



Approaches to Deep Sea Fishing for Sustainable Economic Development of Bangladesh: Challenges and Possible Solutions

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Abstract

Bangladesh has an impressive track record of growth and poverty reduction. It has been among the fastest growing economies in the world over the past decade, supported by a demographic dividend, fisheries and livestock production, and stable macroeconomic conditions. Deep sea fishing can contribute to the sustainable economic development. Previous studies related to the subject are mostly on blue economy where the contribution of deep sea fishing to our national economy was highlighted. This present research was conducted through the active participation of fishery related personnel (180) including a number of stakeholders of the country. The study was conducted in mixed-method research approach. To conduct the study, a questionnaire, a Focus Group Discussion (FGD), and in-depth interviews were administered to collect relevant data. The SPSS-25 version software for Windows was used for data analysis of the study. The major findings of the study reveal that there is a significant lack of development of deep sea fishing activities which is the main hindrance of getting outcome from this sector. The study highlights how deep sea fishing contributes sustainable economic development; the study also points out the existing challenges; and recommends the ways forward.

Keywords: *Deep sea fishing, sustainable economic development, fishing sector of Bangladesh, deep sea fishing activity model.*

1. Introduction

After settlement of its maritime boundary disputes, Bangladesh is now legitimately exercising her right over 1,18,813 square km of sea area. The avenue of exploring and exploiting the potential resources within this vast sea area is a hope for the future development of Bangladesh's economy. In this context, fishing activities, in particular deep sea fishing, offers a great potential to achieve maximum benefit from the sea resources (Hossain, 2017). Sustainable economic development of Bangladesh refers to a rate of growth which can be maintained by our country without creating other significant economic problems, especially for our future generations. There is clearly a trade-off between rapid economic growth today, and growth in future. Bangladesh is trying her best to ensure steady and sustainable economic growth continuously.

Deep sea fishing can contribute to the sustainable economic development. Recently number of fishing zones in EEZ of Bangladesh has been discovered. Such information can serve as the source of further discovery of fishing in the deep sea. The government has acknowledged this fact and started taking initiative giving for the development of deep sea fishing sector. To capture target amount of fish we face few challenges. These challenges are affecting our sustainable economic

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development. The challenges include- insufficient investments on deep sea fishing, competition in international fish market, adopting conventional method and lack of trained personnel, illegal fishing by other states etc. These challenges can be minimized easily if the government attracts the investors by providing them suitable conditions of fishing, acquiring modern capable ship for deep sea fishing by both government and non-government investors, acquiring modern capable deep sea survey ships, ensuring training of fishermen on modern fishing technology and implementation of blue economy policy at Bay of Bengal etc. This research paper highlights the scope that the contribution of deep sea fishing for the sustainable economic development of our nation whilst also pointing out the associated challenges and recommends ways forward.

1.1 Research Question

The general objective of the research was to explore the economic importance of deep sea fishing for Bangladesh. To accomplish the study three research questions were set. The following research questions guided this study:

- 1) What are the opportunities of deep sea fishing for sustainable economic development?
- 2) How deep sea fishing can contribute towards sustainable economic development of Bangladesh?
- 3) What are the challenges of deep sea fishing of Bangladesh that hindering our sustainable economic development?

2. Literature Review

During the study, a significant amount of literature was reviewed related to the prospect and opportunities of deep sea fishing for sustainable economic development of various countries of the world including Bangladesh. Hossain (2018) described in their publication 'The Prospects of Blue Economy to Promote Bangladesh into a Middle-Income Country' about the importance of blue economy for our country. From the publication few important aspects can be derived like: the importance of sea based economy for the development of Bangladesh, the contribution of living and non-living resources in the economy and the challenges of blue economy activities. Yearbook of Fisheries Statistics of Bangladesh 2017-2018, Dhaka: Department of Fisheries (Yearbook of Fisheries Statistics of Bangladesh 2017-2018) shows that, Bangladesh produced 43.84 lakh MT fish in FY 2018-19. In last 12 years the average fisheries growth is about 5.01 % and it is with the line of vision 2021 for fishery production. Our production can meet about 60 % of our need of daily animal protein, whereas, the marine fishing is providing only 15 % of the total production. Besides, Bangladesh earns about taka 425 crore from fishery products in the year 2018-19. Fishery sector is a big hope for our national economy. Development of deep sea fishing sector is a great hope for our economy.

