Drivers of Revenue Generation in the Blue Economy of Bangladesh: A Case Study on the Chattogram Sea Port

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Abstract

Blue Economy is a blessing for an emerging economy like Bangladesh. After achieving a new maritime boundary, it becomes more significant for economic development utilising ocean resources. Considering this phenomenon, this paper aims to find out the drivers of revenues in the context of the Blue Economy of Bangladesh. The study has confined itself to the Chattogram Sea Port and its operations. Itis based on historical data ranges from 2009 to 2018. The methods of research analysis were descriptive statistical tools, tabular and graphical analysis. The study has found out that the Chattogram Sea Port (CSP) has been contributing to the Blue Economy of Bangladesh. The major drivers of revenue generation are living resources, minerals, energy and transport and trade at the seaports.CSP generates most of its revenues from the export-import, containersand vessel management. Expenditure control can also enhance the revenue of CSP. Proper planning and policies can expedite the growth of the Blue Economy in Bangladesh. The effort should be balanced between proper planning and effective execution.

Keywords: Blue Economy, Revenue Generation, Chattogram Sea Port, Bangladesh.

Introduction

The emergence of the Blue Economy advances the efficient management of ocean resources, which is also known as the blue research of an economy (Chowdhury, 2019). Blue Economy is a set of policies to enhance the sustainable development of ocean resources. This concept strengthens the economic growth by accelerating the aggregate natural capital and by conserving the ecological balance also (World Bank 2018). The core of the "Blue Economy" concept is ensuring the socio-economic development with cautions of environment degradation, as an emerging economy in South Asia, Bangladesh can focus on its Blue Economy with more emphasis on it. The new maritime boundary, which is achieved recently, gives Bangladesh a broader area of Blue Economy which includes gas and oil reserves, tourism, shipbuilding etc. The shipbuilding industry has

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been growing moderately since the last decade. The coastal and marine tourism is expected to grow by 9% every year. Moreover, new potential industries in the Blue Economy have been recognised for generating revenue and for enlarging the economy of Bangladesh. Bangladesh has a very lucrative geographic location where West meets Asia, and it is in the middle of a region that will build a prominent economy to generate USD 100 trillion by 2030 (Roy, 2017). Despite having a blessing of the sea waterways and panorama of Blue Economy, the country may face different types of obstacles. To overcome all the obstacles, every economy must secure its revenue and retain it for further development. This study focuses on those drivers of revenue generation in the Blue Economy of Bangladesh. The coastal and marine activities mostly surrounded around the Chattogram Sea Port (CSP), which signifies the setting the case on this port to conduct this study.

Literature Review

Blue Economy is a very recent concept to explore. Varieties of research were done on different aspects of the Blue Economy. According to the findings of the Blue Economy concept paper (2012), the total area of our blue planet covered by the ocean is 72% and it holds 95% of the total biosphere. The life started in the ocean has contributed in a variety of ways in human life and in the economy as well. Similar to the 'Green Economy', the Blue Economy model aims at the improvement of human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities (Chowdhury, 2019). In Bangladesh, this sector is not analysed intensely for generating useful findings and directives for strengthening economic development. Hossain(2001) found that coastal and marine environments are becoming significant for economic development with social status improvement. He also added that the ocean economy will contribute to the strategic objectives of Bangladesh's economic policies. But Bangladesh has that efficient workforce, relevant knowledge and supportive technology to bring the maximum benefits and favourable outcome from Blue Economy and for best utilisation of deep-sea resources (Roy, 2017).

European Commission (2019) studied on EU Blue Economy practices. Their study revealed that the Blue Economy has several sectors and sub-sectors for doing business and for generating revenue. The following table shows that six established sectors in the Blue Economy along with the respective sub-sectors.

