

BLUE ECONOMY BEING A PART OF GREEN ECONOMY IN BLUE WORLD AS AN ALTERNATIVE OR DIVERSIFIED SUSTAINABLE LIVELIHOOD STRATEGY FOR THE DEVELOPMENT OF COASTAL RURAL REGIONS IN WEST BENGAL

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Abstract: The major part of coastal areas of West Bengal is rural in nature. Eastern part of the coast in the South 24 Parganas is mostly uninhabited due to the presence of dense mangrove forest. There is only one township (Haldia) located on the coast of West Bengal. The major activities of the coastal communities are rural in nature. These activities include agriculture, fishing, collection of minor forest produce in Sundarban, dairy and poultry development activities, small scale retail trading and service sector activities. In and around Haldia, many members of the coastal population are employed in the organized industries and in various trading activities or service oriented professions. In and around Digha, the local people are engaged in various professions related to tourism inclusive of the transport sector employment. Self-employed rural artisans of various handicraft products are a small group having a difficult livelihood (ICZM Project, 2012). Therefore, an integrated, multidimensional and holistic approach to poverty eradication efforts is crucial to preserve and enhance the livelihoods of these rural poor. Thus a study is undertaken in coastal rural areas of West Bengal to explore the feasibility of blue economy being a part of green economy in blue world for rural development as a livelihood strategy in order to provide opportunities for improvement of living condition in a sustained way. The green economy in blue world or the blue economy is the integration of water based economy including inland water body and ocean economy development with the principles of social inclusion, environmental sustainability and innovative, dynamic business models.

Key words: Livelihood strategy, rural development, Green Economy, Blue Economy, environmental sustainability

1.0. INTRODUCTION

In the rural coastal region of West Bengal, majority of the population do not have a sustained living condition compare to other parts of the state. The survival need of the poor people in this area has forced them to degrade the environment. Lack of supplementary or alternative livelihood and income generation, lack of knowledge as well as inadequate infrastructure to use natural resources properly for obtaining maximum economic benefits from them is the main reason for their poverty. Thus a study is undertaken in the rural coastal region of West Bengal to explore the feasibility of blue economy for rural development as an alternative or diversified sustainable livelihood strategy in order to provide opportunities for improvement of living condition in a sustained way.

2.0. REVIEW OF LITERATURE

2.1. Blue Economy

The blue economy is sustainable use of ocean resources for economic growth, improved livelihoods and jobs and ocean ecosystem health (World Bank Group 2017).

2.2. Green Economy

The green economy is defined as an economy that aims at reducing environmental risks and ecological scarcities, and that aims for sustainable development without degrading the environment (Wikipedia 2018).

2.3. From Green to Blue Economy

At the United Nations Rio+20 world summit, Green Economy is viewed, in the context of sustainable development, as the type of economy that should contribute to eradicating poverty, as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating new opportunities for employment and decent work for all, while maintaining the healthy functioning of the earth's ecosystems (Claudio 2013).

A green building, through adoption of energy efficiency measures, is an example of a green economy initiative. In addition to green buildings, the other main sectors in a green economy are renewable energy, clean transportation, water management, waste management, and natural resource management (Claudio 2013).

On the way to Rio+20, the Pacific Small Island Developing States (Pacific SIDS) started promoting Blue Economy, which is focused on the marine environment. For the Pacific SIDS, green economy is a blue economy that prominently features oceans, which account for almost 71 percent of the earth's surface. Some concerns of the Pacific SIDS are increasing their share of benefits from the use of their marine living resources and building the resilience of marine ecosystems to the impact of climate change and ocean acidification (Claudio 2013).

There is general acceptance among various countries that nature must be at the center of a green economy. Thus, building the resilience of nature, improving governance of natural resources, and mainstreaming ecosystem values (such as, building ecologically sound enterprises) must be prominent in a green economy plan (Claudio 2013).

