

## Lesson from Global and Use for Local Shipbuilding Industry of Bangladesh

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**Abstract:** Bangladesh has a glorious shipbuilding history. There are hundreds of indigenous small and medium dockyards and shipyards around different location in Bangladesh. There are versatile types and size of ships built in local shipyards. We must know our strengths; we should overcome our internal weakness and apply appropriate measure against external threats of our promising and heavy industrial sector. It should keep sharp eyes on its overall business environment and exploit new opportunities. Local shipbuilding industry has all potential and capacity to get 1 -2% of global market share within 2030 and the worth value will be US\$ 2- 4 billion. Local shipbuilding industry needs to take all initiative along with government support, to sustainable development of this booming and blessed industrial sector. An effort has been taken by researcher to analyze the global lesson of successful shipbuilding nations and historical trend to depict the concrete potentials, future challenges and suggestions for sustainable development of local shipbuilding industry.

**Key Words:** Global trade, over-investment, indigenous shipyards, shipbuilding trend,

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### I. Introduction

Around 80% of the world goods and products trade by volume is carried out through the marine route. Global trade volume and size has increased with a growth rate of around 10% since the last decade. Consumer demands mainly in developing countries are increasing and that increasing the imports volume as well as demand of commercial ships are also increasing (Lixing Z 2009). As a result, shipbuilding is always an attractive industry for developing nations. Historically, shipbuilding has suffered from the deficiency of global control and has a tendency towards over-investment due to its involvement of wide range of technologies, enhanced other small industries, employ a significant number of workers, generate income and overall its global nature. This phenomenon and trend has found common to all leading and successful shipbuilding nations (Hossain et al 2017). Today global shipbuilding market has valued at USD 132.52 billion in 2021 and is anticipated to reach USD 175.98 billion by 2027, with considering average growth rate of 4.84 % (Mordor Intelligence 2022). Usually shipbuilding is a slow moving industry experiencing challenges from unsteady market growth as well as economic and environmental changes. Again, recent COVID-19 pandemic and present geopolitical situation make shipbuilding more uncertain (OECD 2021).

Bangladesh has hundred indigenous dockyards/shipyards around different location. ‘These shipyards are operating principally under individual management, except three public shipyards are running by BN. Most of the local private shipyards use materials, plate, fittings, engine, component and machinery of old merchant ship; which collect from Bhatiary ship recycling industry in Chottogram’ (Banglapedia 2003, Hossain et al 2015). There are versatile types and size of ships built in local shipyards/dockyards. There are four local shipyards are capable to build ships around 10000 dwt. We need to find out suitable market for local shipbuilding. Local shipbuilding also needs to face the challenges with suitable strategy to become a sustainable industry. This is an analytical study on lesson learn from successful shipbuilding nation around globe and historical trend with the aim of depict actual potentials, future challenges and suggestions for sustainable development of local shipbuilding industry. The study has conducted by using both primary and secondary data including useful inputs from related stakeholders, resources personal from home and abroad.

## Trend of Global Shipbuilding History

**Global Shipbuilding Era Started at UK.** In Europe, UK was the front most states of world economy since the industrial revolution. They were the most successful productive nation of many industrial products including steel, materials, system, equipment and machinery. The industrialization of UK was well ahead in comparison with most of the nations in the world, as they provided the foundation to demand for the ships due to increasing trades generated by their booming economy. And that time, UK controlled most of the trade flows in the world (Zakaria et al 2012). In 1902, 'Lloyd's Register of Shipping has showed that, the tonnages owned and operated by UK accounted for nearly 45% of the global merchant fleet. At the same time, UK shipbuilding industry occupied almost 58% of global market share. Again, in 1910 to 1920, UK produced nearly 70% of the global production. However, after reaching the peak of success, there was falling history. As the irony of fate, UK has lost its position both in shipping and in shipbuilding market. Finally, in 1982, the global shipbuilding market share of UK was below 1% as well as global shipping market of UK was below 3%' (Hossain et al 2017).

**Shipbuilding at Other European Countries.** At the same time span, during the blooming period of British shipbuilding industry, the shipbuilders of other European nations were rather active at global market. In 1900 to 1950 European shipbuilders have entered to shipbuilding industry gradually together with UK Shipbuilders. The market share of "Continental Europe (like Germany, France, and Netherlands) up to 1945 was 20% to 40% of the global. They were also controlling the global merchant fleet with a relative high share. In 1931, the Scandinavia shipbuilders were captured 21% of the global market share. However, UK along with European Countries (EC) were also losing their trade and market share of shipbuilding simultaneously" (Hossain et al 2017). Again, from the analysis of the statistics of Lloyd's Register of Shipping and history, it is clear that, the increase of market share of shipbuilding always went along with the swelling of the size of national fleets. Finally, after 1986, the entire maritime industry of Europe had declined significantly.

**After WWI, USA Gain Superiority.** The shipbuilding of UK has declined during the First World War (WWI). After WWI, USA become production center of world shipbuilding. The market share of the USA shipbuilding in late 1910s was 55-60% of global. During WWI, UK and EC had produce less ships. It need to mention that, the industry in USA invented and introduced new concept of shipbuilding and they have set the new shipbuilding standard (like ABS) in design and production. That creativeness of USA has significant influence in primitive shipbuilding. During WWII, the market share of USA shipbuilding had climbed the highest peak and they captured 85-90% of global share. After the WWII, the global market share of USA has goes down sharply. In 1950, the market share of USA has declined to 10% of the globe.

The reason behind the huge productions of ships by USA during the war, was triggered and supported by USA government (Hossain K 2017). With the removing of government subsidies in post WWII, and due to the inherent disadvantage of USA shipbuilding (as 30% to 50% higher cost), they have lost their market position. So, the lesson learns from USA case is that, the political interruption played driving role for local shipbuilding. From the analysis of modern shipbuilding history, it can be depict that, in the first half of 19<sup>th</sup> century; Western Countries (both European and American) dominated modern shipbuilding industry due to their inherent local demand for ships. (Zakakia et al 2012). At the same time, the size of fleets owned by the nations was also important. However, the competitive advantages also played big role.

