Bangladesh is very poor in deed. We have wrong attitude and have integrity problem. We try to avoid sustainable way. We try to become rich in quickest way as possible.

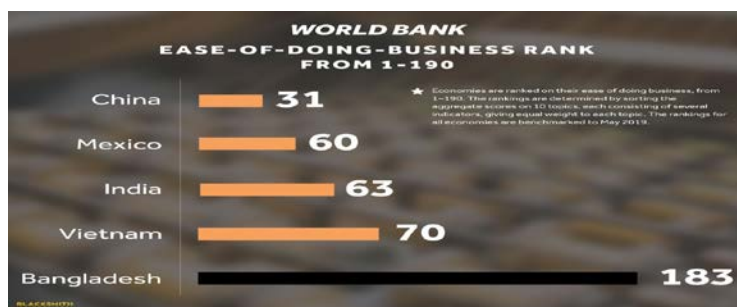


Figure 4: Ease of doing business (EODB) around the globe in 2020 ¹

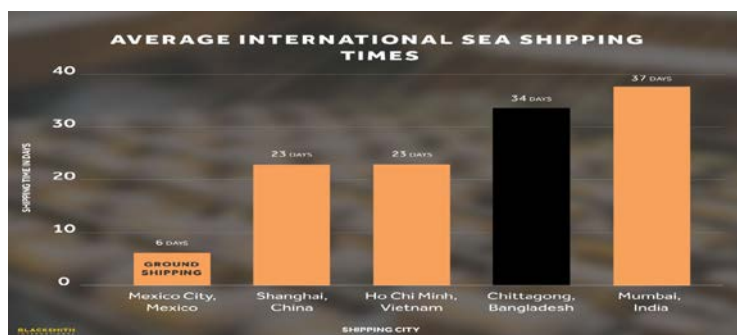


Figure 5: Average international sea shipping time around the globe in 2020¹



Figure 6: logistics performance index rank around the globe in 2020¹

Suggestions to Solve the Business and Industry Problems

To solve the local business and industry problem of Bangladesh we need to follow and consider some suggestions. Those are as follows.

- We need to focus on boosting efficiency, good governance and justice.
- Nation needs to reduce costs of doing business to remain competitive in global market.
- Country should be concern more on HRD to set up benchmark productivity and national standards.
- NBR must not be judged by only how much revenue they collect; rather they should look the matter like, investment and job creation

[1] Blacksmith International (2022) Global supply chain, available at: <https://blacksmithint.com>. (Accessed on 29 Jul 2022).

- Rationalize corporate tax and VAT levels. Government need to punish violators and reward good tax payers as well as increase the tax network.
- Target specific companies and countries (like Japan, Germany, Middle East) for FDI in manufacturing sector.
- Government needs to accelerate EODB reforms. For example, property registration in Dhaka needs 264 days; whereas in South Asia needs 107.8 days and in OECD needs only 23.6 days.
- Alternative dispute resolution (ADR) refers to the different ways people can resolve disputes without a trial. Government needs to enforce immediately ADR for dispute resolution in business sector. For example, Bangladesh ranking is 189 out of 190 countries.
- We need to look at all factors of cost of doing business vs our potential competitors. Special emphasis on power, logistics, rent, service, etc aspect.

- We need to invest more in health and education sector. We must look at technical training from school and madrasa and need to develop skill of young generation.
- Government need to update intellectual property and patent protection laws.
- We need to acquire and develop product design capability and capacity.
- We need to make Manufacturing more attractive than trading.
- Government need to give special incentives for heavy industry; such as chemicals, shipbuilding, etc. But industry needs to comply with the environment regulations.
- We need to change our attitude like 'get rich quickest way possible'. We need to improve our mentality to a more positive, collective and sustainable way.
- Source diversification is new way to look ahead. For example, China has changed and de-risks Vietnam.
- We should teach our teacher and develop themselves with modern teaching and skill development tools.
- We need to redefine the strategic plan to developing the curriculum, learning process, creativity, digitization and find new solutions in education system for new generation.