The green economy has been transformed to a new concept of blue economy, which is now attracting the interest of creative entrepreneurs in various countries.

Like green economy, which is not limited to the green ecosystem, this blue economy is not limited to the marine ecosystem. It is the economy that responds to the basic needs of all with what we have. As such, it stands for a new way of designing business: using the resources available in cascading systems, where the waste of one product becomes the input to create a new cash flow (Steffen 2011).

2.4. Alternative/Diversified Livelihood

Alternative/diversified livelihood is the process by which rural households construct an increasingly diverse portfolio of activities, the assets through natural, physical, human, social as well as financial capitals in order to survive. It also comprises the access like institution, social relation and organization to these that together determine the living gained by the individual or household to improve their standard of living (Ellis 2000).

Alternative/diversified livelihood can assist households to insulate themselves from environmental and economic shocks, trends and seasonality - in effect to be less vulnerable. Alternative livelihood is complex and strategies can include enterprise development (Nath [Bhadra] and Khan 2015).

Alternative/diversified livelihood simply means adding new activities. These can include agricultural or non-agricultural work, work for one’s self or for an employer, home based work or work at other places (Nath [Bhadra] and Khan 2015).

Alternative/diversified livelihood should not be documented or measured in terms of the number of income sources in a household but on the degree of reliance on multiple sources. A household, for example, may have half a dozen or more different sources of income, but 90% of the total may come from just two of them (Nath [Bhadra] and Khan 2015).

The reasons why people diversify have been extensively debated: is it spreading of risks, out of poverty and/or an element in an entrepreneurial strategy . The increased recognition that a rural livelihood is multi-occupational and cross-sectoral that has become the fundamental starting point for critically reflecting upon of the rural development policies of today. The reason for focusing on alternative/diversified livelihood processes is that the analysis includes those at the bottom of the pile, for example, the landless and the poor. Furthermore, the processes leading to an emerging from alternative livelihood is discussed in some detail. To be able to picture this we need to look at definitions and processes (Nath [Bhadra] and Khan 2015).

Figure 2.1 outlines the main issues that are covered by alternative/diversified livelihood. It is important to make a distinction between intra-sectoral and inter-sectoral alternative livelihood through diversification strategies. Intra-sectoral (or agricultural) diversification, such as the introduction of new crops into farming systems or farmers investing in livestock has long been studied and various policies and programmes have been designed to address and stimulate agricultural diversification. The notion of alternative livelihood focuses on inter-sectoral diversification, an expression of the fact that rural people’s livelihood straddle different economic sectors (Nath [Bhadra] and Khan 2015).