According to the report of [Mohammad Al-Masum Molla](#) published in the Daily Star on 08 January 2021 where he mentioned about the contribution and growth rate of fish in Bangladesh, he mentioned marine fisheries sector is the weakest part of our fish production. The growth rate of marine fish is only 1.7 percent whereas the other sectors like native fish growth rate is 11.01 percent and farm fish growth rate is 5.89 percent. From the data it is evident that, the marine fisheries sector is lacking behind other sectors of fishing and needs to be developed (The Daily Star, January 8, 2021). Blue economy-Development of Sea Resources of Bangladesh, is one of the important guideline for our blue economy activities. In this paper, the author Rear Admiral Md. Khurshed Alam (Retd) mentioned the importance of deep sea fishing as a part of our blue economy activities. However, our capability of catching fish below 50 m depth is very limited. He also mentioned about the scope of increasing marine catch by adopting modern fishing method.

Fisheries are an important source of economic activity and employment for the countries bordering the Bay of Bengal (BoB). The total number of people employed in the fisheries sector in



the region is close to 2 million. Average production of last 10 years (up to June 2018) was 5.26 percent. The Food and Agriculture Organization (FAO) Report 2019 shows the statistics which indicate the gross production of fish in the recent past. Analysis of the report indicates that the capture ratio of fish is gradually increasing and is a positive sign for the country (FAO Report on capture of fish, 2019).

Our total marine waters cover an area of 165,887 sq km whereas the area of fishing ground of Bangladesh is 14,600 sq km (DOF, 2020). These are divided into four major fishing grounds. Most of the part of this area is underutilized or unutilized due to various limitations of our fishery sector (Uddin, 2012). Our fishing fleet is mostly operating within 100 m depth. According to MFO report of 2020 at present the following fishing fleet is engaged in fishing activities in our territory (Report on fishing trawler of Bangladesh by MFO May 2020). Sustainable economic development means a rate of growth which can be maintained without creating other significant economic problems, especially for future generations. There is clearly a trade-off between rapid economic growth today, and growth in future. The following diagram of Hussain, M. G (2017), Major opportunities of blue economy development in Bangladesh expresses the importance of marine fisheries in blue economy activities (Hussain, 2017).

3. Research Methodology

The Mixed method research approach was applied for the purpose of the study. A questionnaire was used to collect required data from different level people related to deep sea fishing. Total number of participants for questionnaire survey was 180 who all were fishing trawler sailors. They were selected randomly from good numbers of people. The quantitative data collected from the questionnaire participants was analyzed through SPSS software as quantitative method. Microsoft Excel was also used as a means of data analysis. There were 10 randomly selected officers of various fishing trawlers for a Focus Group Discussion (FGD). The FGD was conducted on the Zoom Platform for the convenience in the COVID Pandemic. Participants' views and opinions were considered as the field level experience. Besides, in-depth interviews with 4 captains of different fishing trawlers were also conducted over telephone and messenger. The researcher asked same questions to each of the participants. The qualitative data obtained from the FGD and in-depth interviews were analysed through constant comparative method. The remarks and views of the captains of the ships during various interview sessions were constantly compared. Due to COVID 19 situation there was some limitation for collecting data. Graphic presentation is presented along with some explanation for easy understanding of the readers.