**After WWII Japan Became Shipbuilding Center.** After Second World War (WWII), Japan started their industrial revolution and concentrated in heavy industry. Shipbuilding being heavy industry is the multiplier of small and medium industries. The booming of Japanese shipbuilding was due to well planning and initiative taken by Japanese government. 'Japan selected shipbuilding industry to rebuild the country's economy which destroyed during WWII. Transport ministry was the central planner and they worked with experienced persons in maritime sectors for coordination and distribution of resources. The Japanese strategy included collective allocation of the orders from domestic ship-owners and anticipated the production schedule for all shipbuilders. Japan Development Bank (JDB) was also involved actively in the schedule by contributing favorable loans to local ship-owners. The amount of funds flowing to maritime sectors was 30% of the total loans provided JDB' (MSc Thesis 2010). So, huge investment was taken place to set up advanced and giant shipyards.

Japanese ships became very competitive in the global market due to integrated production technology and huge domestic orders since 1950. As a result, Japanese shipbuilding had boasted up and they captured large global market share. Finally in 1960s, Japan became the global market leader by capturing 50% of global share. Lloyd's Register viewed that, "Japanese national commercial fleets did not growing as the shipbuilding sector has grown up and in 1973, the Japanese share of the global shipping market was just 10%. On the other hand,

under the flags of convenience as per IMO and UNCTAD, Japan was the owner of 73% of global fleet under such regulation” (Lloyds Register 2022). So, the development of open registration in 1970’s under the flags of convenience helped Japan to develop their shipbuilding. The great shipbuilding writer Martin Stopford said, ‘The reasons of booming of Japanese shipbuilding industry was that, their shipbuilding became highly competitive and obtained a high penetration of the export market, particularly the market for larger tankers sold to independent owners’ (Stopford M 2009).

**Asia Become Global Center in 1980s.** In 1980, South East Asia became the global shipbuilding center. The story of rising South Korean shipbuilding was really a fairy tale. Japan was the shipbuilding leader with market share of around 46.5%, at the beginning of 1980s; where, the market share of South Korea was below 4%. Then European share was 33.5%. Interestingly, at the end of 1980s, South Korea grew rapidly and gained substantial global share by 22%; where Japan kept its position firmly with almost 43% share. Then China emerged at the first time in shipbuilding, with global market share of 2.3%. In 1980, all three South East Asian countries captured 70% of global share; where share of Europe declined by 10% (Hossain K 2018b). So, shipbuilding centers had been totally shifted from Western (Europe and USA) to Eastern (Asia) at the end of 1980s. The trend of global shipbuilding leadership with probable causes and lessons for Bangladesh has been shown in table 1 below.

Duration of Shipbuilding Leadership	Country	Causes of Lost Leadership
1860’s-1950’s	UK(Great Britain)	Modernize of local shipbuilding not happened. Shipbuilding labor cost becomes high. Downsize own fleet. Lost global leadership by politically and economically
Mid1950’s-mid1990’s	Japan	High cost of shipbuilding with aging. High shipbuilding labor cost. Decrease shipyards R&D budget (less than 1%). Increase gap between demand and supply of steel. Increase steel price. Reduce government support.
Mid1990’s to 2009	South Korea	High cost of shipbuilding labor. Increase gap between demand and supply of steel. Increase steel price. The appreciation of Korean local currency (won) has worsened the competitiveness of Korean shipbuilding. Reduce government support.
Since 2010’ (it was earlier than Chinese planned)	China	Low human resources cost. Low shipbuilding labor cost. High shipbuilding labor cost. Ambitious government programme for the shipbuilding development. Growing shipyards capacity. Favourable government policy and strategy. Increase governmental subsidies.

Table 1: Trend of market leadership of global shipbuilding

Source: Done by researcher

**Trend of Bangladesh Shipbuilding History**

**History of Local Shipbuilding Industry.** Indigenous shipbuilding in this region has a glorious history. Shipbuilding consider as an early industry developed in Bengal based on its traditional boats building (Alam 2004). Ibne Batuta came to Bengal in 14<sup>th</sup> century and went back with a wooden ship that built in a shipyard located at Sonargoan, Dhaka. Interestingly, Ibne Batuta’s ships has conserved in European Museums. European Traveler Mr. Caesar Frederick viewed that, Chottogram was the centre of building ocean-going ships during middle of the 15<sup>th</sup> century (Hossain et al 2010a). In 17<sup>th</sup> century, ‘a fleet of ships was built for Sultan of Turkey at Chottogram. In Mughal period, Chottogram has manufactured a large number of warships for their Naval Force. The British Navy used wooden hull warships, built at Chottogram and was successfully deployed in Battle of Trafalgar in 1805. The wooden hull frigate Deutschland (1000 dwt) was built in Chottogram for German Navy in 1818’ (Hossain et al 2017).

**Past Trend of Local Shipbuilding.** Indigenous shipbuilding history of Bengal has a glory and stand on firm foundation. In the first half of the 19<sup>th</sup> Century, the shipyards at Chottogram have the capability of built ships around 1000 dwt. In Pakistan period public shipyards dominated the shipbuilding industry. At present, private sector has emerged as the major player of local shipbuilding. There are around hundred shipyards

operating in Bangladesh; where inland, costal and fishing ships are built. 'In 1979, FAO funded 08 food grain carrying class vessels for Bangladesh Inland Water Transport Corporation (BIWTC) has constructed by High-speed Shipbuilding and Engineering Company (HSEC) Ltd, Narayanganj. Mitsui Engineering and Shipbuilding Industry (MESI) of Japan entered into a joint venture in shipbuilding with HSEC, for construction of 04 deep-sea fishing trawlers. Recently few local shipbuilding Industries including Ananda Shipyard and Slipways Ltd (ASSL), Dhaka and Western Marine Shipyard Ltd (WMSL), Chottogram have upgraded shipbuilding facilities and receive export orders. In 2008, for the first time ASSL exported ocean going cargo ship with 3500 dwt capacity, small ferries and boats to Denmark and Mozambique and thereby secure the name of Bangladesh in the list of ship exporting nations' (MSc Thesis 2010).

**Present Trend of Local Shipbuilding.** Local private shipyards are capable to construct steel ships for inland and coastal water. They are designing and fabricating ship 1500-4500 dwt to fulfill local demand. Private shipyards are operating under individual management, with minor supervision of government. They built huge numbers of vessels and employ huge number of skilled and unskilled labor in casual basis. The most of the private shipyards are highly depend on Bhatiary ship break-yards. Those private shipyards need attention and guideline to develop themselves as worth yards. There are few private shipyards are capable of manufacturing good quality small and medium ships as per demand of both local and foreign ship buyers (MSc Thesis 2010). There are three public shipyards successfully running by BN management. There are four shipyards named ASSL, WMSL, KSSL, KSYL, has attained the capability to construct ships around 10000 dwt. ASSL and WMSL has already exported few dozen of small and medium merchant ships to foreign (Europe, Africa and Asia) destination. Foreign ship owners are slowly entering Bangladesh with hope and trust to local shipyards. So, they will improve their shipbuilding quality and capacity to attained global standard (Hossain K 2021).

