

The Role of Maritime Cluster in Enhancing the Strength and Development of Maritime Sectors of Bangladesh

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Abstract Bangladesh, a maritime nation, is endowed with several maritime resources. Here the maritime cluster is port based where maritime dependency factor is increasing at a high rate with the increase of international trade. The country has emerged as a shipbuilding nation maintaining the top rank as a ship demolition country. A good numbers of seafarers, academicians, surveyors, consultants are working at home and abroad with reputation. The economy is heavily dependent on the maritime sector, which is flourished by the private initiative where skilled manpower (men & women) is one of the key factors for thriving. However, the maritime sector has remained unexplored and neglected to some extant.

There is a dearth of updated study on the importance and contribution of maritime resources to the present economy. A study on future prospects and challenges in this sector is also vital for sustainable economic progress. A policy is required to guide the business, to influence living and social climate to push the economy in the appropriate direction.

This paper attempts to figure out the dimensions of maritime cluster, the economical importance of the maritime sectors (employment, Value Addition, foreign currency) in Bangladesh. A SWOT analysis has been carried out to evaluate the present scenario with respect to the dimensions mentioned above. Besides, efforts have been made to find out the scope of women participation (as cadet, employee, academician, entrepreneur etc). Finally, the paper suggests for developing a coherent maritime policy that may support sustainable development of the maritime cluster and companies within.

(The views expressed in this paper are the views of the author & should not in any way be related to any office or her official capacity.)

1. Introduction

Bangladesh is a population rich maritime country. It is blessed with a vast sea endowment, which is about 1.5 times larger than the land area. The coastal zone comprises an area of about 36,000 sq.km accounting for nearly 25% of the country's total land surface. The continental shelf is about 37000 sq.km and area of EEZ is about 1, 64,000 sq. km. There are more than 200 rivers all around the country, with a total length of about 22,155 km, which occupy about 11% of total area of the country. Almost all sorts of economic activities have linkage with this sector. So, maritime sector is one of the new and very prospective avenues of our economic growth.

2. Methodology

2.1 To obtain a perception of the maritime sector's economic significance in the form of employment, added value, exports-import and tax revenue data from different sources mostly unofficial sources are used. The management information system (MIS) of the government departments including the ministry is very weak and antiquated manual system is followed. Where as in the private organizations MIS is up-to-date. In this backdrop the author had made inference close to realistic.

2.2 Discussions/ interactions were made with professionals and related stakeholders of ports, shipping, ship building and ship breaking industries, different government organizations and maritime training institute including seafarers.

2.3 Various publications were collected from different organizations and website of respective organizations retrieved/ visited to gather information/ data.

3. Maritime Sector & Maritime Cluster

Maritime sector deals with ocean related matters. The maritime sector comprises the shipping industry, shipping or maritime transport as well as associated all organizations/ actors such as ports, suppliers, equipment manufacturers, ship building ship breaking, ship brokers, maritime lawyers, financial institutions etc.

Maritime Cluster is a new concept, which is the platform of maritime organizations/activities that are inter-related, geographically concentrated, specially linked by commonalities and complementarities. The objective of maritime cluster is to figure out the economic weight of the organizations at national scale. Actually the cluster concept tries to put into the frame a business environment and considers the possibilities of the development. Again the relative role and importance of sectors differ within a cluster. Generally the main core sectors in maritime clusters are shipping companies, ports, maritime manufacturing (ship building including cruise, ferry, dredger etc.), consultancy, offshore activities etc. Maritime transport is one of the main facilitators of the world trade of goods and is thus of great importance to economics worldwide. So, maritime cluster is one of the tools to support the integrated maritime policy of a nation or region.

A cluster is defined by Professor Michael Porter (1988)¹: "Clusters are geographical concentrations of interconnected companies, specialized suppliers, service providers, in related industries and associated institutions (for example, universities, standard agencies and trade associations) in particular field that compete but also cooperate."

The maritime cluster component differs from country to country. Maritime service sector is prominent in UK maritime cluster, where as in the Netherlands port is the core sector in Dutch Maritime cluster. On the other hand Norwegian, Danish and Hong Kong's maritime clusters are dominated by shipping.

In case of Singapore, the core of maritime cluster is the port of Singapore, which is one of the largest, and one of the most efficient container ports in the world. PSA, the Port of Singapore Authority, is a global terminal operator with headquarters in Singapore. Singaporean Neptune Orient Lines (NOL), is being one of the largest container operators in the world, and Keppel Offshore and Marine, one of the world's largest offshore oil rig builders. The facilitator of the maritime cluster in Singapore is the Maritime Port Authority. The maritime cluster of Dubai has also many similarities with the cluster of Singapore. Dubai Port is state controlled and strategically located in the main line shipping route and has a major global Terminal Operator, DP World. Part of Dubai consists of a free trade zone where the main industrial companies are

¹ Porter, Michael E.(1998):Cluster and the new economics of competition.

located. Actually Dubai Port capitalized its strategic location to become a transshipment port for intra Asia trade from and to Europe.

The significance of a maritime cluster to a region or country depends on its connections to the rest of the economy. Demand and supply links, the so-called factor conditions interlink the maritime sectors within a cluster according to the Porter's Diamond Model (Porter, Michael E 1990). So for the maritime cluster it is important to have that demand and supply links between the players for the maritime cluster as the growth in one sector induce the growth of other sectors as well. The demand sectors make the capital investments and spending, which drive economic growth, profitability and future competitiveness in a cluster. The main demand generating sectors are ports, shipping and offshore activities while the supply sectors of maritime cluster -shipbuilding, marine equipment, dry docking, trained & skilled personnel etc. depend upon demand from other parts of the cluster. Therefore, the economic significance of maritime cluster can be derived from the direct and indirect economic impact in terms of employment and contribution to GDP as the value and demand created in the maritime cluster trickles down through the over all economy in the form of investments and the supply chain and consumption, which creates further jobs and demand, so that the total economic importance of maritime activities in national and regional economy is even larger. Maritime activities are not the jobs at sea, but rather the derived employment and economic activities on shore also.