Capability of Local Shipbuilding

There are more than hundred indigenous shipyards, shipbuilders and workshops in Bangladesh are playing a vital role for manufacturing and repairing of boats and ships ply rivers and coastal area. Most of them are registered with the Department of Shipping (DOS) of which about half of category A and rest half are category B as per criterion set by DOS. Out of these shipyards, approximately 70% are located in and around Dhaka and Narayanganj, 20% are at Chittagong and 10% are at Khulna and Barishal. Around 40,000 thousands inland ships and around 100,000 of mechanized country boats are plying all over the country, which carry more than 85% of oil product, 65% of cargo and 25% of passengers in total. There are more than 500 coastal vessel are register under Mercantile Marine Department (MMD). Almost all inland and coastal ships of Bangladesh are constructed and repaired locally in these local shipyards.²

Bangladesh has long and glorious shipbuilding and maritime history. It will encourage local entrepreneurs and foreign investor to come forward in this field and definitely we will be successful in this sector. There are around 100 indigenous shipyards in Bangladesh. There are 4 local shipyards are capable of making class and export standard ships around 10000 DWT.

[2] **MSc Thesis (2010), Evaluation of potential prospect and challenge of Bangladeshi shipbuilding in light of global contest by khandakar Akhter Hossain, Dept of NAME, BUET, 10 Jan 2010, available at: <https://docplayer.net/64761793-Khandakar-akhter-hossain.html>, (accessed on 20 Jul 2022).**

Another few shipyards are developing facilities and capacity aiming to enter into export market. More than 200,000 skilled, semi-skilled and unskilled/casual workers are employed in shipbuilding industry. Two million people are related either directly or indirectly with local shipbuilding industry in Bangladesh. Productivity of local shipbuilding labour is 11.43, and average hourly labour wage is only USD 1.00 and relative labour wage of local shipyard is only 0.45 and that is lowest in the world.

Dockyard and Engineering Work (DEW) Ltd is the oldest shipyards in this region and is providing services to new shipbuilding and repair sectors in this region since after its establishment in 1926. The organization was taken over by the government of the then Pakistan from the Royal Indian Marine Service after the division of India. In 1954, the then East Pakistan Industrial Development Corporation (EPIDC) took it over and transformed it into a public limited company. Subsequently, in the process it has come out with the capability of building and repairing vessels of all types up to 1500 DWT. It has further modernized in 1989 by introducing good machinery and modern shipbuilding technology. This development was achieved to enable the yard to undertaken construction of Ro-Ro

ferries under a Danish aided project for BIWTC. But DEW was failed to keep its reputation and earn good profit since independence. After declaring sick industry in 2002 it has stopped its activities and finally handed over to Bangladesh Navy on 07 Dec 2006. Since navy took over DEW Ltd has built few dozen of new ships for BN, Army and Coast Guard, BIWTA, BIWTC, CPA, MPA and other private customers. Presently they are constructing 17 class Tug-boat for BIWTA. This shipyard is earning profit and highest tax paid industry in the Narayangonj region.

Khulna Shipyard (KSY) Ltd in 1957 it officially started her journey as a shipyard in 1957 and the yard was jointly operated by German and British companies still 1965 and then the management of the yard has taken over by the then EPIDC. Soon after the liberation, the yard management has placed under Bangladesh Steel Engineering Corporation (BSEC). After 1984 till Bangladesh Navy took over on 03 Oct 1999, this shipyard remained as a sick industry and there was no sign of profit. However, the versatile dock facilities can accommodate a good number of ships at a time for repair or new building. In 1957 Khulna Shipyard started construction of tugs, work-boats and other commercial craft with standard design. The yard has the capacity to build Steel/Aluminum ships up to 90 m length, 700 tons lightweight and 04 meters draft. Very recently KSY has successfully built naval ships like Large Patrol Craft (LPC), Inshore Patrol Vessel (IPV), Hydrographic Survey Vessel, Landing Craft Utility (LCU) and auxiliary platform for BN and BCG. KSY also built merchant ships like Oil Tankers, Cargo and Container Vessels, Tugs Inland and Coastal Work Boats, Pilot Boats, Heavy Duty Speed Boast, Search and Rescue boost, barges, ferry, Floating Cranes, Fishery Research vessel, etc. It is the first warship builder in Bangladesh. Since 1957 KSY has built 400 new ships and repaired more than 3000 vessels. This shipyard is earning profit and highest tax paid industry in the Khulna region.