### Local Manufacturing and Business Success Story of Bangladesh

**Case Study of Local Motor Bike Manufacturing Industry.** The new mode of transport business named as ride-sharing services (Pathao) in Dhaka and Chattogram areas in recent years has contributed to rise in demand of motorbikes. Again, in recent years a more open view has prevailed by the government on reduction of duties on imported parts (around 5% to 10%) and on imported models of motorbikes. The 45% of import duty on motorcycles has increased the prices about 2.5 times higher of Indian motorcycles and that boost up the local industry. 'Bajaj Auto is producing locally since 2015 and that was immediately followed by TVS, Hero Motors, Suzuki and Yamaha. Honda opened its local motorcycle plant in November 2018. The plant has achieved the new target capacity of production 0.2 million units per year since 2021' (QIMA 2022). Today over 80% of two-wheelers sold in local market are manufactured in Bangladesh. Now, local market of two-wheelers is controlled by local industry.

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 0.25 million per year' (Statista 2020). Actually, favourable business policy and viable strategy by the government in 2017 transformed the industry and immediately boosted demand. As a result, the market boomed, and doubling the volume of production and local industry has produced 550000 units in 2019.

**Case Study of Local Smartphone Manufacturing 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'. Export of Samsung Electronics mobile phone from Vietnam is comprises almost 100% of their mobile phone exports business in global market. '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' (QIMA 2022).

Local demand of new handsets mobile in Bangladesh is 35 millions, and that comprises 9 millions smart phone and 26 millions feature phone. Bangladesh is becoming self-reliant in smart phone manufacturing very quickly. Local manufacturing factories are supplying over 7.5 millions handsets per years. Almost all



global renowned brands have set up manufacturing and assembling units in Bangladesh since last few years. Ultimately smart phone import in Bangladesh has decreased by 50% in 2022. Bangladesh will be self sufficient in smart phone manufacturing within next couple of years. The secret of this success story is favourable government policy. Government strategy of tax holiday and VAT exemption on local handset production has enhanced this industry. At the same time, government imposed tariff on handset import and that accelerate local industry further (Abbas Uddin Noyon and Shahadat Hossain Chowdhury; 29 November, 2020).

### Advantages of Doing Business in Bangladesh

**Success in RGM Industry of Bangladesh.** Bangladesh is the 2<sup>nd</sup> largest global RMG or apparel maker. 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 165 million populations already creates potential domestic purchasing power. Those have multiplier effects on local banking, logistics and insurance sectors. Government detect few promising industrial sector in Bangladesh; such as: consumer durable, light engineering, mobile phones, pharmaceuticals, furniture, shipbuilding, garments, lather, food, agro, fast moving consumer goods, low cost vehicle, Plastic goods, etc.

**Advantages of Local Business.** There are few distinct happy phenomenon and advantages in local business sector, which has boasted up our different small and medium industries. Those are:

- Competitive and cheap labor.
- 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.
- 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)

**Mega Infrastructure and Communication Development.** Bangladesh has been benefitted extremely after completion of few mega infrastructures like Padma Bridge. Those mega projects are going to be completed very soon and those will be useful to ease the entire communication as well as to enhance infrastructure capacity of the nation. 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
- Commercial Sea Port; Materbari Terminal

### Challenges of Doing Business in Bangladesh

Cheap labor 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 1 below. We need to look and do more on labor welfare, labor 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 2 below. Again,

logistics performance index rank around the globe has been shown in figure 3 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.

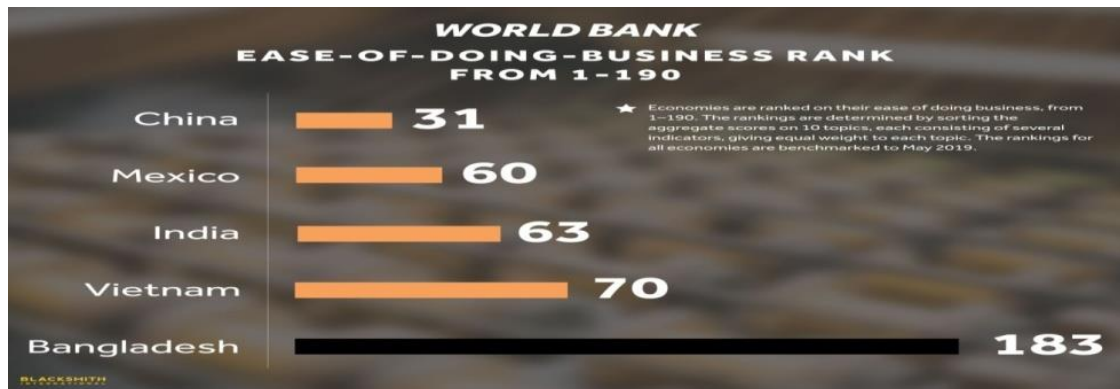


Figure 1: Ease of doing business (EODB) around the globe in 2020  
Sources: Blacksmith International 2022

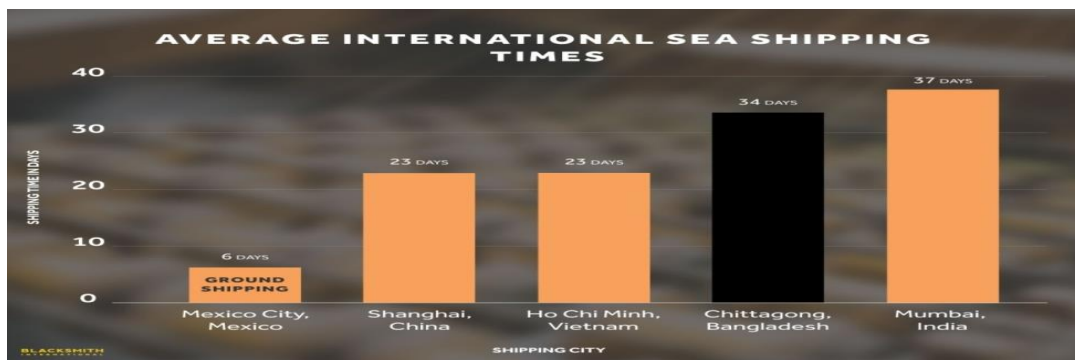


Figure 2: Average international sea shipping time around the globe in 2020  
Sources: Blacksmith International 2022