4. Maritime Cluster and Bangladesh Economy

The researcher didn't find the concept of Bangladesh maritime cluster in any policy document. All the building stones for the maritime cluster within the business environment of Bangladesh are very much existing. Ports, Shipping, Ship-building, Ship-Demolition, Navy, Coastguard, Seafarers, Surveyor, Ship-owning, Manning, Ship-management, Training institute, Inland shipping, Dry-dock, Bunkering etc can be considered as being the most observable sectors in the maritime sector of Bangladesh. The links between those maritime sectors are weak. Maritime administration, Ports, Shipping, Marine Academy, Inland waterways etc works under the aegis of Ministry of Shipping. For Dry-docking, Ship-building & Ship breaking affairs line ministry is Ministry of Industry while Coast Guard & Navy falls under the Ministry of Defense. Ministry of Fisheries and Livestock controls the fisheries.

In Bangladesh port is the core sector, which facilitates the cluster organizations. Maritime cluster organizations are situated at the southern part of the county due to the geographical location of the Bay of Bengal. Again Chittagong is not only the commercial capital of the country but it is also a maritime hub of the cluster organizations (sea port, ship building industries, ship breaking industries, marine academy, navy & coast guard etc. being located here). About 18 private Inland Container Depots have been established within 22 km of Chittagong port. Chittagong Export Processing Zone (CEPZ), Karnaphuly Export Processing Zone (KEPZ) and Korean Export Processing Zone are also situated near the port. Considering the port facility, industries relevant to cement, fertilizer, refinery, silo etc have been established within the port limit.

So, there are a numbers of companies active in different maritime business sectors located in Bangladesh. The European Cluster observatory distinguished a number of sectors, which together make up the maritime cluster. Almost all of these maritime sectors are represented in Bangladesh.

The Bangladesh's maritime cluster is shown in Figure -1.

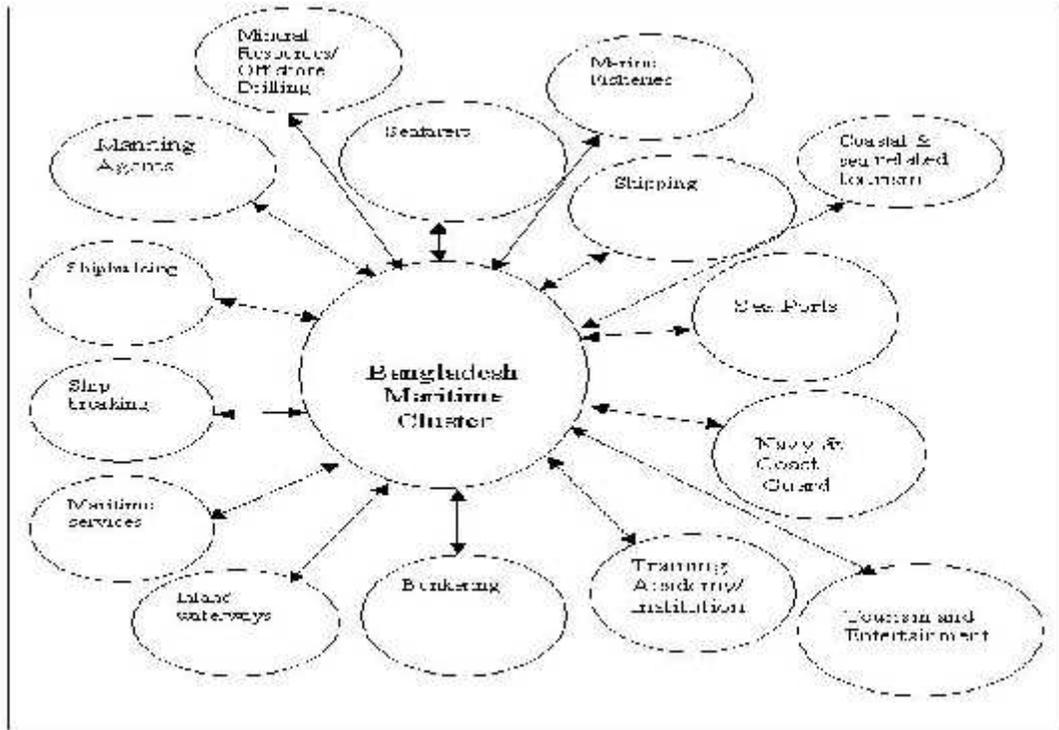


Figure 1: Bangladesh's maritime cluster

The macroeconomic indicators are shown in Table-1.

Table -1 Economic Indicators

Indicators	2011-12
GDP growth rate (%) Constant price	6.32
Import (In billion US \$)	35.516
Export (In billion US \$)	24.288
Remittance(In billion US \$)	12.834
Revenue Income (In billion US\$)	11.00 (Tk947.54billion)

Source: Bangladesh Economic Review 2012, Economic Adviser's Wing, Finance Division, Ministry of Finance, Government of the People's Republic of Bangladesh, May2013.