These sectors of Blue Economy in Bangladesh are still under development or in some cases neglected by the authorities. In this study, the port activities are emphasised, which is a major concern in developing the Blue Economy in Bangladesh in a sustainable manner. Blue Economy has gained significance in the post-2015 Sustainable Development Goals (SDGs) declared by the United Nations. The goal 14 of SDGs, the United Nations says, "Conserve and sustainablyuse the oceans, seas and marine resources for sustainable development." Furthermore, the government of Bangladesh has been trying to advance its status of a middle-income country by 2021 and to become a developed country by 2041. It is analysed and opined that to achieve these SDGs and to make the dreams to be true, Bangladesh has to focus heavily on Blue Economy, by targeting the entire coastal

Table 1: The six established sectors in the Blue Economy and their subsectors

Sectors	Sub-sectors
Coastal tourism	Accommodation, Transport, and Other expenditures
Marine living resources (Extraction and commercialisation of marine living resources)	Capture fisheries Aquaculture sector Processing and distribution
Marine non-living resources (Marine extraction of minerals, oil, and gas)	Extraction of crude petroleum, natural gas, marine aggregates Support activities for petroleum, natural gas extraction
Port activities (Ports, warehousing and construction of water projects)	Warehousing and storage Cargo handling Construction of water project
Shipbuilding and repair	The building of ships and floating structures The building of pleasure and sporting boats Marine machinery and equipment Repair and maintenance of ships and boats
Maritime transport	Sea and coastal passenger water transport Sea and coastal freight transport Renting and leasing of water transport equipment

Source: European Commission (2019).

belt of Indian Ocean (Roy, 2017). In a study by OECD (2016), a variety of industry dynamics were explored and evaluated to find out the changes and evolution of the ocean economy in 2030. That report explored the different aspects of the prospects of the ocean economy in the world. It was identified that there are few emerging industries to generate revenue in the ocean economy. The following table shows that findings along with the established industries in the ocean economy:

Table 2: Selected ocean-based industries

Established industries	**Emerging industries**
Capture fisheries; Seafood processing; Shipping; Ports; Shipbuilding and repair; Offshore oil and gas (shallow water); Marine manufacturing and construction; Marine and coastal tourism; Marine business services; Marine research and development and education; dredging	Marine aquaculture; Deep and ultra-deep-water oil and gas; Offshore wind energy; Ocean renewable energy; Marine and seabed mining; Maritime safety and surveillance; Marine biotechnology

Source: OECD (2016)

The size of Blue Economy is very promising, as it is valued at around USD 1.5 trillion per year, covering 80% of worldwide trading. 350 million jobs are strongly linked with fisheries. Aquaculture is the fastest-growing business in the world which supplies about 50% fish for human consumption. In addition to that, Blue Economy also entails many promising sectors including renewable energy, aquaculture, seabed extractive activities and marine biotechnology and bioprospecting (Chowdhury, 2019). A Blue Economy aims for a balance between economic opportunities and the environmental limitations of using the ocean to generate wealth (World Bank, 2018).

As reviewed in the earlier works of literature, there are many sectors in a Blue Economy.

These sectors are available in Bangladesh but are not researched for further development and for identifying the new sectors as stated in the OECD (2016) research. Besides, the six established sectors in the Blue Economy and their subsectors as identified by the European Commission (2019) are not explored well in Bangladesh by scholars and researchers.

Research Methodology

This study incorporates historical and secondary data for analysis and evaluation of the drivers of revenue generation for the CSP as a part of the blue economy of Bangladesh. Descriptive statistics, tabular analysis and graphical trend analysis are the tools for preparing the analysis and the research findings of the study. Descriptive statisticsare used to present the current scenario of the blue economy in Bangladesh. The study has confined itself to the CSP and its operations. This study is based on historical study ranges from 2009 to 2018.

In this study, the drivers for revenue generation in the Blue Economy of Bangladesh are mainly export and import operations as well as revenues from containers and vessels. Apart from these functions, CSP may increase its revenue by reducing its expenses, so the expenditure accounts are also beinga driving factor for income generation. The data used in this studyaremainly collected from different websites and research articles. The CSP statistical record and other studies of different international agencies were found very useful for the study.