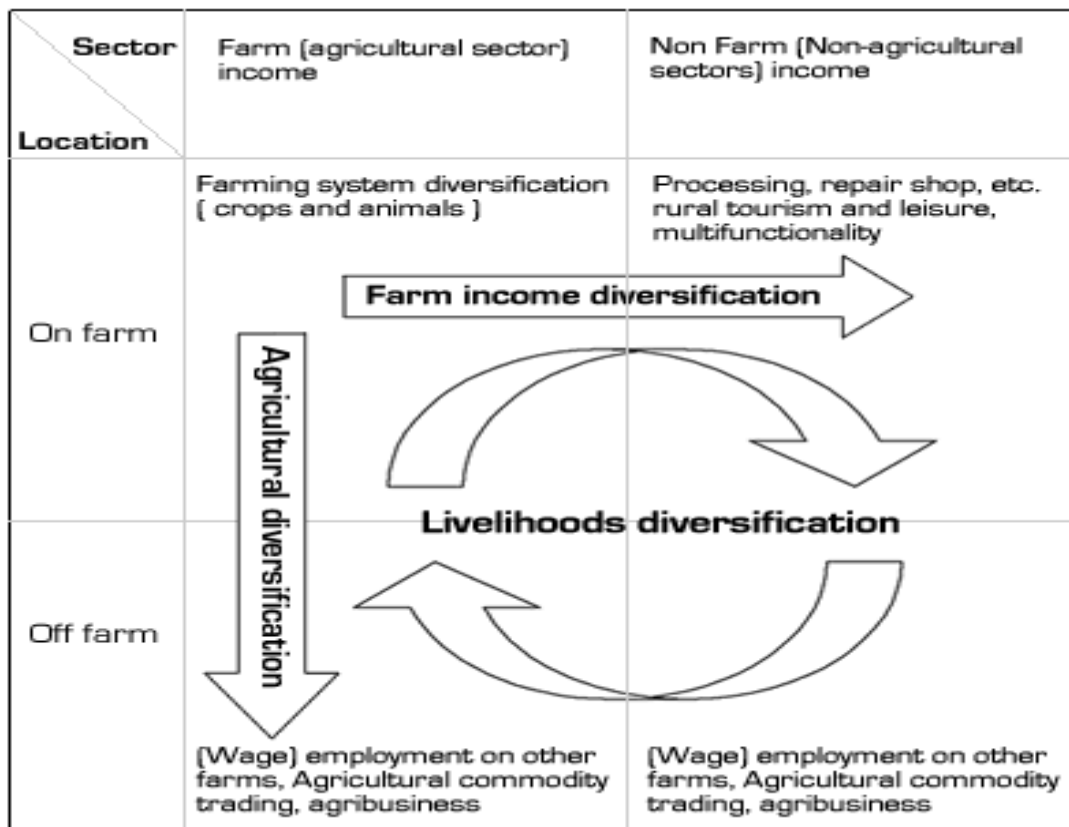


Fig 2.1 Issues covered by alternative livelihood

2.5. Sustainable Alternative/Diversified Livelihood

Poverty and a degraded environment are closely inter-related, especially where people depend for their livelihood primarily on the natural resource base of their immediate environment. Restoring natural systems and improving natural resource management practices at the grassroots level through sustainable alternative livelihood by livelihood diversification are central to a strategy to eliminate poverty (Sustainable Development in India: Perspectives 2000).

The survival needs of the poor force them to continue to degrade an already degraded environment. Removal of poverty through sustainable alternative livelihood by livelihood diversification is therefore a prerequisite for the protection of the environment (Nath [Bhadra] and Khan 2015).

While conventional economic development leads to the elimination of several traditional occupations, the process of sustainable development guided by the need to protect and conserve the environment leads to the creation of new jobs and of opportunities for the reorientation of traditional skills to new occupations through sustainable alternative livelihood by livelihood diversification (Nath [Bhadra] and Khan 2015).

A sizeable proportion (about 60% according to some estimates) of the population is not integrated into the market economy. Ensuring the security of their livelihood through sustainable alternative livelihood by livelihood diversification is an imperative for sustainable development (Sustainable Development in India: Perspectives 2000).

The term sustainable alternative/diversified livelihood relates to a wide set of issues which encompass much of the broader debate about the relationships between poverty and environment. Yet in the existing literature, there is often little clarity about how contradictions are addressed and trade-offs are assessed. As Carswell *et al* (1997, 2000) point out sustainable alternative/diversified livelihood is often unclear, inconsistent and relatively narrow. Without clarification, there is a risk of simply adding to a conceptual muddle (Nath [Bhadra] and Khan 2015).

A sustainable alternative/diversified livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. An alternative/diversified livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base. This, in turn, can be disaggregated to highlight different sub-components (Scoones 1998).

2.6. Rural Development

Rural development is the management of human development and the orientation of technological and institutional change in such a manner as to improve inclusion, longevity, knowledge and living standards in rural areas, in the context of equity and sustainability (Haylor and Bland 2001). Livelihood in the context of rural development comprises the capabilities, assets and activities required for sustaining, maintaining or enhancing capabilities and assets, both now and in the future.