After the independence of Bangladesh, the only significant development in public sector was the Chittagong Dry Dock Limited (CDDL). But after the independence, most of the state owned shipyards like DEW and KSY have failed to keep their reputation and subsequently have become losing enterprises for many reasons. However, On 23 December 2015, CDDL has handed over to BN. The dockyard with an area of 48 acres, located within the Chottogram Port area and capable of repair 175m length, 24m breadth, 8.5 draft and up to 22000 dwt ships in her dry-dock. Since inception CDDL has repaired more than 1000 merchant and naval ships. Presently CDDL is earning profit and planning to build Frigates and OPV for BN.

There are hundreds of indigenous private shipbuilding and repairing yards within various location of Bangladesh that are manufacturing and repairing almost all the inland and coastal water transports. Among these, some of them have long shipbuilding history and reputation. As an example High-Speed Shipyard has 60 years of shipbuilding history. Again, some private shipyard has gained international standard and are manufacturing small and medium new ships for international market. Recently few of these shipyards have attained the capability to manufacture 10000 dwt merchant ships. Few local private shipyards (ASSL, WMSL, KSY Ltd, and KSSL) have received orders from the foreign ship owners (such as Germany, Japan, Denmark, Netherlands, EC, Mozambique, India, Nigeria, etc). Dozens of new ships already handed over to foreign owners by our local Shipyards.

Type of Ships Built in Local Shipyards

A number of various types of ships and vessels are built in local shipyards around the country. The vessels built in local shipyards are: Multipurpose vessel, Coaster, Dry Cargo Vessel, Cargo Coaster, Passenger Vessel or Ferry or Lunch, Double Decker Passenger Vessel, Tanker, Container vessel, Landing Craft, Tug, Dump Barge, Supply Barge, Deck

Loading Barge, Self Propelled Barge, Dredging Barge, Research Vessel, Survey Ships, Hospital Ship, Tourist ship, Inspection Vessel, Pleasure Craft, Yachts, Ro-Ro Ferry, Crane Boat, Speed Boat, Hydrographic Survey Boat, Work Boat, Pilot Boat, Water Taxi, Pontoon, Catamaran Vessel, Sand Carrier, Troops Carrying Vessel, Fast Patrol Boat, OPV, PC, LPC, LCV, LCT, Deep Sea Trawler, etc. There are more than twenty thousand inland vessels have been registered in Department of Shipping (DOS). Apart from thousands of mechanized and manually operated country boats have not yet come under the preview of registration and organized statistics. There are more than five hundred coastal ships have been registered with Mercantile Marine Department (MMD). To get the real number of vessel actually build in local shipyard is quiet more than the registered either in DOS or in MMD. Principal data (L, B, d, dwt, etc) of most common types and sizes of ships which built locally and ply in inland and coastal water has been shown in table 1 below.

Types of Vessels	dwt or no of passenger	Length in Meter	Breadth in Meter	Draught in Meter	Usually Ply
Multipurpose ship or Coaster	1500- 4000	60- 120	10- 16	3.5- 6.0	Coastal
Cargo	1000- 3500	50- 100	10- 15	3.0- 5.0	Inland & Coastal
Passenger ship or Launch	300- 1500 Passenger	60- 110	10- 20	3.0- 4.0	Inland
Tanker	1000- 4000	50- 120	10- 16	3.0- 6.0	Inland & Coastal
Sand Carrier	200- 500	20- 40	5- 10	2.0- 3.0	Inland
Barge	200- 1000	20- 60	6- 14	2.5- 3.5	Inland
Dredger	30-100	10-30	4-8	2.0-3.0	Inland

Table 1: Principal data (L, B, d, dwt, etc) of most common types and sizes of ships which built locally and ply in inland and coastal water