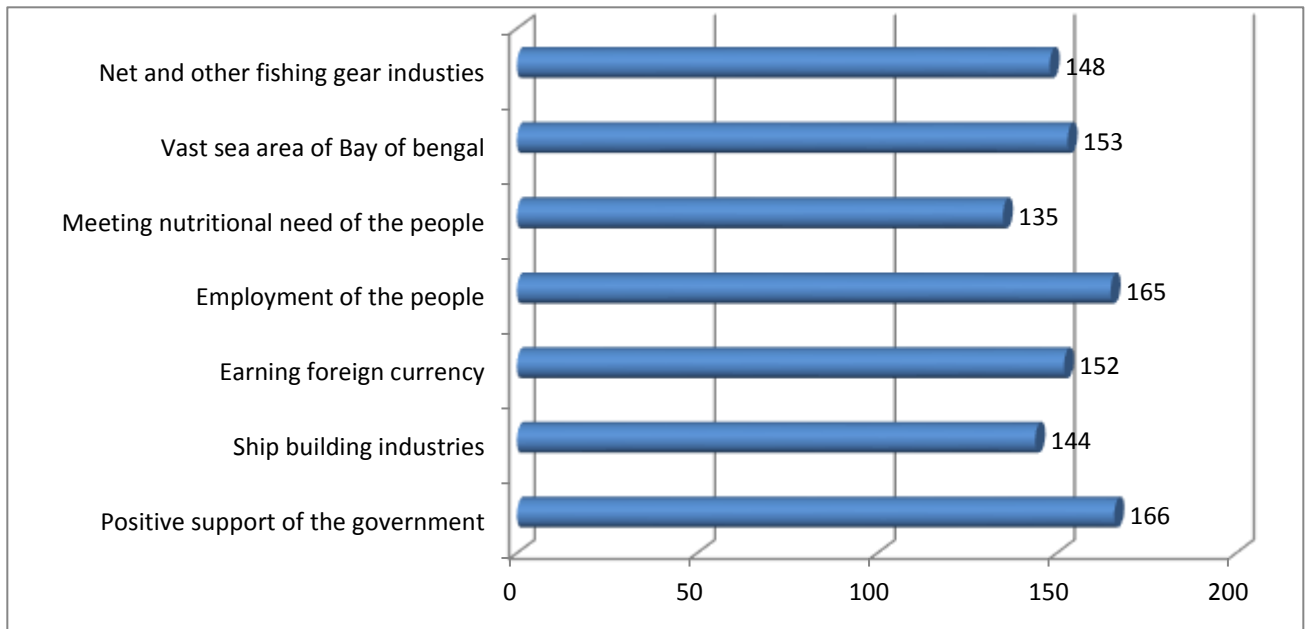
4. Findings and Discussion

The study triangulated the findings of the study derived from the different instruments. After the in-depth study on subject matter the answer of the research questions were found. From the answer of the questionnaire, FGD, and interview few aspects of deep sea fishing, its economic importance, and its contribution to our national economy, its opportunities, the challenges, and the way out of the challenges are derived. The research could answer all the research questions. Finally the study could propose a model for our future deep sea fishing. That can contribute for sustainable economic development of Bangladesh. The findings of the study are presented in the following subsections:

4.1 Opportunities of Deep Sea Fishing for Sustainable Economic Development

The sea based economy is popularly known as blue economy. Fishery, in particular deep sea fishing, is a new horizon of our future hope. A survey was conducted through a questionnaire to experts on fishery and people working in fishing sector of Bangladesh (about 180 people).

Further, focused group discussions (FGD) and telephone interviews of expert personnel were also conducted. Most of them highlighted few common areas of our opportunities of deep sea fishing for sustainable economic development. The following bar chart shows various aspects of opportunities of deep sea fishing for sustainable economic development of our country.



Bar chart 3: Opportunities of Deep Sea Fishing for Sustainable Economic Development

There are number of fishing gears and nets are used for fishing in our inland and marine water. Among them gill nets, seine net, set bag net, push net, trammel net and hook and line etc are mostly used for fishing in shallow water (within 10 to 30 meters depth). About 92 percent of the responder of the survey believes that, for exploitation and exploration of deep sea fishing a large amount of fishing gear and net will be required. That will create job market for many people. Out of 180 participants of the survey about 153 opined that, vast sea area of Bay of Bengal is an opportunity for our sustainable economic development. Besides, Hossain (2017), in his publication ‘Blue economic development in Bangladesh: A policy guide for marine fisheries and aquaculture’ described how deep sea fishing can contribute to our national economy. During FGD, most of the participants highlighted the significance of our vast sea area. Our sea is resourceful and it is a blessing for us. We need to utilize the natural gift with maximum effort, to achieve maximum benefit from the sea.