Statistics reveals that the economy of Bangladesh is heavily dependent on international trade where maritime ports play the key role as 94% international trade (in volume terms) are transported by sea i.e. maritime sector. The average Maritime Dependency Factor (MDF) is about 35% and about 40% annual revenue of the govt. comes in the form of import and export tax plus Value Added Tax (VAT). Agriculture, industry, infrastructure sector are all greatly dependent on maritime sectors. Even import of essential food items like edible oil, lentils, wheat and rice, are extremely dependent on maritime transportation. About 80% export and 100% import materials of garment sector, which contributes about 76 % of the export earnings, are transported through the seaports. 100% Petroleum Oil and Lubricant (POL), cement clinker, edible oil, a large percentage of essential fertilizer and agricultural seeds are imported through this sector. Maximum EPZs and industries are established centering the two seaports that is why the Dhaka-Chittagong and Dhaka-Mongla corridor contributes 30% to GDP.

Maritime sector is also a good source of earning foreign currency. Ports, Shipping Companies, Dry Dock, Ship Building Industries, Officers & Crews working in foreign vessels, Marine Consultants & Surveyors, Freight Forwarders, Shipping Agents etc fetch about \$ 1.5 billion per annum.

Table- 2 Contribution of Maritime Sector

Economic Factors	Economic value (Conservative Estimation)
Employment	0.3 million people directly involved
Value Added	\$ 2.5 billion
Foreign Currency	\$ 1.5 billion
Corporate & other Tax	\$ 550 million

Source-Author's elaboration (1US\$= Tk79)

5. Main Maritime Sectors in Bangladesh at a glance

5.1 Shipping

It is accepted that waterways are the cheapest, economical and environment friendly mode among the three transportation modes. That's why about 90% of world trade is transported by sea. International shipping is considered to provide good revenue return but it involves high stake, high risk and requires extraordinary expertise, skills and knowledge to manage the business.

The shipping situation of Bangladesh from international trade transportation and manning perspective are highlighted below:

5.1.1 Shipping Company, Ship Owning, Shipping Agent

There are 08 national flag vessels (05 general cargo carrier, one container carrier and 02 lighter oil tankers) operated by state controlled Bangladesh Shipping Corporation (BSC). The economic recession experienced in developed countries (EU & USA) had a positive impact on the Bangladesh maritime sector. The result is that 47 vessels (44 bulk carrier, one tanker & two general cargo carriers) were registered as Bangladesh flag vessel in 2009 to 2013 to achieve the logistic cost leverage on supply chain. There are 12 shipping companies which operate fleet of about 65 Bangladesh Flag carrier with total capacity (DWT) of 2.2 million tons.. Cement industry, steel industry entrepreneurs have embraced a new venture owning and operating vessel to transport their industrial raw materials and finished product all over the world. This venture of vertical integration of business has helped them to have control on the over all supply chain and save time and hard-earned foreign currency. Within a short period, these industries have thrived and flourished. With the increase of national flag carrier allied & ancillary industries being developed by private entrepreneurs. In one hand these national flag carriers save foreign currency and on the other hand earns foreign currency. On average about \$500 million is earned by the national flag carrier annually.

Table -3 Number of ships owned by BSC & private entrepreneur

	Up to 1990	Up to 2000	Up to 2010	Up to 2014
Total number of ship owned by Bangladesh Shipping Corporation	16	13	13	08
Total number of ships owned by Bangladeshi Ship owners/ registered in Bangladesh	14	16	45	74

Source: Department of Shipping

Previously for different types of shipping services (container, dry bulk & liquid bulk transportation) we have to depend on foreign shipping companies for providing the required services. But at the advent of Bangladeshi entrepreneurs have already started investing in those industries through vertical integration of ancillary industries in the chain of freight carriage. Companies like Kabir Steel, Basundhara, Abul Khair, Akij ect have adopted vertical integration by owning and operating vessels to have control in the supply chain. Efficient national shipping companies can provide cost effective transportation of international trade, which make export price competitive.

5.2 Seafarers

Modern ships are highly specialized and sophisticated. To operate such ships well trained &, skilled seafarers with latest technological knowledge and experience are required. The national seafarers can be considered as the other part of merchant shipping sector. There are around 15,000 (official & unofficial) seafarers of whom average 12000 are active at the merchant fleet.

Bangladeshi seafarers are working in the international shipping and the inland and coastal shipping of other countries. These seafarers earn about \$400 million. per annum. Generally the seafarers don't need to spend for their livelihood while working on board, so almost 100% earnings are sent to the country as remittance.

Besides seafarers, a good numbers of marine engineers, technicians, and welders including skilled laborers are working in foreign shipyards (Singapore, Korea, Poland). Bangladeshi mariners are working abroad as consultant, surveyor, and charter engineer and academician with great reputation. During 2012-2013 Bangladesh received about \$14.46 billion² as remittance wherein remittance of seafarers and other marine professionals working abroad were also included.

5.2.1 Economic value of seafarers

On appraisalment of the pools of seafarer contribute to GDP of Bangladesh and other economical process in the country by spending for their household consumption and investing in other business organizations. They also contribute direct tax. So seafarers are valuable for Bangladesh economy even they are less in numbers compared to total numbers of employment abroad. Regarding the considerable number of the seafarers resources it can be seen that the cluster is formatted around them. The seafarer's cluster included crewing companies, maritime training centers, nongovernmental associations and other stakeholders who benefit from presence of large pool of seafarers. The seafarer's cluster is shown in Figure -2.

² Monthly Economic Trends Oct 2013, Bangladesh Bank.