Research Findings and Analysis

CSP is one of the oldest ports in the region. In this part of the study, the drivers for revenue generation for CSP are identified along with the global practices and potentiality of sources.The higher revenue generated by the CSP was BDT 2,661.76 crore in 2017-18 fiscal years. It is noticed that the minimum revenue was BDT 1,529.92 crore. Considering the number of containers and vessels, the maximum figure is 2,705,909 (containers),

Table 3: Descriptive statistics of drivers of revenue generation at CSP

	Minimum	Maximum	Mean	Std. Deviation
Total Revenue of CSP	1529.92	2661.76	1958.58	437.30
Operating Expenses	469.04	1117.87	752.7329	259.48979
Admin & Gen. Expenses	181.18	288.45	238.8543	44.73
Import (MT)	36,184,936	78,050,447	52,605,436.85	15,667,952
Export (MT)	4,716,374	6,997,465	5,804,747.85	839,440
Container (TUEs)	1,343,408	2,705,909	1,945,645.85	510,028
Vessels	2265	3664	2754	497

Source: Author's own calculation

3,664 (vessels). Besides the income-generating sector, expenses are also important to increase revenue. In the following table, the descriptive statistics show the minimum and maximum value observed in the last seven years.

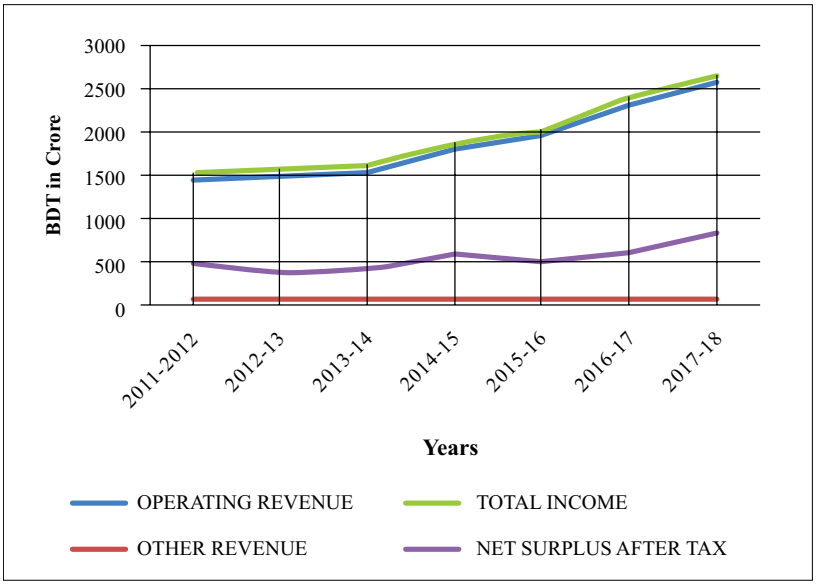

Figure 1: Revenues of CSP in the last five years (CPA, 2019)

The revenue of this port has been increasing since the fiscal year 2011-12. In the following figure, the trend of the revenues is shown. The trend of net surplus after tax is also upward