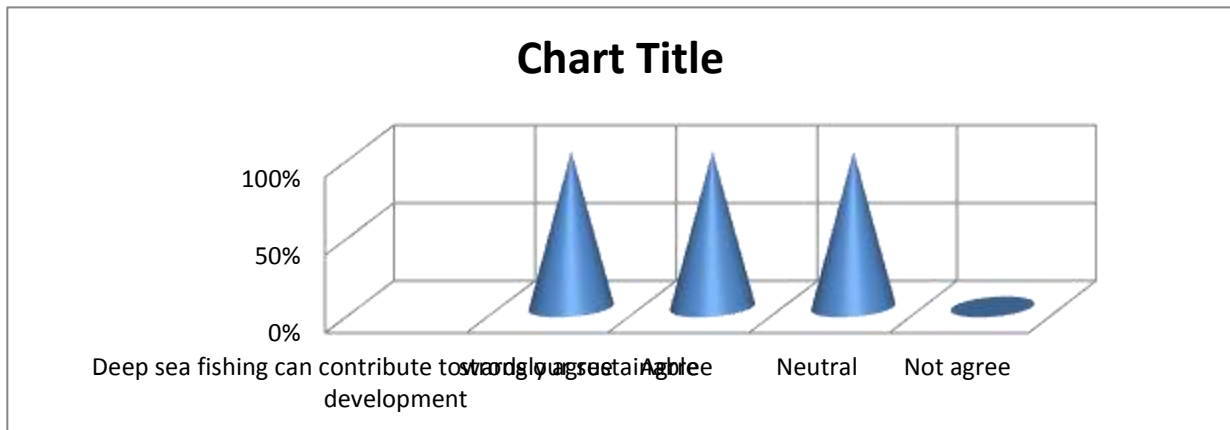
Food is one of the most basic needs of people. Fish are one of the sources of our nutrition. Fish supplements Bangladeshi people’s about 60 percent daily animal protein (DoF,2016). Out of 180 respondents about 135 also think that sea fish can contribute to meet the nutritional need of our people and thereby can contribute to our sustainable economic development. Most of our fish processing and fishing related industries are situated in sea and river port areas. Out of 180 respondents of this study, 165 agreed that, deep sea fishing is a potential sector where people can be employed. More than 18 million people of our country depend on fisheries sector. (FRSS, 2017).Among them about 1.4 million women are depending on fisheries (fishing, processing, farming and fish handling (BFTI, 2016, p-1215). Another survey report shows that more than 80 percent of laborers engaged in the fishery sector and fish processing industries were women (DoF,

2015).

About 85 percent of the responder also think that, by capacity building in deep sea fishing we can export big amount of sea fish. That will be one of the major income sources of our foreign currency in future. In the fiscal year 2017-18 Bangladesh exported 68,935 tons of fish with worth of 514 million USD (Yearbook of fisheries statistics of Bangladesh 2017-18). The capacity of our marine fishery, in particular deep-sea fishing, is almost nil. On the other hand our ship building industries are the potential sector of our blue economy. About 80 percent respondents of the survey also think that indigenous ship building by our local shipbuilding industry can contribute to our economic growth. The government is pursuing the local private sector businesses and foreign investors to invest in this sector. Bangladesh has already taken a 240 million USD project from World Bank (WB) for sustainable development of marine and coastal fisheries (Khan, 2020). These positive attitude and support of the government is creating opportunities to achieve sustainable economic development through deep sea fishing. Out of 180 participants 148 is in a view of positive government support.