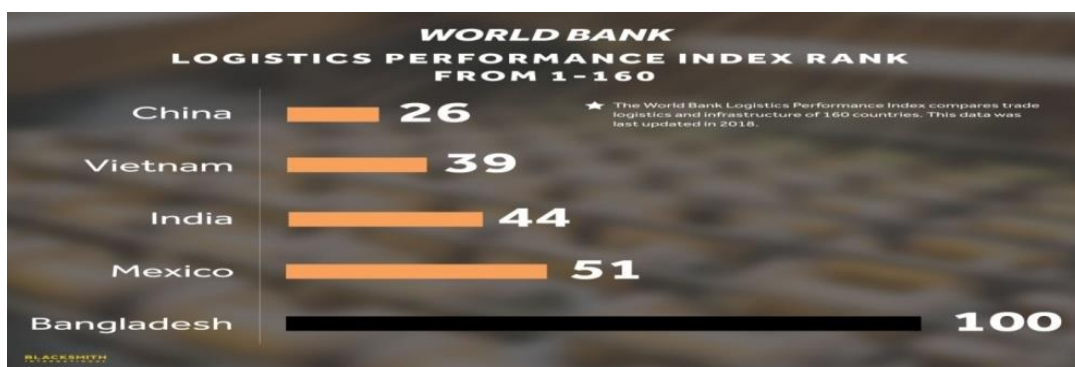


Figure 3: logistics performance index rank around the globe in 2020  
Sources: Blacksmith International 2022

**Few Initiative may Solve the Business and Industry Problems**

There are few initiatives or suggestions for local business sectors, Which may solve the existing problems in business sector for quick and sustainable growth. Those initiatives are:

- 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.

- 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 must be compliant with environment regulations.
- We need to change our attitude like “get rich quickest way possible”. We need to improve our mentality to a more 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.

### **Globalization and Shipbuilding Industry**

Globalization replaced colonial system since WWII and global trade and transportation has grown up rapidly with effective means. Global shipping industry has explored every sector and seaborne trade has grown faster than GDP. But, the growth was not stable. In 1960-1975 seaborne trade was driven well above GDP trend due to increased consumption of raw materials by industries of Europe and Japan. “In 1980-1996, seaborne trade was below GDP trend because of two oil crises in 1973 and 1979 respectively. In 1997- 2005 seaborne trade was above world GDP due to the growth of Asia. In 2008, before the crisis, maritime nations imported 2.7 billion tons of energy commodities (oil, coal and gas); 500 million tons of agricultural product (grain, fertilizer, sugars, etc); 1 billion tons of raw materials” (Stopford 2010). Growth of seaborne trade was successful due to the development of new technologies for communication like, telephone, telex, fax, email, and internet; fast travelling by aircraft; globalised materials; market supply like, opening new energy sources, reducing transport costs by developing advanced ships, mechanization in cargo handling, growing containerization, and developing new business models like, ease of ship-registration, flag of state, chartering of ships.

Trade is always for population. The trend of global population growth has been shown in the figure 4 below (OECD 2011). There is a very close relation between world GDP, global seaborne trade and global merchant fleet and that has been shown in figure 5 below (Clarksons Research 2021). “Global population in July 2010 was around 6.83 billion and it has been estimated that, it will raised 9.08 billion by 2050” (EIA 2011, OECD 2011). Again, the urban population around the globe has continued to grow faster than the growth of total population. Today more than half of the population is living in urban area. Therefore, the rise in urban population is anticipated to reach around 70% by 2030 (EIA 2011, OECD 2011). This phenomenon can also have a positive impact on seaborne trade; due to a large urban population not only creates a domestic market for goods and services but also drives the economic growth and innovation. At the same time, the increasing urbanization will also develop strong middle class and boast up higher consumption of goods and services further.

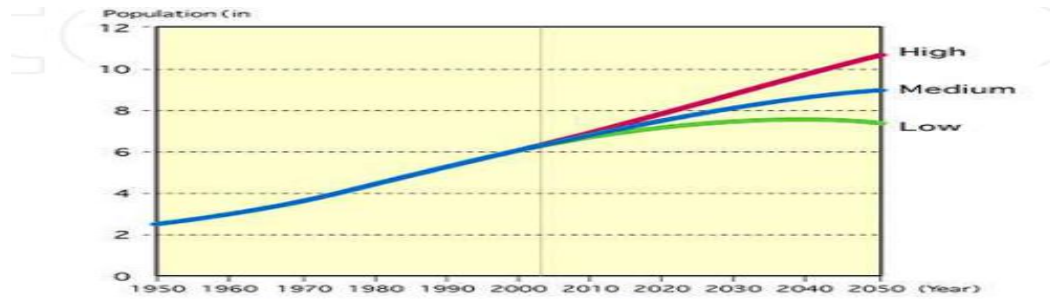


Fig 4: Growth of World population  
Source: EIA 2011, OECD 2011

**Global trade and world GDP & active fleet growth**

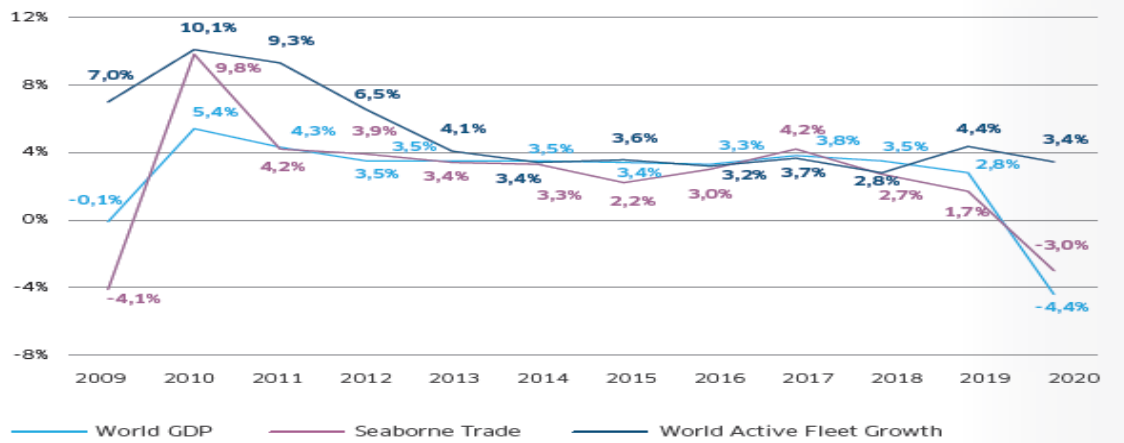


Fig 5: World GDP, Global Seaborne Trade and Global Active Fleet Growth  
Source: OECD Report 2021, UNCTAD Report 2021, Clarksons Research 2021