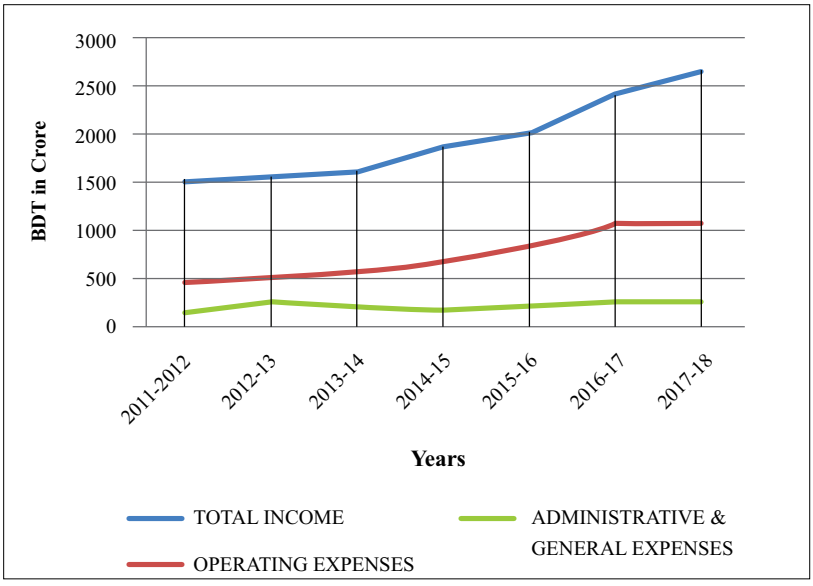

Figure 2: Income and expenditures of CSP (CPA, 2019)

moving and growing over the last seven years. Operating expenses and administrative and general expenses are the major drivers for boosting revenue.

If the expenses can be reduced, it will augment the revenue. The CSP has three major types of expenses which are operational expenses, administrative and general expenses. These expenses can be minimised by employing skilled and trained employees. Currently,

Table 4: Export, Import and other income sources of CSP

	Import (MT)	**Export(MT)**	**Container (TUES)**	**Vessels**
2011-12	36184936	4716374	1343408	2265
2012-13	38312028	5059640	1468713	2318
2013-14	41960170	5338377	1625509	2498
2014-15	48941406	5839986	1867062	2566
2015-16	58324786	5971634	2189439	2875
2016-17	66464285	6709759	2419481	3092
2017-18	78050447	6997465	2705909	3664

Source: CSP annual report (2019)

the scope of training facilities and frequency of skill development programmes are not adequate to expedite the growth of seaport operations in Bangladesh.

In the following table, the amount of import and export in metric tons (MT) handled by

Table 5: Annual gross value added from Bangladesh's Blue Economy

Ocean economy industry/service (Nominal USD Millions)	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Marine capture fisheries	664.00	777.00	786.23	907.49	1,037.49	1,167.79
Marine aquaculture andshellfishfarming (shrimps and crabs)	78.65	92.48	99.76	122.05	144.99	163.20
Sea salt production	123.20	124.11	145.51	184.35	195.45	197.88
Crude petroleum extraction	22.42	23.65	23.69	25.16	26.40	30.55
Natural gas (liquid) extraction	971.13	948.62	919.94	986.25	1,041.87	1,174.58
Maritime freight transportation	307.90	319.55	295.81	300.33	327.15	375.58
Maritime passenger transportation	617.61	659.27	606.66	663.14	720.69	788.35
Port and harbor operations	104.95	103.29	135.57	145.32	172.37	202.17
Shipbuilding and repairing	110.32	114.77	106.68	109.58	108.59	387.06
Ship breaking	127.39	130.80	134.27	136.83	138.31	138.21

Sources: World Bank (2018).

the CSP, is summarised. The table-4 shows also the container and vessel numbers which are also the source of revenue for the port. These are the very important driver of revenue,

and also a major source of supplying raw material for the businesses in Bangladesh. A high level of engagement of seaport operations is prevailing in the import and export management through containers and vessels.The export operation of the seaport enhances the economy by bringing more foreign currency which is very crucial for uplifting the economic growth in Bangladesh. Besides, the import can inject raw material for faster business operation and its growth.

In the last few years, Bangladesh has found a variety of sectors of Blue Economy, which may add to the national income. Most of the income of the Blue Economy usually comes from the ports in Bangladesh. The most important and biggest port of Bangladesh is Chattogram Sea Port (CSP). In the following table, the annual gross value added by the Blue Economy for the year 2009 to 2015 is shown.

The major contribution of Blue Economy sectors comes from natural gas (liquid) extraction and marine capture of fisheries. From 2009 to 2015, most revenues in the form of value addition come from these two major sectors of Blue Economy.