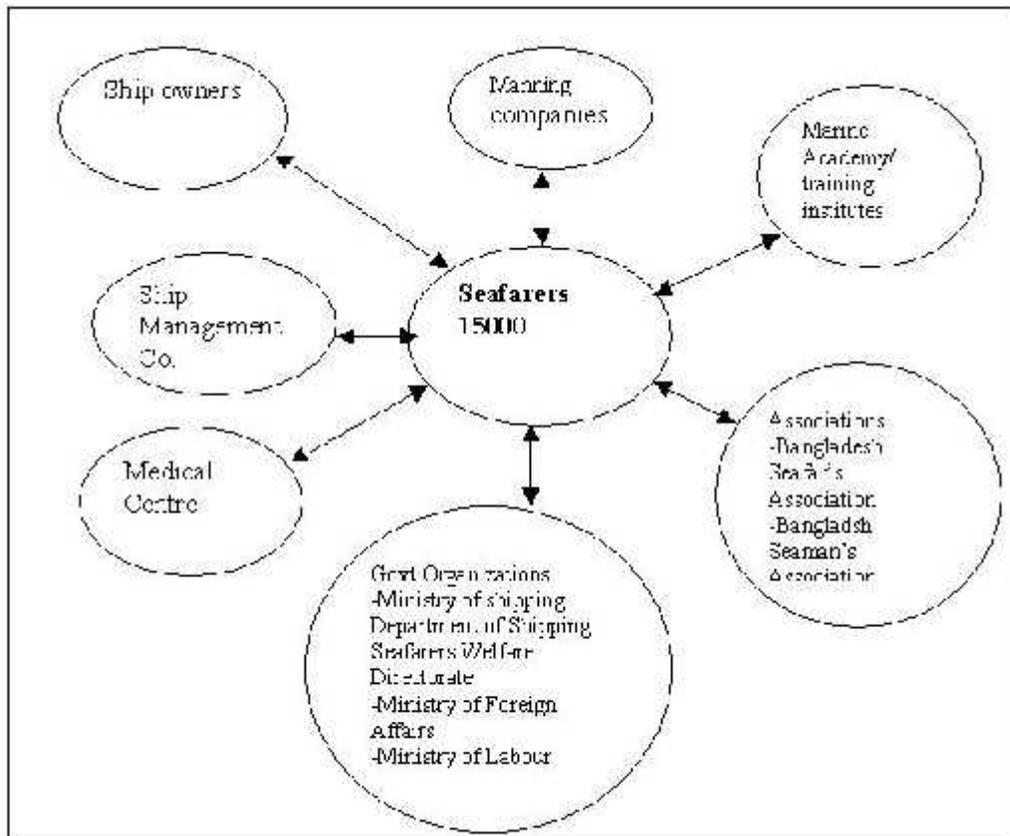


Figure 2 Bangladesh seafarer's cluster

5.3 Manning

There are about 80 nos. enlisted manning/crewing agencies. They are actually working for the employment promotion of the seafarers and provide employment opportunity at home and abroad. These companies also earn foreign currency as fee for contract per person. Earning of manning companies who generate employment opportunities also contribute to government exchequer as corporate tax, VAT etc.

5.4 Port and related organizations

Port is an interface between land and sea. Thus help a country's economic growth with a multiplier effect in different ancillary/cluster organizations.

The two international ports -Chittagong Port authority and Mongla Port Authority are our great assets which handle 94% (in volume term) the country's international trade. During 2012-13 about 450.0 million M/T export –import cargoes were transported through these two ports. Again seaborne 95 % import and 94% export cargoes are transported through Chittagong Port. Due to heavy dependency on maritime trade the seaports are considered as the lifeline of Bangladesh economy. The total revenue income of the seaports is about (Tk16000million) US\$ 202.53million (2011-12). But the indirect & induced benefits of the ports are huge. About 40 organizations and about 1.00 million white and blue color officials are directly & indirectly related with port operation system. About 67% of port's revenue is collected in foreign currency. The industry and agricultural sector are fully dependent on the seaport as the imported raw materials and capital goods and exported finished products are transported through the ports. The total import & export

duty earned for the merchandise moving through Chittagong Port contributing about 72% of the country's total revenue earning is shown in the Table –4.

Table- 4 Total Import & Export Duty Collected by the Government and Duty collected by Custom House Chittagong

	2010-11	201-12
Total Import &Export Duty, VAT & Supplementary Duty*	US\$3539.15 million (Tk.279592.80 million)	US\$3980.45 million (Tk.314455.60 million)
Revenue Income earned by CHC**	US\$2578.75million (Tk.203721.50 million)	US\$2890.10 million (Tk.228318.20million)

Source:* Bangladesh Economic Review2012, Economic Adviser's wing, Finance Division, Ministry of Finance, May 2013, Page-46

**Custom House Chittagong

Seaport's cluster is shown in the Fig-3.