**Structural Characteristics of Shipbuilding Industry**

Economic interconnection of trading partners around the globe is increasing day by day. And, shipbuilding and shipping industries are responsible for the production and operation of merchant ships, and shipping considered as the heart of the international trade and commerce. The shipbuilding is a complex and diverse industry by its nature. The shipbuilding industry is characterized by a relatively high heterogeneity of ships due to its wide variation of types or uses. Those are: Bulkers, Tankers, Container-ships, Off-shore vessels, Passenger Ferry, Cruise-ship, Yacht, Warships, etc. “The range of prices is also varying widely. Cost of a large cruise ships is around USD 1 billion whereas a Handy-size bulk ship costs around USD 25 million” (Clarksons Research, 2015, 2021). However, major drivers of shipbuilding market are: growth of seaborne trade, demand and price of EOL ships, diversified use of ships, etc. On the other hand, excess ships supply, inflation, and over capacity of shipyards are the main causes of market imbalances in shipbuilding. Structural characteristics and business nature of the shipbuilding has been shown in table 2 below.

Sl No	Subjects or Characteristics	Situation of shipbuilding Industry
1	Production pattern	Unit and specialized production
2	Delivery time	Naturally long (2-3 years)
3	Production factor intensity	Usually labor-intensive industry.
4	Trade ability	Very high and diversified Play large role of ship finance in the exports Multiplier of other business as connected with back-word and foreword linkage
5	Possible change areas in future	Offshore business and it involves high risks Repair and maintenance of ships Steel construction and fabrication business
6	Product heterogeneity	Very high as wide variation of ships types
7	Demand accelerate	Expansion of seaborne trade Replacement of ships



		Changes of regulations Changes of owner requirement
8	Challenges	Eco-system or environment friendly product Automation and digitalization Impose regulation Design as unit production Overcapacity Trade fluctuation
9	Uses	Versatile EOL ships also have value

Table 2: Structural characteristics and business nature of the shipbuilding Industry  
Source: Done by research

### Present Global Structure of Shipbuilding Industry

China, Korea and Japan are jointly produced 85% of global merchant ships (in compensated gross tonnage or cgt) in 2021 (IHS Fairplay 2022). “Shipbuilding is partly an assembly industry where a high share of value added by marine equipment industry, and Europe are contributing 50% of world supply” (Lloyd’s Ship Register 2022). Leading shipbuilding economies vary across market segments. For instance, production of cruise ships is concentrated in four European countries (Germany, Italy, France and Finland). It is a niche market which mainly differentiates among producers by quality, technology, services, prices, and sustainability. Top ten shipyards and crude steel producers in the world in 2020 have been shown in table 3. Value chain is directly related to comparative low costs, better quality and in time delivery of product to customer. In shipbuilding production process, to achieve competitive advantages, maintain schedule is important. Again, the competitiveness of a shipyard is also strongly linked with supplier relationship, and goodwill.

Rank	Shipbuilding companies	Revenue (USD billions)	Main Office, Country
1	Hyundai Heavy Industries	39.33	Ulsan, South Korea
2	STX Offshore & Shipbuilding	16.96	Changwon, South Korea
3	DSME	12.76	South Gyeongsang, South Korea
4	Samsung Heavy Industries	8.58	Samsung Town, Seoul, South Korea
5	Sumitomo Heavy Industries	6.59	Tokyo, Japan
6	Fincantieri	5.17	Trieste, Italy
7	United Shipbuilding Corporation	5.1	Moscow and Saint Petersburg, Russia
8	CSSC	29.79	Haidian District, Beijing, China
9	Sembcorp Marine	1.18	Tanjong Kling Road, Singapore
10	Tsuneishi Shipbuilding	1.55	Hiroshima, Japan

Table 3: Top ten shipbuilding companies in the world in 2020  
Source: Bizvibe Blog 2022

Shipyards needs to maintain close cooperation with their maritime and general goods suppliers like, plate, material, equipment, machinery, spares, cable, paint, furniture, etc. Those are backward and forward linkage of shipbuilding. The strong bargaining power of those suppliers is usually limited and they maintain mutually beneficial relationship with the shipbuilder and shipyards. In any industry, under-capacity is a

temporary problem and by this way industry will attract new investment; whereas overcapacity for long periods will bring adverse penalty. Overcapacity often leads to oversupply and that puts pressure on prices and hampers companies' economic health. Such oversupply is explained by the fact that companies cut prices to dispose output. Actually, there are various causes of overcapacity for any industry. These causes are mainly three types; such as: structural, cyclical and non market related. The analysis of factors which favor capacity expansion or restrain capacity reduction in shipbuilding has been shown in table 4.

Categories	Factors/Sources	Affected in the first instance
Structural	Long lead times in adding shipyard capacity	Capacity
	Capacity expansion problem	Capacity
	Role of ship finance	Supply/Capacity
	Capacity to inventory vessels	Supply/Capacity
	Limited opportunities to re-orientate into other markets	
	Technological shocks	Supply/Capacity
	Economies of scale	Supply/Capacity
	Low to medium entry barriers and high exit barriers	Capacity
	Push from the buyers side	Capacity
	Overbuilding of capacity in customers industries	Supply
Cyclical	Vicious circle in the shipbuilding and shipping markets	Supply/Capacity
	Negative economic shocks	Supply
	Overly optimistic expectation of future demand	Capacity
	New entrants	Capacity
	Divergence between good and bad performance firms	Capacity
Non-market	Protectionist policies	Supply/Capacity
	Policies favouring new capacity investments or curving restructuring	Capacity
	Strategic capacity expansion to discourage new entry	Capacity

Table 4: Factors driving supply and capacity expansion  
Source: OECD based on IHS Seaweb 2016

**Investment and Government Support**

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 in local shipbuilding by own countries has been shown in figure 6 below. Countries like Japan, China, Singapore, United States, South Korea, have invest in domestic sectors and boasted 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 labor costs, infrastructure, business friendly regulations, etc (Hossain K 2018).