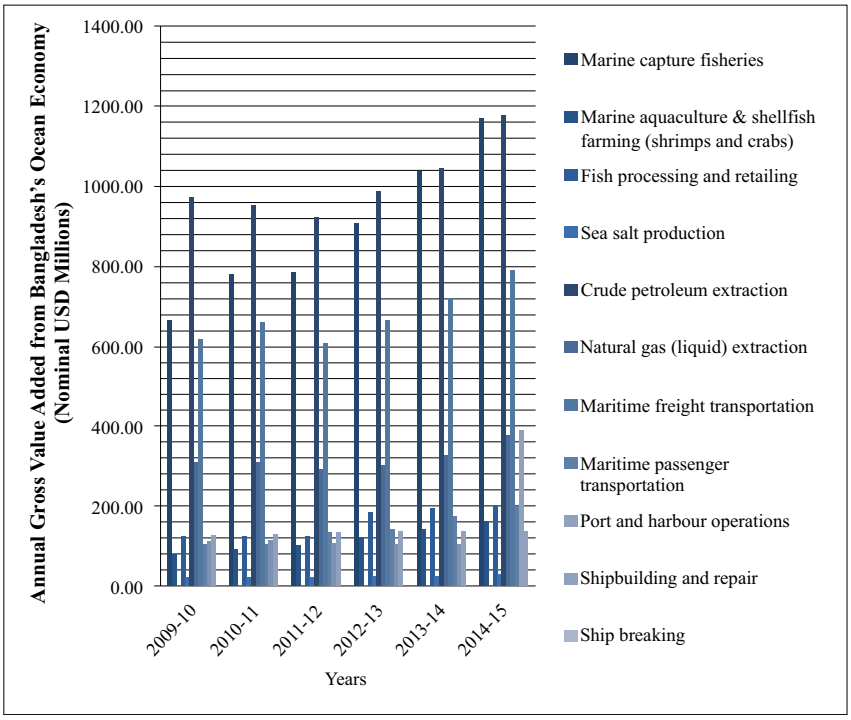

Figure 3: Annual Gross Value Added from Bangladesh's Ocean Economy (World Bank 2018)

The above figure shows the sectors of the ocean economy in Bangladesh. Natural gas (liquid) extraction and marine capture of fisheries sectors are always the top contributors for value addition in Bangladesh's Blue Economy. Besides these two sectors, maritime passenger transportation, shipbuilding, and repairing, maritime freight transportation are also encouraging. Apart from these sectors, marine aquaculture, marine biotechnology,

maritime safety and surveillance may become more promising and revenue-generating sectors in the Blue Economy of Bangladesh.

Recommendations on Revenue-generating Drivers at CSP

As it is found in the research findings and analysis of this study, there are few promising areas for generating revenue from the sea port's operation. The recommendations on these issues are as follows:

- There are varieties of operating expenses that reduce the profitability of the seaport operation. The management should be more efficient to reduce the expenses. The efficiency can be availed by training and other skill development programmes.
- In a Blue Economy, the major contribution comes from natural gas (liquid) extraction and marine capture of fisheries. These sectors should be empowered along with other promising sectors like marine living resources, maritime transport etc.

Conclusion

This research could be expanded to other areas of the Blue Economy of Bangladesh, though the data for analysis were not readily available. So, it will be more resourceful if the scope of the study widens by doing further research. As analysed and evaluated in the previous sections, CSP has a few regular sectors for revenue generation, such as maritime passenger transportation, maritime freight transportation, export-import of goods and commodities, etc. There are few other potential sectors that may become a major driver of revenue in the Blue Economy. Candidates to that are marine aquaculture, marine biotechnology, maritime safety and surveillance etc. Bangladesh should work on enhancing the service of its industries based on maritime resources whichwill eventually be contributed to the Blue Economy. To increase the revenue and to get the highest benefit of the Blue Economy, the government and private sector should work together. This effort may enforce rules and regulations for the effective use of ocean resources in Bangladesh. Expenditure control can also enhance the revenue of CSP. Proper planning and policies can expedite the growth of the Blue Economy in Bangladesh. The effort should balance between proper planning and effective execution.

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