There are three types of design/drawing used in shipyards for building a new ship. From them basic and technical design come from internationally recognized design house. Local shipyards and design houses are capable to supply working drawing. ASSL, WMSL and KSSL bought basic and technical design from international market to build their export quality ship. However, most of the primitive type of local shipyards has no basic and academic knowledge about ship design. Most of the shipyards and ship owners of inland ship are not even interested to spend few lac Taka for design a ship with approval from DOS. That's why faulty ships are constructed and accidents occur in Bangladesh in every year. DOS of Bangladesh has shown keen interest to develop the inland shipbuilding sectors. But they have shortage of qualified technical personnel to implement the existing rules and regulations. There are dozens of shipyards and firms or houses are enlisted in DOS to design inland and coastal ships. There are billion dollars ship design business floating in the world market. The basic drawing mostly requires for owners; whereas technical and working drawing solely require for shipyards. Bangladesh has golden opportunity in this profitable business. Naval architects are the nucleus of a ship design firm or house. Unfortunately at present Bangladesh neither has qualified naval architect nor has such business motive.

Existing Challenges of Local Shipbuilding Industry

There are very few local shipyards are careful and have positive attitude to improve their quality, health, safety, and environmental (QHSE) aspects. Pressure from the government and the foreign buyers together with the awareness program and training on QHSE aspects will lead the local shipyards to achieve international standard. Most of the local shipyards are very reluctant to follow corporate management culture. Family members

occupy the important managerial appointment. Such family management culture is one of the hindrances for development of the shipbuilding. For example ASSL, has failed to continue their success in ship export business due to family management culture. We need to change our attitude like “get rich quickest way possible”. We need to improve our mentality to a more sustainable way. For example WMSL has failed to continue their success in ship export business due to their attitude to get rich in quickest way. Unfortunately they invest other business with little expertise and with the ambition to become rich easily and quickly. Business consistency and sustainable way of doing business is the main tools of success in shipbuilding business.

Due to poor management practiced in local Shipyards, there are poor job satisfaction observed among the employee and skilled workforce. Workforce enjoys almost no industrial benefit, like production bonus, fringe benefit and other labour welfare activities like medical, pension, travel or daily allowance, accident and other compensation. Most of the workers are employed in casual basis. Local shipyards owners do not bother about working environment and welfare of the employees due to availability and cheap labour in job market. As a result substantial number of graduates and other skilled manpower trained in maritime industry leave the country unnoticed for overseas employment. Additional financial cost of local Shipbuilding is about 10 to 20% higher than the other competing nations like China, Korea, Japan, India, Vietnam, etc. High price and shortage of electricity and gas supply as well as other poor infrastructure are major obstruction, which hinders the setting up shipbuilding industries in Bangladesh. Relatively poor state diplomacy, country image and lack of activities to promote local shipbuilding are creating obstacle to sustainable growth of shipbuilding.

The technology used in local shipbuilding is still rudimentary. There is distinct lacks in efficiency, technological, managerial and labour skill. Most of the local shipyards lack of modern shipbuilding tools and machineries. Moreover, there is a shortage of expert machine and digital/AI operators. Still, Bangladesh has lack of ship design expertise and we are depending on foreign support. Local shipbuilding is lacks of technical expertise on modern technology and lack of government financial support to meet incoming 4IR. Local bank interest and service charges are still high. It is one of the major obstacles to develop shipbuilding. Again, shipbuilding requires bank guarantees as per the choice of foreign buyers. So, local commercial banks need counter guarantees from foreign banks. This incurs additional cost in local shipbuilding. Commission for opening import LC, counter bank guarantee and other mark up in local shipbuilding incur additional cost and fail to make export oriented shipbuilding more competitive with its competitors like China, Korea, Japan, Vietnam, Philippines, India, Brazil, etc.

Even with inheritance, Bangladesh shipbuilding found sluggish to keep pace and consistency with technological development. Due to abundance of cheap labour, shipyards owner are reluctant to accept advance technology. There is distinct gap between industrial needs and curriculum or syllabus of mass education system. Nation should concentrate more on technical education. We have long tradition of wood boat building; but fail to develop our own shipbuilding standard and rule books for ship construction and become a member of ICS. So, in initial stage, we can set some standard and prepare role books for inland shipbuilding and that should be applicable for local shipyards in general. Most of the local shipyards are located in and around Dhaka, which is far away from coastal area and that restrict size of ships production. Bangladesh is not producing class approved MS plate, frame, girder, stiffener, longitudinal, etc; which are essential for export oriented shipbuilding. Image crisis and obstacle in EODB discourage FDI in shipbuilding. There are lack of information, motivation and business promotion for prospective foreign buyers. Our ambassadors in foreign mission should act appropriately in this matter.