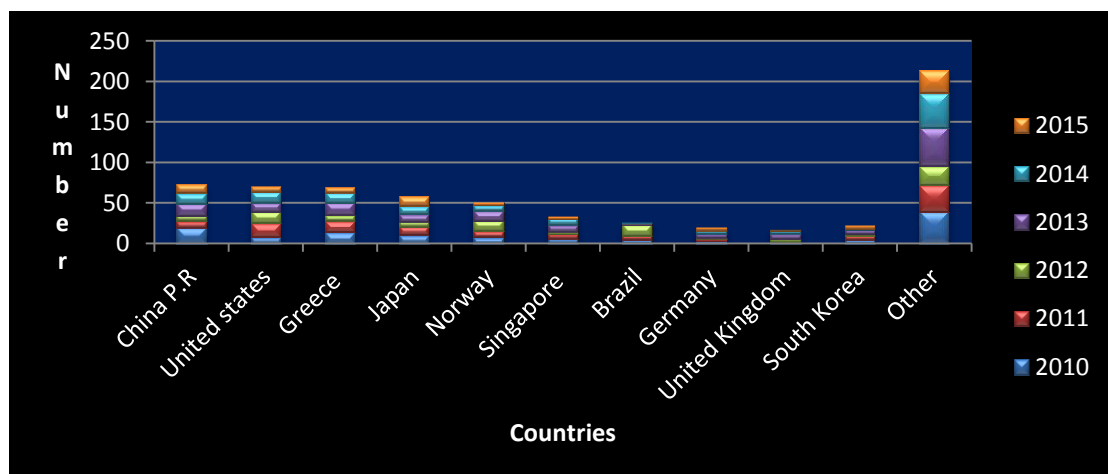


Fig 6: Trend of investment in local shipbuilding by own countries in 2010-2015  
Source: Hossain K 2018

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 7, it is clear that, government support and countries own investment is essential to survive 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 (Hossain et al 2017).

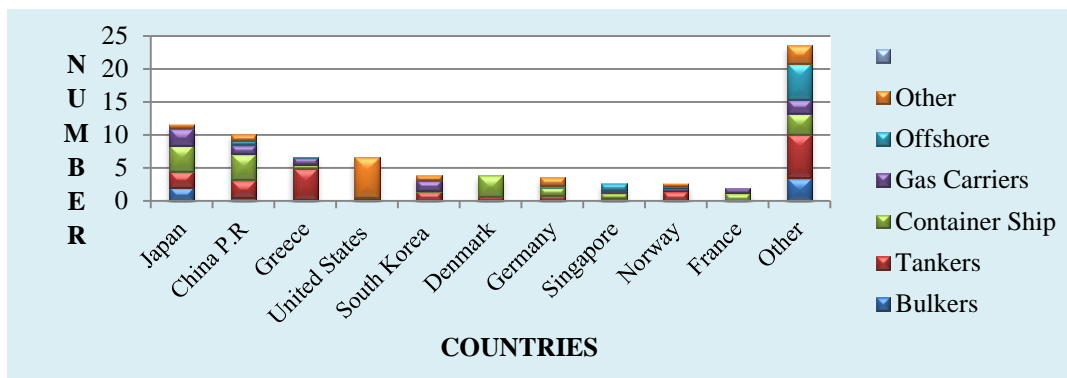


Fig 7: Trend of government investment and shipbuilding trend from 2010 to 2015  
Source: Hossain et al 2017

### Important Lessons Learn 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 boast up our local shipbuilding. Such as:

- Modern and latest technology as well as skilled work-force will boast 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.
- 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.
- 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.
- 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 favorable 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 boast up their local shipbuilding.
- 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.
- 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.

### 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. Almost all inland and coastal ships are constructed and repaired locally in these local shipyards (MSc Thesis 2010).

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 undertake 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. From an interview on 30Jun 2022 with Commodore Maksus (MD of DEW Ltd) said that, 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 in number class Tug-boat for BIWTA. This shipyard is earning profit and highest tax paid industry in the Narayanganj 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/Aluminium 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 auxiliaries' 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 Boat, Search and Rescue boat, barges, ferry, Floating Cranes, Fishery Research vessel, etc. It is the first warship builder in Bangladesh. From an interview on 27Jun 2022 with Commodore Abdul Aziz (MD of KSY Ltd) said that, 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 Chattogram Port area and capable of repair 175m length, 24m breadth, 8.5 draft and up to 22000 dwt ships in her dry-dock. From an interview on 02Jul 2022 with Commodore Maksud (MD of CDDL) said that, 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 Highspeed 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.

A number of various types of ships and vessels are built in local shipyards around the country. There are more than forty thousand inland vessels have been registered in Department of Shipping (DOS). Beside hundred thousand 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 5 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 and 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 and 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 5: 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 use 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.

### Potential of Local Shipbuilding Labor

Nowadays shipbuilding methodology and construction procedure has changed dramatically. Implementing module construction process and lean manufacturing approach to shipyards requires analysis of the present shipyard facilities and labor capabilities. Labor competency and level of skill also needs to be evaluated. Again, continuous training of workforce can improve the shipbuilding quality and productivity of any shipyards. Average hourly labor wage (in USD) for class ship in local shipyards in 2009 has been shown in figure 8 below. On the other hand, the comparison of labor wage in different nations around the globe in 2009 has also been shown in table 6.