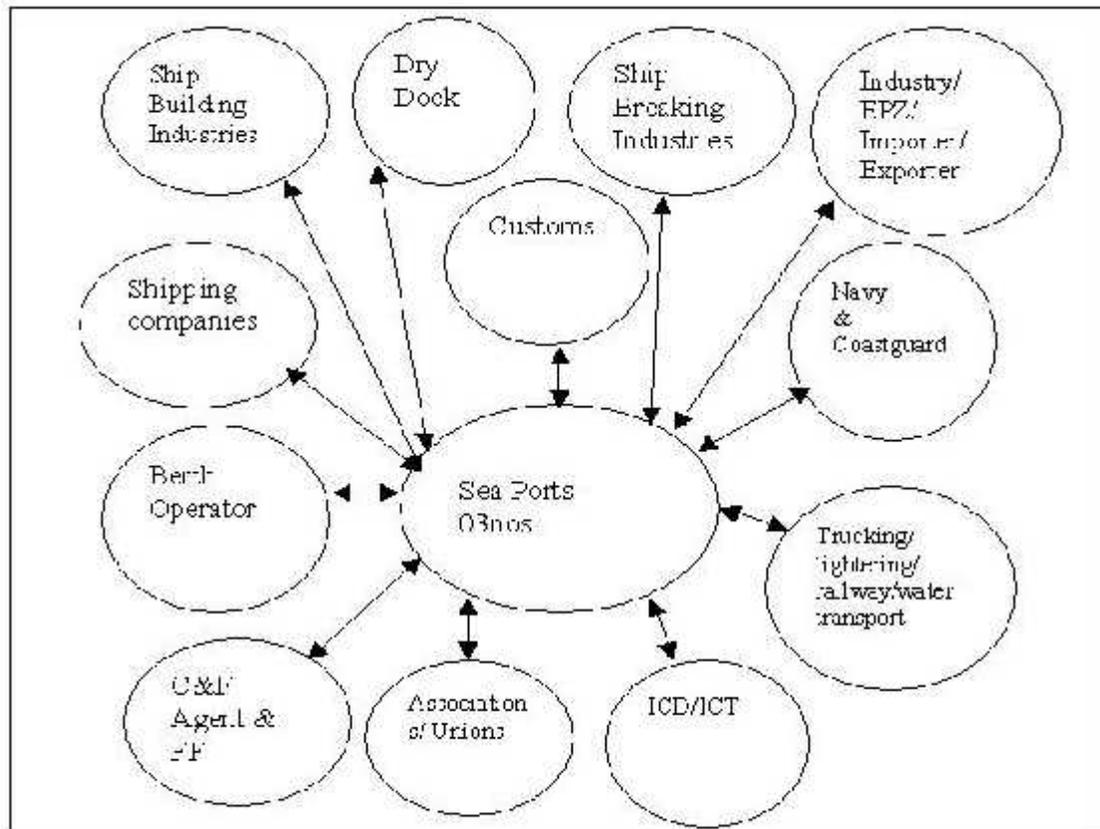


Figure-3 The port cluster

5.5 Inland waterways

Bangladesh is a land of rivers. The country has one of the largest inland water network in the world, with some 700 rivers and tributaries cornering an overall 24,000 km-long network crisscrossing the country, connecting almost all of its cities, towns and commercial canterers.

There are 1000 landing points scattered around the country including 21 inland river ports. World Bank report on Revival of Inland Water Transport-Options and strategies 2007 on Bangladesh reveals that from 1975 to 2005 share of IWT in passenger transportation has decreased from 16% to 8% and freight transportation from 37% to 16%. About 80% POL, 60% Dry bulk cargo is transported through waterways to uplands from the Chittagong port. “ Bangladesh can raise its GDP by 1% while foreign trade by 20% if the water transport logistics system are made efficient and competitive, according to an Asian Development Bank (ADB) report.”³ During 2012 about 231.5 million passenger and 32.6 million M/T cargoes were transported through inland waterways⁴.

The water transportation share of GDP for the last five years is shown in Table-5.

Table –5 Water Transport share of GDP(%) at Constant Price (Base Year:1995-96)

Sector/Sub sector	2007-08	2008-09	2009-10	2010-11	2011-12
Water Transport	0.82	0.79	0.75	0.72	0.69

Source : Bangladesh Economic Review 2012,Economic Adviser’s Wing Finance Division, Ministry of Finance, Government of the People’s Republic of Bangladesh, May 2013,p-21.

5.6 Ship Breaking Industries

Bangladesh was one of the top ship demolition countries from 2004 to 2009. During 2013 about 300 ships were dismantled, which is the highest number in six years and Bangladesh (2013) scored 2nd position considering nos. of ship breaking while ranked 3rd from the point of gross tonnage⁵. Ship breaking activities is concentrated in Sitakunda, just north of Chittagong city on the Bay of Bengal. Ship breaking industry provides scrap steel for the raw material of steel & re-rolling mills, which saves foreign currency. This industry contributes approximately 70%-75% to national steel consumption. In total approximately 1.5-2.0 million tons are supplied by the national ship scrapping industry.⁶ This industry has also helped to meet the growing demand of furniture, household fittings of all classes. Released equipment like boilers, generator & various kinds of structural steel materials collected from ship breaking helped to grow many medium and small industries. About 2.4 million people are directly and indirectly involved in this industry. Contributions of ship breaking industry are shown in the following Table:-

Table-6 Economic value of Ship breaking Industry

Numbers of Ship yard	125 (Active 82)
Annual Turnover	\$1.5 Billion
Local consumption of equipments, generators and other spare parts	\$13 Million
Scrap ship imported in 2012	231 nos. (Highest in 5 years)
Cost (2012)	\$1.35 Billion
Growth rate (2000-2012)	3 times

Source-Ship breaker’s Association

³ Mohiuddin AKM, Dhaka Courier 23rd Nov 2012, New water route to link Pangaon ICT.

⁴ Pangaon Inland Container Terminal Booklet, 2013, p-36.

⁵ The Banik Barta,Dated 11 January,2014.

⁶ UNCTAD(2011),Review of Maritime Transport,New York and Geneva,2011, Chapter 6,P152.

Ship breaking cluster is shown in Fig-4.