Government Investment and Support in Local Shipbuilding

The global shipbuilding industry was struggling from 2008 to 2015 due to great depression. Three South-East Asian countries with few Western countries became new production hubs. Trend of investment/support in local shipbuilding by own countries has been shown in figure 8 below. Countries like Japan, China, Singapore, United States, South Korea, have invest in domestic sectors and boosted up their local industry and helped them to survive in the global market. Despite big fluctuations in price and demand during great depression in 2008-2015, the major market in China, Japan and South Korea remain as forerunner of global shipbuilding and ship-repair industry. There are strong reasons behind the growth of their shipbuilding market; such as: financial backing by governments, domestic investment, FDI, cheap labour costs, infrastructure, business friendly regulations, etc (Hossain K 2018).

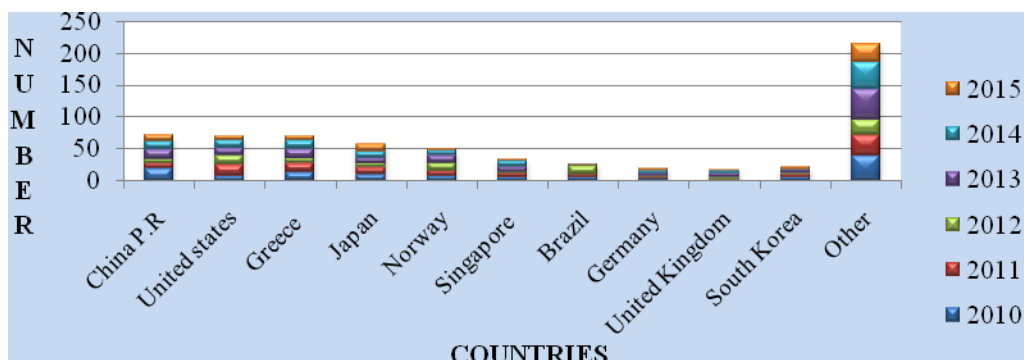


Fig 8: Trend of investment/support in local shipbuilding by nations in 2010-2015 ³

Shipbuilding being primitive business remains as open and competitive global market. Shipbuilding has vast experiences in surviving peaks and slumps of economy; and all past global crisis have hit shipbuilding more severely. The production of shipbuilding is gradually declined like sine curve; primarily due to slow economic growth, market fluctuation, and imbalance between supply and demand of ship. Again, increase in production price may weak the ship demand. As shipbuilding is highly capital intensive industry, needs strong government support and political stability for its sustainability. From figure 9, it is clear that, government support and countries own investment is essential to survive local shipbuilding in case of global crisis. Countries like Japan, South Korea and China have helped the local shipbuilding by enhanced domestic demand, invest in R&D, and government subsidies; which attracts global market. So, government support and domestic investment are essential for sustainable growth . ⁴