Countries	Average Hourly Labor Charge in US\$
Bangladesh	1.50
India	2.50
China	9.00
S Korea	27.00
Japan	30.00
USA	30.00
UK	29.00
France	27.00
Italy	26.00
Germany	35.00

Table 6: Average hourly semi-skilled labor wage of different nations in 2009

Source: MSC Thesis 2010, Hossain et al 2017

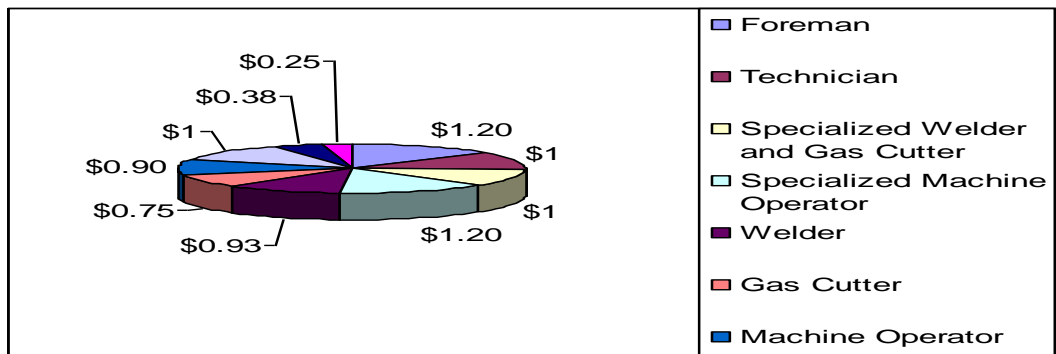


Fig 8: Average hourly labor wage (in USD) for class ship in local shipyards in 2009  
 Source: MSC Thesis 2010, Hossain et al 2017

Comparison of relative labor wage or rate in different nations has been shown in table 7 and figure 9 below (MSC Thesis 2010, Hossain et al 2010). So, the relative labor wage of Bangladeshi shipyards is 0.45 which is again the lowest in the world. However, average hourly labor wage in Bangladesh in 2021 has increased and that is remained comparatively lowest in the world. Ultimately Bangladesh shipbuilding remains at advantageous position in the world in term of cheap labor wages.

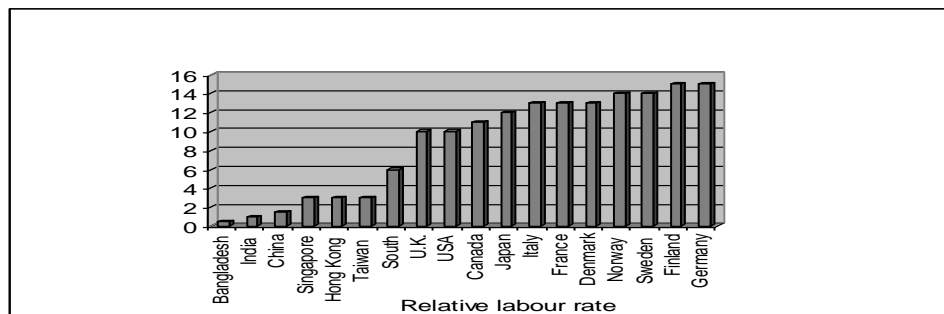


Fig 9: Relative labor rate or wage for different nations around the world  
 Source: MSC Thesis 2010, Hossain et al 2010

Country	Relative Labor Wage	Country	Relative Labor Wage
Bangladesh	0.45	Canada	11
India	1	Japan	12
China	1 to 2	Italy	13
Singapore	3	France	13
Hong Kong	3	Denmark	13
Taiwan	3	Norway	14
South Korea	6	Sweden	14
U.K.	10	Finland	15
USA	10	Germany	15

Table 8: Relative labor wage for different nations around the globe in 2009  
 Source: MSC Thesis 2010, Hossain et al 2010

**Potential of Bangladesh Shipbuilding**

Bangladesh has long and glorious shipbuilding and maritime history. It will encourage local entrepreneurs and foreign investor to invest such promising sector. Around 40,000 thousands inland and coastal ships and around 100,000 of mechanized country boats are plying in our rivers and those carry more than 85% of oil product, 65% of cargo and 20% of passengers. Those ships and boat are manufactured and maintained by local shipyards. There are around 100 indigenous shipyards in Bangladesh and from where 4 local shipyards are capable of construct export quality ships around 10000 DWT. Another few shipyards are enhancing their capacity to enter into export market. Around 200,000 skilled and semi-skilled/casual workers are employed in shipbuilding industry. Two million people either directly or indirectly are related with local shipbuilding industry.

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 neighbors. Constant presence of BN and BCG are imperative for keeping the sea lanes of communication secured, 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 troops 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.

### Challenges of Bangladesh Shipbuilding

Local shipbuilding has enormous potential to expand and capture tiny global share, with few distinct weaknesses, and those need to be considered and convert into strength to flourish this sector. Even with inheritance, Bangladesh shipbuilding found sluggish to keep pace and consistency with technological development. Due to abundance of cheap labor, shipyards owner are reluctant to accept advance technology. Policy planners, bureaucrats, bankers, and other stakeholders are generally less aware of local shipbuilding potential. To progress the shipbuilding, we need to nurture this sector same as RGM.

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. The key weakness of the local industry is the dishonesty and fraud character of our people. We are usually tried to cheat and earn illegal profit by unethical way. 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.

Only few local shipyards are careful 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 may lead the local shipyards to 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 main 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 and should work for sustainable development. For example WMSL has failed to continue their success in ship export business due to their poor attitude as they invest in other business aside shipbuilding. Business consistency and sustainable way of doing business is the main tools of success in shipbuilding.

Poor job satisfaction observed among the middle level management and skilled workforce. Workforce usually not enjoys industrial benefit, like production bonus, fringe benefit and other labor welfare activities like medical, pension, travel allowance, accident and other compensation, etc. Main workforce is employed in casual basis. Local shipyards owners do not bother about working environment and welfare of the employees due to abundance of cheap labor. As a result substantial number of graduates and other skilled manpower trained in maritime industry leave frequently for overseas employment.

Ocean and shipping is the livelihood of global trade, where technology has placed at core of the strategy since inception of ship and shipping, which observed previous three industrial revolutions. Likewise, there will be huge impact on maritime industry during incoming 4<sup>th</sup> IR (4IR) or Industry 4.0 and future ships will be controlled by Artificial Intelligence (AI), IoT, or automated systems. Modern technology will steadily reduce seafarers in shipping due to unmanned ship and AI. "The 4IR is anticipated to reach at the peak around the middle of the 21<sup>st</sup> century and bring disruptive changes by exploring and implementing new technology in all spheres of trade and shipping to create safer, efficient, greener, and viable solution. The technologies like Robotics, AI, Machine Learning, IoT, Blockchain, Drones, and Augmented Reality (AR) are going to change the equation of the job sectors and give a new dimension of maritime industry" (Wikipedia 2022).