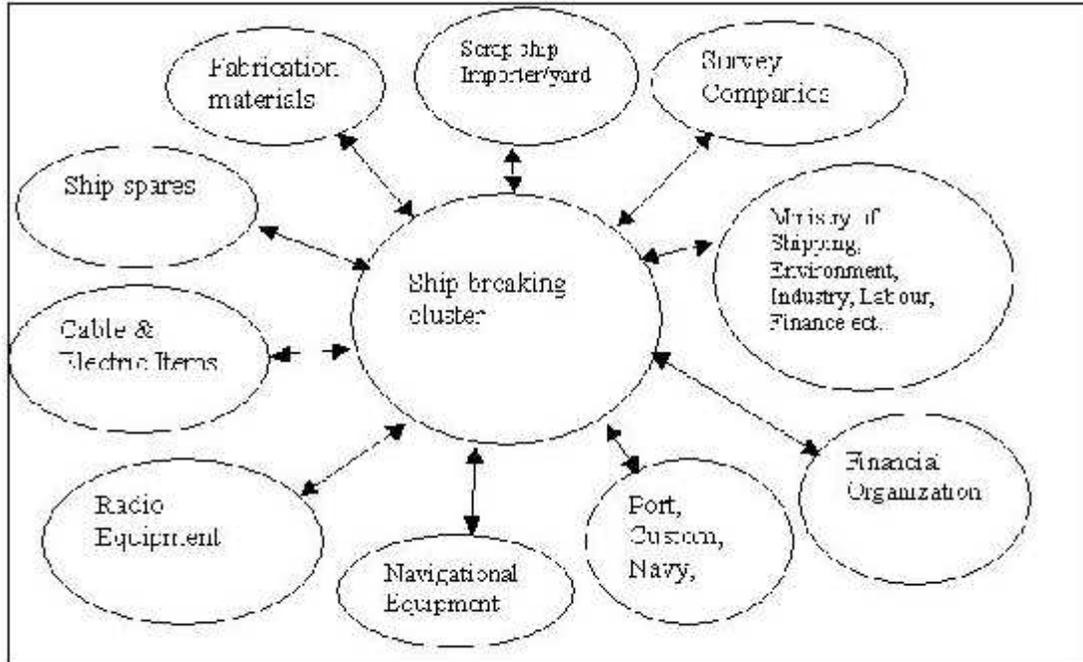


Figure -4 Ship breaking cluster of Bangladesh

5.7 Ship building Industry, Dry Dock and Marine workshop

5.7.1 Local Market

There are more than three hundred shipyards and workshops in Bangladesh, most of them are privately owned. Almost 100% demand of inland vessels and crafts and a number of diversified types of vessels such as multipurpose vessels, fast patrol boat, tanker, dredging barge, ro-ro ferry, passenger vessel, landing craft, tourist ship, tug, supply barge, deck loading barge, pleasure craft/yacht, crane boat, speed boat, deep water trawler, self propelled barge, inspection vessel, cargo coaster, troops carrying vessel, double decker passenger vessels, hydrographic survey boat, pilot boat, hospital ship, water taxi, pontoon etc are being built by these shipyards.

About 70% shipyards & workshops are located in and around Dhaka and Narayangong alongside the bank of Buriganga, Shitalakha and Meghna. About 20% shipyards of Chittagong division are located along the side of Karnapuli river & 6% are located along the bank of Poshur river in Khulna division and the remaining 4% are located in Barisal division.⁷

These yards have capacity in building and repairing of inland and coastal vessels, up to 3,500 DWT.

There are 9056 inland vessels, 75 coastal vessels and 6245 fishing vessels registered with Department of Shipping and almost all these vessels are home built. This sub-sector has much scope for further expansion. *Ship building industry not only earns foreign currency but also save it where as in road and railway transportation about 100% transport vehicles/rolling stocks are imported from abroad.*

⁷ Zakaria Golam N M, Rahman M M & Hossain Akhter Kh, “ Study on some competitive parameters for shipbuilding industry in Bangladesh” Proceedings of MARTEC 2010, The International Conference on Marine Technology, 11-12 Dec 2010, BUET, Bangladesh.

5.7.2 Foreign Market

History reveals that Chittagong port was the best center of Building Ocean going vessels in the middle of the 15th century and even in the 17th century; the entire fleet of ships of the Sultan of Turkey was built at Chittagong. British Navy also built ships at Chittagong for the famous battle of Trafalgar in 1805. With the passage of time that glory of shipping faded away. A small group of visionary professional entrepreneur has revived that glory.

Since the year 2008 Bangladesh has emerged as a shipbuilding nation with the exporting of about 20nos. sea-going vessels worth about \$250 million. There are 09 shipyards out of which 03 shipyards are exporting ships (Western Marine Ship Yard Ltd., High Speed Ship Building & Engineering Co. Ltd. and Ananda Ship Yard and Slipway Ltd.). These shipbuilding industries have attained a capacity to manufacture ships of 10,000 DWT and are expanding their facilities to upgrade them up to 25,000 DWT. Shipbuilding earns foreign currency by exporting sea-going vessels. *Once reputed for ship demolition Bangladesh has recently emerged as a shipbuilding nation too.*

This industry has diversified our export market. There is a great demand in the world market in building new ships less than 20,000DWT as the traditional shipbuilding nations are now not interested to build such small vessels which is not cost effective to them. The prominent private ship yards of the country, Ananda Shipyard and Slipways Ltd. and Western marine Ship Yard Ltd. have signed contracts over US\$ 600 million worth to build more than 40 sea-going vessels with capacity below 10,000 DWT.⁸.