4.2 Contribution towards Sustainable Economic Development

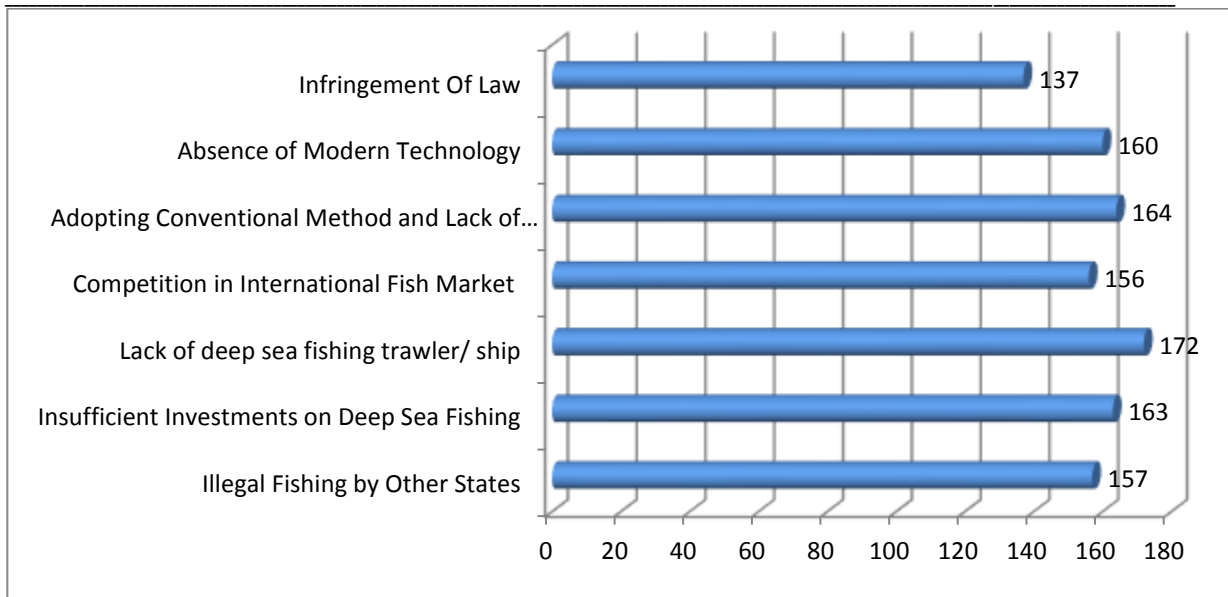
The key questions were asked to the respondents about the significant contribution of deep sea fishing towards the sustainable economic growth of Bangladesh. About 90 percent of them are agreed that, deep sea fishing can contribute to our sustainable economic development. During FGD, the participants mentioned various aspects like: the contribution of earned money from the sector to our economy, various fishing related business and its contribution to the economy, government interest etc. Finally, they are in a view that, deep sea fishing sector contributed to our national economy and as a potential sector it will continue to contribute. The following data depicts the opinion of the responder on these issues (online survey).



Bar chart 4: Contribution of deep sea fishing on Sustainable Economic Development

4.3 Challenges to Deep Sea Fishing for Sustainable Economic Development

Deep sea fishing is a potential sector for the future economic development of Bangladesh. However due to various reasons this sector is yet to flourish as expected. From the study of various books, journals, focus group discussion (FGD) and survey report of the questionnaire, few common aspects can be marked as the challenges of deep sea fishing which hindering the sustainable economic development of Bangladesh. Here it is mentionable that, more than 80 percent of the responder thinks about the following major challenges of this sector. The challenges are:



Bar chart 5: Challenges to Deep Sea Fishing for Sustainable Economic Development

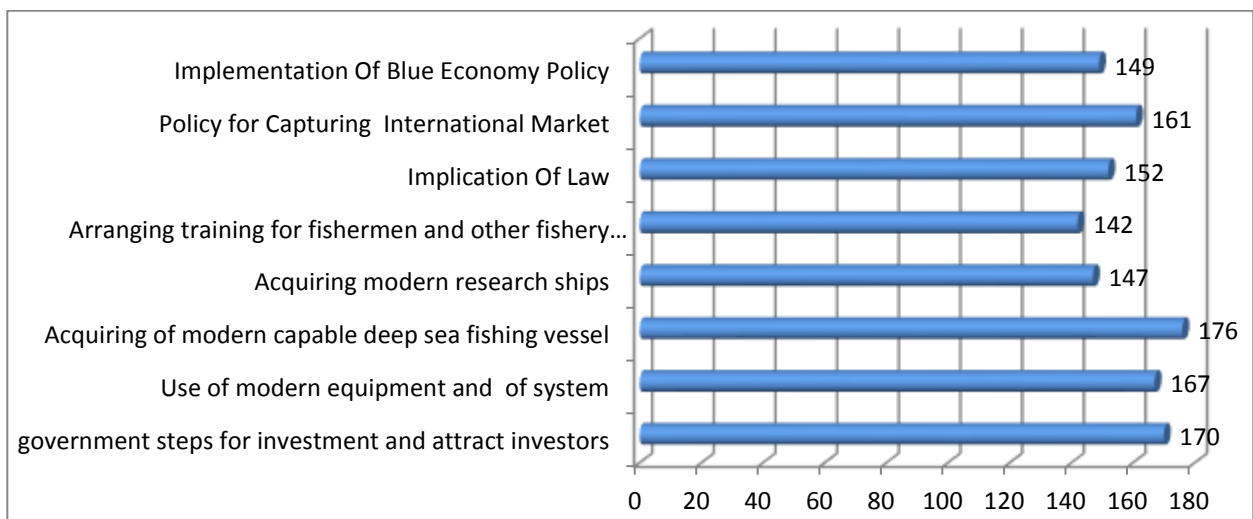
The abrupt and inconsiderate fishing culture (catching fish during harvest time, catching rare species, catching without discrimination of size etc.) of these trespassers will hamper the existence of many species of fishes in future. About 87 percent responder also think that illegal fishing by other states is one of the major challenges of deep sea fishing which will have negative impact on our sustainable economic development in future. Though Bangladesh navy and Coast Guard are apprehending many of these illegal fishing boats, there is no improvement of the situation. The present deep sea fishing capacity of Bangladesh is almost nil. About 90 percent responder also thinks that this sector required sufficient number of investors. The lack of investor or investment in the sector is another hindrance of the growth of the sector.

According to the report of fishery department of Bangladesh (published on 17 February 2020), the present state of purpose-built fishing trawlers is only 255 and are somehow capable of fishing up to maximum 200 meter depth (Fishery department of Bangladesh report 2020). None of them are capable of deep sea fishing. There by deep sea and Pelagic and resources are still untapped. About 96 percent responder of the survey also thinks that, this is another major problem of our sustainable economic development. At present the fish Bangladesh supply is only from our shallow water fishing. On the other hand our neighbors are capable of deep sea fishing. The continuous supply capability of other nation is creating a competition in international fish market. About 87 percent responder thinks that, with existing capability grabbing international market will be a big challenge for Bangladesh in future.

Bangladeshi fishermen are following age old conventional method of fishing. About 91 percent respondents of the survey opined that, using of conventional method is one of the major causes of our less income from the fishery sector. At present Bangladesh has no deep sea capable ship. The only marine fishery research ship of Bangladesh is not enough to cover the vast sea are of us. About 89 percent responder of this survey also thinks that, absence of modern technology for fishing is one of the major causes of less production of our deep sea fish. Not only the foreign fishermen but also our local fishermen are breaking the fishery law. Especially during harvest period while restriction of various species of fishing is ban. About 76 percent respondents of the survey opined that infringement of law is one of the major problems of our fishery sector which is a hinder for our sustainable economic development.

4.4 Way out of the Challenges to Ensure Sustainable Economic Development

Out of 17 sustainable development goals of Bangladesh “Life Below Water”(SDG-14) is one of the major goal. Fishery is one of the major contributors to the economy. From responder of the survey, FGD and study of various books and publications, few common ways are considered as the remedial actions of our existing challenges. Following is the response of the survey responder regarding the way out of the challenges:



Bar chart 6: Way out of the challenges to ensure sustainable economic development