To overcome the present situation and future complexity few measures need may be adopted by government, maritime administration, shipyards, ship-owners, MET and technical institutes. We need to take necessary preparation to fulfill the demands of 4IR. The policy, strategy, context and learning process in the

mass and technical/MET education need to be formulated accordingly to develop the skills and knowledge for new generation. There may be skill development program for seafarers and shipbuilding workforce to meet the future challenges. Such program are: communication and coordination, QHSE, adaptability and cognitive flexibility, automation and AI, digital proficiency, innovation and creativity, critical thinking, emotional intelligence, technical skills, self learning (on-line), data-based decision, people management and negotiation, complex problem solving skill, service orientation, etc. we have strategic vision to adopt with disruptive changes in 4IR but the main obstacle in this transformation is poor motivation of employees due to fear of losing job, unawareness and rigidity in old style of work.

Cheap labor alone cannot be the only factor for sustainable development of shipbuilding. Nowadays advance technology can save cost and there is a chance to lose our competitiveness, if we rely only on labor cost. Actually, Bangladesh can make a huge economic progress by properly nourishing and utilizing our export oriented shipbuilding industry. Entrepreneurs have also confident on good prospect of local shipbuilding industry. Bangladesh is taking the advantages of its long history of maritime activity, favorable geographical location and availability of cheap workforces. "Export oriented shipbuilding is truly a global industry. Bangladeshi-made ships of international standard are roughly 10%-30% less costly than ships made in Japan, Korea, China even Vietnam or India" (Hossain K 2018).

## II. Conclusion

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. The technology used in local shipbuilding is still rudimentary. There is distinct lacks in efficiency, technological, managerial and labor 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 government financial support to meet incoming 4IR and that will be the main hindrance for sustainable development.

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. 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. Small and medium size container, tanker, cargo, multipurpose and special types of ships with around 3000-10000 DWT is suitable for Bangladesh. Bangladesh has all potential and capacity to capture this niche market with competitive price.

### Prospect of Local Shipbuilding Industry

Mordor Intelligence has calculated and announced that, 'the global shipbuilding market value in 2021 is USD 132.52 billion. They have evaluated and anticipated that, 'future global shipbuilding market will reach USD 175.98 billion by 2027, at a Compound Annual Growth Rate (CAGR) of 4.84%'. We know that, the COVID-19 outbreak has impacted the global shipbuilding industry. The pandemic's negative effects were evident in worldwide on ship supply chains. Shipbuilders need extended duration to construct ships. So shipbuilders are expected to incur more costs for these delays. That's why pandemic-induced interruptions are likely to hinder the shipbuilding market growth during the first few years of the forecast period. They also predict that 'the shipbuilding market is expected to grow over the forecast period due to few reasons. Such as: increasing seaborne trade, economic growth, rising energy consumption, the demand for eco-friendly ships and shipping services, and, automation in shipbuilding' (Mordor Intelligence 2022a). However, prediction of shipbuilding growth by Region from 2022 to 2027 has been shown in figure 3.7 below.



## Ship Building Market - Growth Rate by Region, 2022-2027

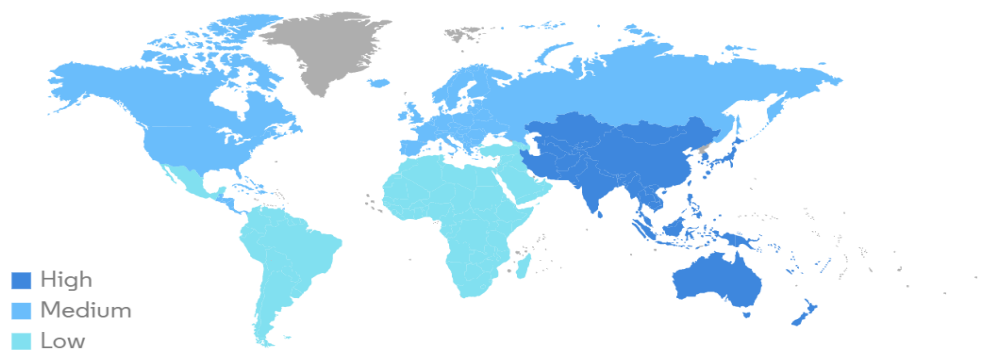


Fig 3.7: Prediction of global shipbuilding growth by region from 2022 to 2027

Source: Mordor Intelligence 2022

Tentative size of global shipbuilding market is around US\$ 200 billion, where small ship building market is US\$ 20 billion. In coming future, the world will need few thousand of ships, mostly small to medium size. Old single hull tanker fleet will be replaced immediately as per IMO requirement. There is a serious demand of container ships in all size. Previously shipbuilding cost in China was cheaper. But at present, due to their standard of living has improved and their labor wages have also been increased. So, Bangladesh remains in advantageous position in this aspect. It has been predicted that, at future, China will leave a portion of their small and medium shipbuilding market share. Bangladesh has all potential and capacity to get 1 -2% of global market share within 2030 and the worth value will be US\$ 2- 4 billion. Local shipbuilding industry needs to take all initiative along with government support, to sustainable development of this booming and blessed industrial sector.

### Conclusion

Bangladesh is a maritime nation with glorious shipbuilding history. Local shipbuilding must know its strengths, correct its internal weakness and apply appropriate measure against external threats. It should keep sharp eyes on its overall business environment and exploit new opportunities. It needs to identify core competencies and to set objectives for business strategic planning by using past trend and current data. Bangladesh has all necessary facilities to become an emerging shipbuilding nation in the globe by exploiting her glorious shipbuilding tradition and cheap labor in maritime industry. The presence of indigenous shipyards, long shipbuilding practice with large pool of young workforce is the main strength of local shipbuilding. Local shipbuilding has few distinct weakness and threat, which need to be accounted and need to be converted into strength to develop local shipbuilding industry. Bangladesh with her vast and young population has immense opportunity to develop any labor intensive heavy industry like shipbuilding.

Shipbuilding industry of Bangladesh failed to keep pace and consistency due to lack of appropriate government, stakeholder, and private initiatives. This has ultimately caused of slow progress and fails to penetrate international shipbuilding market. Small and medium size container, tanker, bulk, cargo, multipurpose and special types of ship market with 3000 to 10000 DWT capacities are suitable for Bangladesh. Bangladesh has all potential and capacity to capture this niche market with competitive price within 2030. And the size of this niche is equivalent to 1 to 2% of global market share and the worth value is US\$ 2 to 4 billion. Considering present opportunities, future challenges, and suggested measures into account, Bangladesh may formulate and adopt a viable policy and consequent strategies to capture the targeted and viable market share along with optimize its shipbuilding capacity. That will be the sustainable way to revive the lost magnificence shipbuilding history of Bangladesh.

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