5.7.3 Dry Dock Facility

Chittagong Dry Dock Ltd.(CDDL) is the only public enterprise which has a capacity of repairing ships up to 22,000DWT. On average 14 ships are repaired annually. There is a significant market opportunity for dry-docking as the number of vessels using ports has increased with growing international trade volume in Bangladesh. On average 2500 nos. of vessels are called at the ports. These ships can avail the dry docking facility of CDDL. The turnover of CDDL during 2009-10 was Taka 400 million & contributed corporate tax about Taka 60 million.

Shipbuilding, Dry Docking and Marine Workshop are labour (skilled & unskilled) intensive organization. Statistics shows that about 40% of Bangladesh's population is of young group i.e. between 20-35 years which is a very good source for such labour intensive industry. To survive in this technology based competitive market modern equipment & technology facility are also very much required to provide international standard quality.

5.8 Marine Fisheries

The Bay of Bengal is a good source of sea fish. In offshore islands and chars, fishing is the main source of livelihood for the majority of the people. Almost 43000 of artisanal mechanized and non- mechanized boats and 154 industrial fishing trawlers are engaged to fish in the Exclusive Economic Zone (EEZ) of the Bay of Bengal (DoF, 2010). Fisheries sector contributes 2.87% of total export earning and 5.25% to the GDP (FY2010-11). About 2.0 million manpower are directly and indirectly involved with off shore and deep sea fishing.

5.9 Tourism Industry

Tourism is one of the flourishing sectors complementary to the ocean economy. Tourism accounts about 2% to GDP. Cox's bazaar the longest beach attracts huge local and foreign tourists every year. Besides there are Patenga Beach, Fouzderhat Beach, Parki Beach, Kuakata Beach also attracts increasing number of

⁸Refurbishment and Expansion of Chittagong Dry Dock through PPP, IIFC, Project # 54011, April 2012.

tourists. The coral island – Saint Martin Island and Shahpori Deep etc are attractive tourist spots during winter. With the launching of a good nos. local built passenger vessels cruising at off- shore islands is gaining popularity.

5.10 Others

Offshore drilling, consultancy, maritime education & training and marine environment, dispute resolution/ Arbitration are the other prospective sub sectors. Currently 01 public and 17 nos. Marine Academy sponsored by private are producing yearly about 800 cadets to serve the national & international maritime trade. The private sponsors have gained considerable knowledge over the years working overseas and returned back to the country and established those academies and producing knowledge based professionals for maritime needs.

6. Women participation

The demographic statistics shows the ratio of man and woman is almost equal in Bangladesh. Since independence every successive government have encouraged gender equality. As a result almost in every field of maritime sector women participation is increasing. Women are working as engineer, academician, administrator, terminal manager and navy officer. From top to bottom level at least one women can be found working in every shore based organizations.

Despite the conservative outlook and religious bindings women are finding opportunities for a job like mariners & seafarers. Since the year 2000, female cadets have been enrolled in Bangladesh Navy. For the 1st time 16 nos. female cadets (Nautical -8, Engineering-8) graduated from Bangladesh Marine Academy in 2013.

Woman are not lagging behind in venturing entrepreneurship in Maritime sector also. They have established shipbuilding industry, running/ managing shipping agent, C&F and Freight Forwarding organizations. Mrs Afroza Bari is the founder Managing Director of Ananda Ship Yard and Slipways Ltd., which is the pioneer organization in ship export. For her contribution in diversified export in building & exporting ships she was awarded Export Trophy (Gold) on 30/11/2011 by the Govt. of Bangladesh.

7. SWOT Analysis

The SOWT analysis in general for the over all maritime organizations is shown in the following Table-

Table-7 SOWT of the Maritime Sector of Bangladesh

The SWOT analysis	Positive	Negative
Internal Conditions	Strength: -Long Maritime Tradition -Low Labour cost -Available skilled & unskilled Manpower - Hard working & risk taking labour force - Flexible minded - Entrepreneurship	Weaknesses: -Absence of comprehensive maritime policy -Weak tradition of Cooperation among the organizations - of professionalism esp. in govt sector -Lack of specialized training facilities -Bureaucracy & paper based documentation procedure
External Conditions	Opportunities -Demand for maritime expertise in Europe and other developing countries in the back drop of negative population growth.	Threats -Neighboring disturbance -Technological lagging -Natural calamities -Maintain international standard

SWOT analysis for the major sub-sectors are given below:

Table-8 SWOT of seaports Ports

The SWOT analysis	Positive	Negative
Internal Conditions	Strength: Expansion of ports (Government has taken initiative to construct deep sea port at Sonadia Island where deep draft vessels can be handled. 3 rd sea port –Pairst Port has been inaugurated on 19.10.13 to facilitate trade to the south middle part of the country)	Weaknesses: -Reclusive & antiquated work procedure esp. in govt organizations -Lack of human resource development policy - Age old and obsolete rules & regulations (e.g. Port Act 1908)
External Conditions	Opportunities -Favorable geographical location to serve the land lock countries (Nepal & Bhutan), eastern part of India, a part of Myanmar & China. -Local & international organizations are interested to construct port / operate terminal.	Threats - Competition from neighboring countries (Myanmar has already/ being constructed deep sea port, India has taken a project to accommodate deep draft vessel at Sand Island)

Table-9 SWOT of Ship Agent/ Ship Owning organization

The SWOT analysis	Positive	Negative
Internal Conditions	Strength: -Reliable and reputed shipping service providers -Skilled & experienced manpower (A good nos. of experienced mariners are working & those who are working abroad are showing interest to come home)	Weaknesses: - Salary/ compensation package is not attractive to retain highly qualified manpower to retain in the organization -Market penetration barriers Intricate/ cumbersome vessel registration procedure.
External Conditions	Opportunities -Sea borne trade is increasing at a fast rate	Threats - Uneven competition - New laws/conventions compliance