Bangladesh government has keen interest in blue economy sector. In particular deep sea fishing, from April 2016, the government started issuing licenses for vessels to catch pelagic and tuna fish beyond 200 meter depth (Parvez, 2019). The government also ready to take some risk by investing with private investors. Out of 180 responders about 170 thinks that, governments steps for investment and attract investors is a major step to overcome our existing challenge of deep sea fishing. About 88 percent of the responder thinks that use of modern equipment and system can significantly improve the fishing capacity of our country. The increased volume of fish will contribute to our total fish production. Thereby use of modern equipment and system can support to sustainable economic development of our country. About 96 percent responder of the survey thinks that, for sustainable economic development of our country capable sea going vessel is a need of time. That will increase the capacity in manifold. System Based Ship Design (SBSD) is one of the methods through which both modernization of existing vessel and new ship design can be made within affordable expenditure (Uddin, 2016).

Bay of Bengal is full of bio diversity. Holistic survey in the Bay of Bengal can provide the correct data about the species, size, volume and fishing zone. The actual data of fishing fleet will ensure the proper and methodical catch. That will develop our deep sea fishing capability and contribute to our sustainable development. About 81 percent responder also felt the importance of acquiring modern research ships for our sustainable economic development. To achieve optimum output from the fishery sector, training on modern equipment; method and system became esteem need for the fishermen. About 80 percent responder also felt the importance of training for the sustainable economic development of Bangladesh. After implementation of law the production rate of hilsa could increase from 2 lac ton to about 5 lac tons in last 15 years(2002 to 2017). The export value is directly contributing to our national economy. About 82 percent responder also thinks that,

implementation of law is a remedial measure of solving the problems of our deep sea fishing. The survey report shows that, policy for capturing international fish market can enhance our capacity of earning foreign currency. Out of 180 respondents, 163 are in the opinion of strong policy for capturing international market can increase our fishing capability. About 80 percent responder viewed that; implementation of blue economy policy of the government can develop the capability of deep sea fishing. That can contribute to our sustainable economic development process.

5. Proposed Model

However, along with the above mentioned actions some other steps may be taken for enhancement of the deep sea fishing capability of Bangladesh. The other actions may be creating central data base for deep sea fishing activities, encouraging women in deep sea fishing industries, establishment of modern fish processing industries and easy loan policy for the deep sea fishgig entrepreneur etc. From the research the final shape of our future deep sea fishing activities for sustainable economic development of Bangladesh can be described as per the following figure:

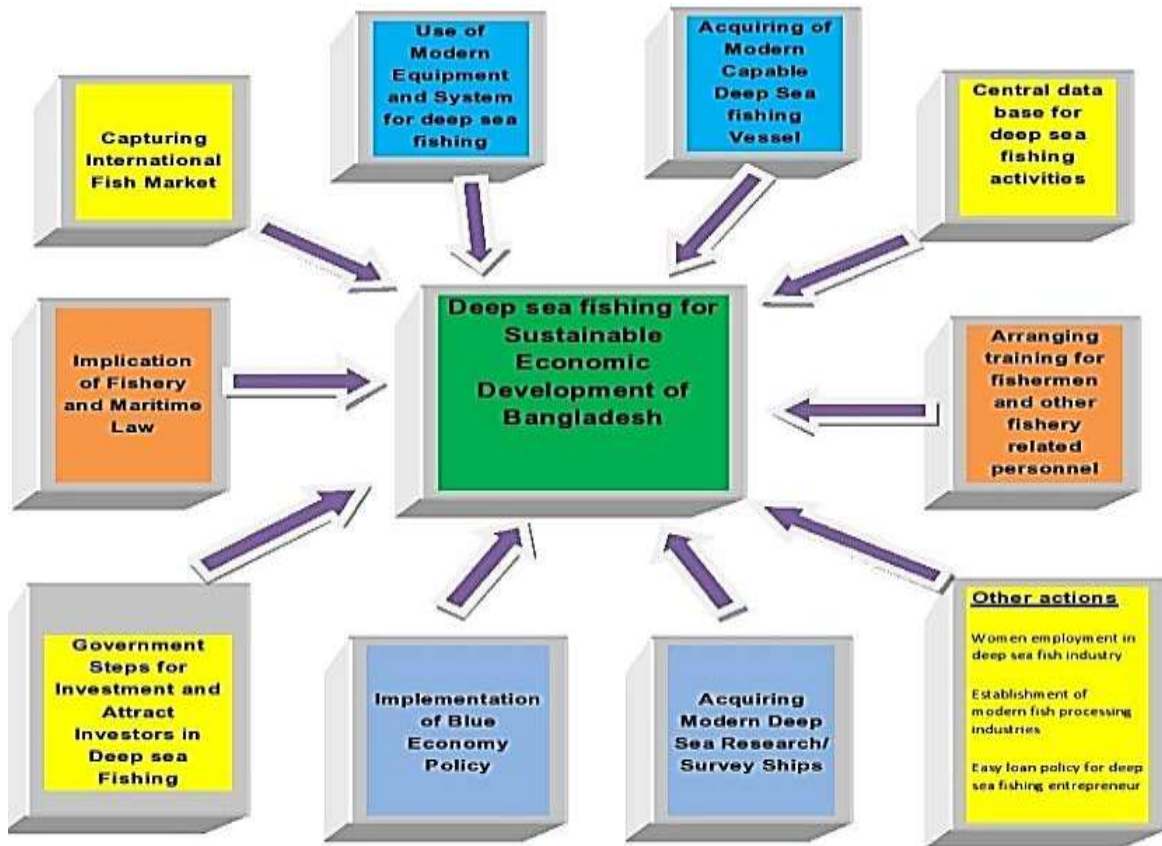


Figure: Future actions in deep sea fishing sector for Sustainable Economic Development of Bangladesh-(Md Mojibur Rahman)

Figure 10 : Deep sea fishing activities model for sustainable economic development of Bangladesh(Author’s self-construct)



6. Conclusion

Bangladesh has huge of sea resources abandoned. Along with minerals and hydro carbons, numbers of species of fishes are in our water. Due to various constrains like: insufficient investments on deep sea fishing, competition in international fish market, adopting conventional method and lack of trained personnel, illegal fishing by other states etc. we get very less benefit out of our deep sea fish resources. To overcome these issues both government and non government actors need to take few steps like: government may attract investors by giving various favourable conditions of fishing, acquiring modern capable ship for deep sea fishing by both government and non-government investors, acquiring modern capable deep sea survey ships, ensuring training of fishermen on modern fishing technology and implementation of blue economy policy at Bay of Bengal etc.

Bay of Bengal contributes more than 6 billion USD annually to Bangladesh's economy. This sea based economy is popularly known as blue economy. According to the Department of Fisheries, Hilsa production has increased by 66 percent in the last 10 years with the production rate increasing at close to 10 percent per year. Fishery, in particular deep sea fishing, is a new horizon of our future hope. The untapped fishing grounds can contribute significantly to our sustainable economic development. Though our present deep sea fishing capacity is very limited, however, we are expecting the improvement of the situation. The Bay of Bengal is suitable for various species, among which fish species are about 475 types, sharks are about 53 types, and shrimps about 36 types (Hasan, 2020). Moreover, some uncommon species of fish migrate from different parts of oceans during the harvesting period. Thus the scope for finding large fish stock in our sea area is high. Our opportunities in deep sea fishing sector are: meeting nutritional needs of the people (indirect contribution), employment of people, importance of BD in global community (indirect contribution), earning foreign currency, and contribution to the national economy and positive support of government etc.

There are number of elements affecting the sustainable economic growth of our country. Few mentionable are micro farming, fishery exploration, water resources innovations, solar energy expansion, mineral exploitation etc. One important focus of sustainable development is to ensure balanced distribution of benefit for future generations. The exploration and exploitation should be in a manner that it should not be only to meet the present requirement. Rather, it should be steady and should last for long time which will ensure the share of future generations too. Planned deep sea fishing can be a key element of our sustainable economic growth. Bangladesh has emphasized on the blue economy aspect. Exploitation and exploration of living and non-living resources in particular marine fisheries sector in a planned and modern way is one of the vital elements of our sustainable economic development.

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