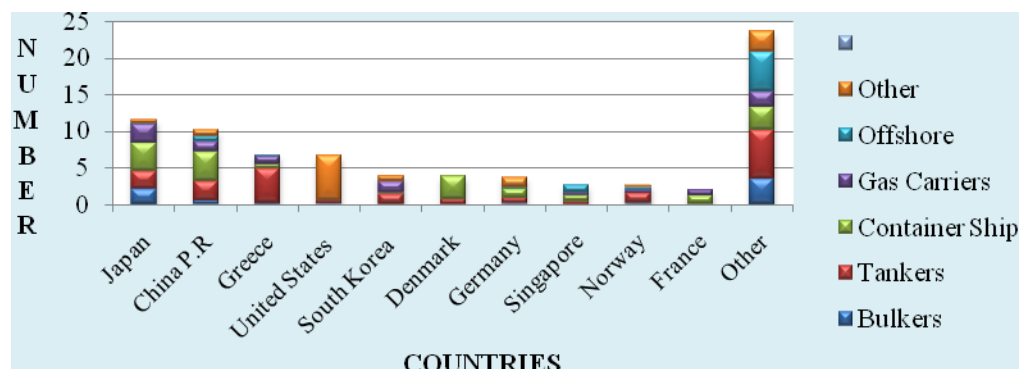


Fig 9: Trend of government investment/support by ship types from 2010 in 2015 ⁴

[3] Hossain K A (2018) SWOT analysis of China shipbuilding industry in the third eyes, Journal of Recent Advancement of Petrochemical Science, Volume 4, Issue 2, 22 Jan 2018, available at: <https://juniperpublishers.com/rapsci/pdf/RAPSCI.MS.ID.555632.pdf>. (Accessed on 13 Jul 2022).

[4] Hossain K A and Zakaria M N G (2017) A Study of global shipbuilding growth trend and future forecast, Procedia Engineering, Elsevier, Jul 2017, available at: <https://www.sciencedirect.com/science/article/pii/S1877705817332927>, (30 Jun 2022).

Important Lessons Learnt from Successful Shipbuilding Nations

We need to emphasis on few factors and learn important lessons from the evaluation of important steps taken by successful shipbuilding nations in the past to boost up our local shipbuilding. Such as:

- a. Modern and latest technology as well as skilled work-force will boost up local shipbuilding. Japan has increased the efficiency and productivity as well as minimized the cost of shipbuilding by reducing the expenditures in both construction and operations.
- b. Managerial skill, technical innovation and good governance will promote local shipbuilding and that will ensure sustainability. South Korea has secured long-term prosperity in local shipbuilding by the trustworthy efforts on innovation along with new technology and skilled management.
- c. Sustainable development of local shipbuilding demands industrialization, because it's act as prerequisite. In early 1970s, South Korea has started to import enormous amount of raw materials and energy as well as export several products of heavy industry during her industrialization. Shipbuilding industry has developed for both Korea and China due to internal demand ships and that was due to industrialization. They established good steel industry as back up linkage.
- d. Government financial support and friendly regulation are essential to grow local shipbuilding. In early 1950s, "the Japanese government launched a Program Shipbuilding Scheme and that allowed the Japanese shipping companies to obtain favourable loans for local fleet expansions. Moreover, in order to attract ships' orders of new buildings on the international market for the Japanese shipbuilders, the government provides low-interest loans to foreign ship owning companies through export and import bank of Japan". Same model have followed by South Korea and China to boost up their local shipbuilding.
- e. To development of national shipbuilding industry, cooperation of local shipyards is essential. The success of the Japanese and Chinese shipbuilding will get the credit for their reorganization of industrial structure along-with constant cooperation among the shipbuilders and that increased the competitiveness as a whole.
- f. Sustainable shipbuilding needs backward linkage and stable supply chain. The achievement of the Japanese and Korean shipbuilding industry is largely based on the capability of the backward linkage industries and stable supply chain. Major suppliers in Korea belong to Korean Marine Equipment Association and they supply more than 85% of local demand. Chinese government has successfully fulfilled local demand.

Prospect and Suitable Market for Local Shipbuilding Industry

Productivity of local shipbuilding labour is very poor, but average hourly labour wage is the cheapest in the globe. As a result, relative labour wage is the lowest in the world.

Present government has taken some step and drafts a shipbuilding policy to improve the shipping and shipbuilding sector as a whole. Before implement the policy, it needs to consider proper evaluation and uniform priority, so that both public and private shipyards get benefit equally from the policy. Previously shipbuilding cost in China was cheaper. But at present, due to their improved living standard, labour wages have increased. It has been predicted that, at future, China will leave a portion of their small and medium shipbuilding market share and that is the niche market for our local shipbuilding. Tentative size of global shipbuilding market is USD 200 billion, where small ship building market size is USD 20 billion.⁵

Shipbuilding global market report in 2021 by Business Research Company has described the COVID-19 impact and recovery up to 2030. This report provides shipbuilding market overview, forecast shipbuilding market size and growth for the whole market, shipbuilding market segments, and geographies, shipbuilding market trends, shipbuilding market drivers, restraints, leading competitors' revenues, profiles, and market shares. The global ship building market has grown from USD 147.98 billion in 2020 to USD 158.18 billion in 2021 at a compound annual growth rate (CAGR) of 6.9%. 'The growth is mainly due to the companies rearranging their operations and recovering from the COVID-19 impact, which had earlier led to restrictive containment measures involving social distancing, remote working, and the closure of commercial activities that resulted in operational challenges.