Table-10 SWOT of Ship recycling

The SWOT analysis	Positive	Negative
Internal Conditions	Strength: -Available of semiskilled & unskilled labour force -A good nos. of yards and vast coastline -Backward linkage industry -Liberal govt. policy	Weaknesses: -Salary/ compensation package is not attractive to retain skilled workforce -Lack of training facility =Lack of safety equipment & procedure
External Conditions	Opportunities -Good nos. of scrap vessels in the market -Demand of scrap materials at home & abroad -Reputation	Threats -Introduction of new national / international rules & regulations/ conventions -Pressure group (NGO, environment/ safety concern group etc.) -Competition from neighboring countries

Table-11 SWOT of Ship Building Industries

The SWOT analysis	Positive	Negative
Internal Conditions	Strength: -Availability of manpower both skilled & unskilled -Availability of coastal belt for setting up docks	Weaknesses: -Depend on import materials -Lack of International standard financing system -High turn out of skilled manpower Difficult to penetrate in the international market
External Conditions	Opportunities -Good demand of small ships in the national and international market	Threats -Govt. patronage in neighboring countries (provides subsidy/ incentive) -International competition (Vietnam/ Thailand/ India etc. are more advantageous position considering cost, time and marketing)

Table-12 SWOT of Seafarer

The SWOT analysis	Positive	Negative
Internal Conditions	Strength: Availability of a good nos. of young, skilled & hardworking people	Weaknesses: Lack of Govt. initiative for exploring job markets for seafarers Ratification/enforcement of conventions
External Conditions	Opportunities Demand of seafarers -Qualified and flexible mariner to serve all around the globe.	Threats -East European seafarers inception into the industry

10. Recommendations

10.1 National Maritime Policy

Bangladesh is a maritime nation from the historical perspective. The maritime resources like ports, seafarers, ship building, ship demolition etc. are related business activities. However there is a lack of awareness in the community about development prospects of Bangladesh maritime sector. Again the cluster mindset is not developed in maritime community and therefore it is important to understand what is cluster and which factors can contribute for successful cluster development.

In line with Porters cluster theory; government may set a policy aiming to create an environment where companies can create inner dynamics for the maritime cluster development. This would increase the economical value of cluster and increase the backflow for the government. The other aim for strengthening maritime cluster is to establish policy measures, which would help to interlink the organizations in a better way in using resources and sharing knowledge & expertise.

10.2 Update the related Acts/ Ordinance & rules

Related Acts/ Ordinance & rules need to be updated and the related conventions must be ratified inline with the changing global maritime business.

10.3 Strengthen Department of Shipping

The department of shipping should be strengthened with sufficient number of qualified marine professionals and for that purpose compensation package should be made attractive for attracting highly qualified professionals.

10.4 Further research

Further research is very much required to gather more information about the economical importance of the different maritime sectors through introducing value chain analysis and the impact. The research result will help the policy maker to understand the linkages between the maritime sectors which will help to work out policy instruments in line with and in close cooperation with business strategies of companies acting in the cluster. The effects of these policy instruments should be subject to a longitudinal monitoring survey, measuring the economic value supply & demand on maritime employment and education and innovation in the forth-coming years. Only then the maritime policy will be a sustainable one.

11. Conclusion

The economic contribution of the sea related sectors and the clusters in Bangladesh are the followings:

- The average Maritime dependency factor of Bangladesh is about 35%.
- The maritime sector provides direct employment of about 0.3 million people out of which 20% White color and 80 % blue color workers
- This sector earns on average about US\$ 1.5 billion foreign currency p.a.
- The largest maritime sectors in terms of added value are inland transportation, seaports, ship building and ship breaking,
- Seafarers, marine technicians, naval architect/ engineers, surveyors, academicians earns a good amount of foreign currency.
- Agriculture, Energy, Industry etc sectors are directly dependent on seaport.
- Private initiatives have shown the major key force in the development of shipping, ship demolition and shipbuilding sectors.
- There is huge employment opportunity for women in shore based maritime jobs. Besides women entrepreneur are also coming up (slowly) in establishing various business in the maritime sector of Bangladesh.

Maritime sector is globalized, capital-intensive, tech-savvy, very specialized, highly competitive and volatile where entrepreneurs' capacity and skilled workforce plays the major role. So human resource is considered crucial factor for the sustainable development of the maritime sector, vis-a-vis government policy support is also equally important.

Therefore, considering the value added maritime sector for the compounding economic growth of Bangladesh, the government needs to implement a comprehensive maritime policy interfacing all the maritime clusters as identified.

Reference

Iqbal K Sahriar, Zakaria N.M. Golam, Hossain Kh. Akhter,(2010), Identifying and Analysing Underlying Problems of ShipBuilding Industries in Bangladesh, Journal of Mechanicam Engineering, Bangladsh, Voi. ME 41, No.2

Munsell Consultants Asia(2003): Study to Strengthen Hong Kong as an International Maritime Centre. Report for the Hong Kong Port and Maritime Board.Web-http://www.mic.gov.hk/eng/bulletin/docs/final_1_Report-10_Mar_03.pdf

Porter, Michae1E(1998): Clusters and the new economics of competition, Harvard Business Review, November-December:77-90.

Porter, Michae1E(1990): The Competitive Advantage of Nations, London and Basing stoke.

UNCAD (2011). Review of Maritime Transport, New York and Geneva, United Nations, pp144-169.

UNCAD(2012). Review of Maritime Transport, New York and Geneva, United Nations, pp80-94.

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