2.7. Development of Coastal Rural Regions

The major part of coastal areas in the developing countries is rural in nature. The coastal rural residents demand employment, housing, energy, food, water and other goods and services, thus presenting a substantial development challenge. Coastal rural areas are extremely important for the social and economic welfare of current and future generations, as coastal resources support key economic and subsistence activities. The economies of most developing countries are currently very dependent on natural resources, for agriculture, fisheries and forestry subsectors, mining, oil and gas extraction, marine tourism and ocean

transport. The economies of developing countries will undoubtedly diversify to some extent through dependence on coastal resources is likely to remain strong. These diversified economic activities are often also dependent on coastal resources and, as economic diversification increases and makes the component sectors more interdependent, conflicts over natural resources and the environment will tend to develop. Unique and appealing vistas, sandy and rocky beaches, pristine blue water, wetlands and coastal forest, and the associated wildlife, coral reefs and multiple recreational activities supported by these areas are major attractions of coastal areas (Scialabba 1998).

The coastal rural regions in West Bengal considered as backward area. The area has a rich natural resource base. But the people here are extremely poor and intensively depend on these natural resources for their livelihood. They are solely dependent on traditional agriculture and fishing. Majority of the population do not have a sustained living condition compare to other parts of the state. The survival need of the poor people in this area has forced them to degrade the environment. Else resource conflicts are often about access to and control over natural assets that are fundamental to the livelihood of many poor people. Therefore, the shocks caused by these conflicts can increase the vulnerability of the poor. Lack of supplementary or alternative/diversified livelihood and income generation, lack of knowledge as well as inadequate infrastructure to use natural resources properly for obtaining maximum economic benefits from them are the main reasons for their poverty.

3.0. AIMS & OBJECTIVES

- To evaluate the existing livelihood pattern of the population
- To explore the feasibility of blue economy for rural development in order to provide opportunities for improvement of living condition in a sustained way.

4.0. METHODOLOGY

Reviewed and analyzed secondary data, information and literature that are available in the public domain, including information available on official websites of several Governmental and Non-Governmental agencies, scientific data and reports are used for the purpose of writing this paper.