The market is expected to reach USD 186.6 billion in 2025 at a CAGR of 4.2% and that has been shown in figure 10 below'.⁵



Fig 10: Forecast of global shipbuilding by Business Research Company (2021-2025)
 Source: Business Research Company 2021

Tentative size of global shipbuilding market is USD 200 billion, where small ship building market size is USD 20 billion.⁵ The world will need few thousand of ships, mostly small to medium size. Old single hull tanker fleet will be replaced soon due to IMO requirement. There is also serious demand of container ships. Bangladesh has all capability and possibility to capture 1% of global shipbuilding and that value is USD 1.9 Billions. Recently the opportunity of FDI has created in shipbuilding sector. Country like China, Turkey, and Netherlands are showing their keen interest to invest. So, creation of an exports shipyard zone for export shipbuilding can positively help to develop healthy growth of local shipbuilding. Small and medium size container, tanker, cargo, multipurpose and other special types of ships with 3000-10000 dwt is suitable for Bangladesh. Bangladesh has all potential and capacity to capture this niche market with competitive price.

The sea area of Bangladesh is of enormous importance, because it is the only way of direct connectivity to the rest of the world during crisis with any of our neighbours. Constant presence of BN and BCG are imperative for keeping the sea lanes of communication secured,

- [5] **Business Research Company (2021) Shipbuilding global market report 2021, Jan 2021, available at: <https://menafn.com/1102455116/The-Shipbuilding-Industry-Takes-On-3D-Printing-Technology-As-A-Latest-Trend>. (Accessed on 09 Jul 2022).**

establishing and maintaining the sovereign rights over our 118813 sq. km sea areas and economic benefit of the country. In order to avert any threat to national security by 'traditional' and 'non-traditional' means both the organizations remain vigilant by deploying ships at sea. The military troop transportation in the bays also necessitates some landing crafts for the navy and army. In these ways a good number of military ships are required for operational tasks both in peace and wartime. And that is also a local niche market for BN operated private shipyards along with huge local inland and coastal fleet. In future we need to develop our own merchant fleet to maintain our export and import business of cargo, energy and other goods. There will be another local niche market for us.

Conclusion

Local shipbuilding is lacks of technical expertise on modern technology and government financial support to meet incoming 4IR and that will be the main hindrance for sustainable development. Private shipyards have lack of corporate culture as those are managed by family members. They capture all the key and top appointments and create a unhealthy business environment. Local shipyards are operated by their desire and aspiration. As a result, employees don't feel belong to the organization. We should change our attitude and need to develop better culture to become more honest and more rational in our thinking and doing business. We should think positively and should sacrifice for the society to sustainable peace and prosperity. Policy planners, bureaucrats, bankers, and other stakeholders are generally less aware of local shipbuilding potential. Present government has taken some step and drafts a shipbuilding policy to improve the shipping and shipbuilding sector as a whole. Before implement the policy, it needs to consider proper evaluation and uniform priority, so that both public and private shipyards get benefit equally from the policy. To progress the shipbuilding, we need to nurture this sector same as RGM.

Present geopolitical situation and financial crisis may increase demand for low cost ships. This is an opportunity and is favourable for local shipbuilding. Small and medium size container, tanker, cargo, multipurpose and special types of ships with around 3000-10000 DWT is suitable for Bangladesh. We are capable to capture this small niche market of container, tanker, cargo, multipurpose ships with competitive price from global share. If we can grab 1% of global market share; which worth will be USD 1.9 billion. Bangladesh has all potential to catch this niche market with competitive price by adopting viable policy and sustainable strategy with distinct government support. Recently the opportunity of FDI has created in shipbuilding sector. Country like China, Turkey, Netherlands are showing their keen interest in this sector. So creation of an exports shipyard zone or air-marking a special zone for export shipbuilding can positively help to develop healthy growth of shipbuilding industry in Bangladesh.

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