4.0. STUDY AREA

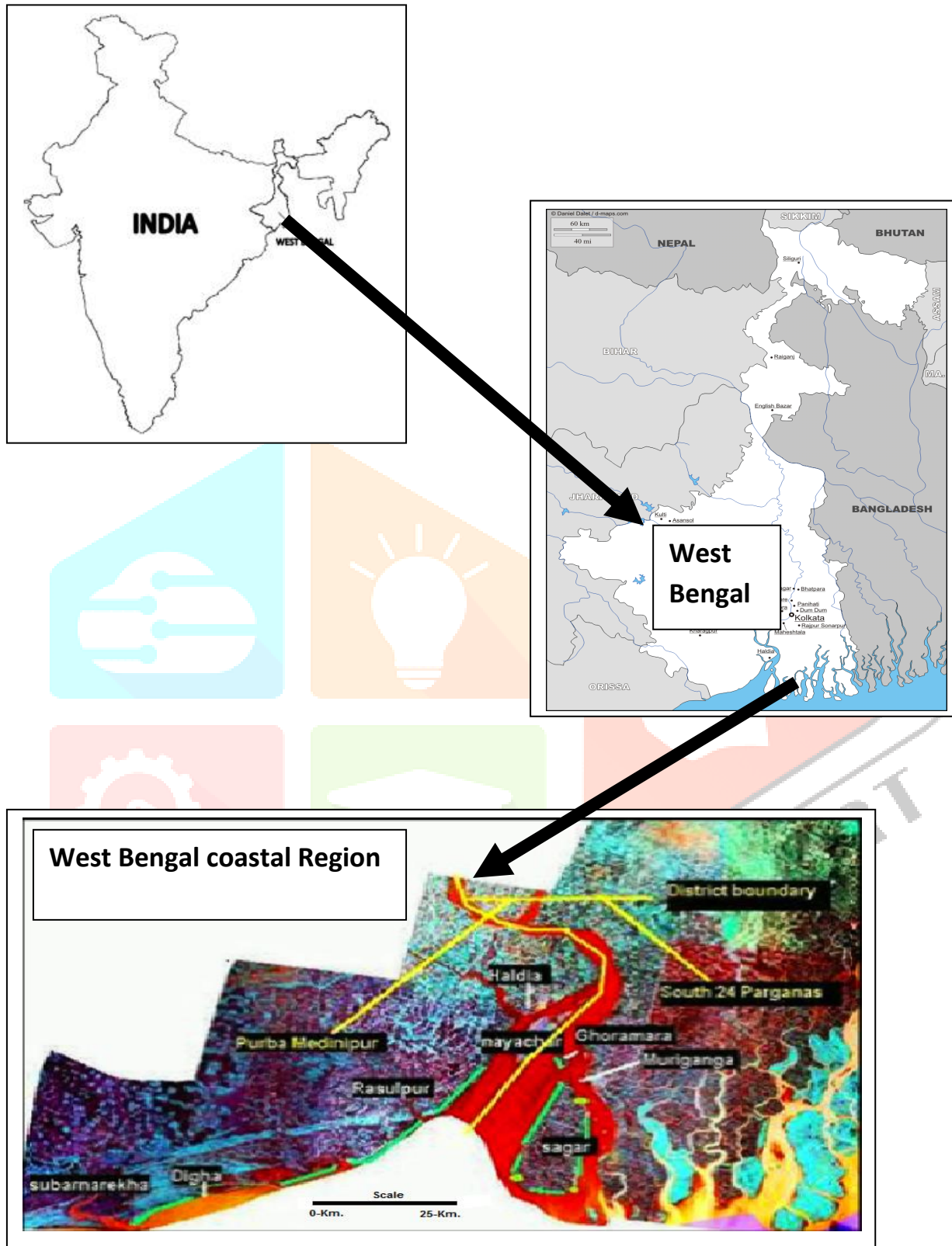
The coastal regions of West Bengal lie between latitudes $21^{\circ}30'N$ to $22^{\circ}30'N$ and longitudes $87^{\circ}00'E$ to $89^{\circ}00'E$ comprising with parts of three districts like Purba Medinipur, South 24 Parganas and North 24 Parganas. The region has a short coastline of 158 km (2.1% of India's coastline) and a continental shelf of 17,049 sq. km. The general average height of the area is 10 m (Fig. 4.1).

5.0. RESULTS & DISCUSSION

5.1. Existing Present Livelihood Patterns in the Study Area

In the study area, the dominant income sources are **main sources of income** like agriculture, fishing, forestry, livestock farming (though they may use majority of their produce for own consumption), cottage and small scale industry, tourism etc., **seasonal sources of income** like repair embankments, road construction, work in potato cold storage etc. and **other sources of income** like rickshaw peddlers, shopkeepers, domestic help, boatmen, hawking etc. Therefore, these types of sources of income reveal very limited livelihood strategies and economic returns exist in the study area.

Figure 4.1 Location Map of Study Area



Source: Lal, HS 2015. West Bengal coastal Region - Shodhganga

5.2. Weaknesses Identified in Current Livelihood Patterns

Among the above mentioned livelihood strategies, so many weaknesses are identified in the sources of income which are the constraints for the development of such livelihood strategies. As for example

5.2.1. Main Sources of Income

Based on the above mentioned classification of livelihood, the major income generating activity database of the household in the study area reveals that for maximum households, agricultural sector is the main source of livelihood. Given the seasonality of agriculture the return from this particular livelihood strategy is supposed to be least stable among the other strategies. Thus one might say that most of the households in the study area are economically vulnerable. No households in the study area involved in high return regular jobs in the organized sector or in some form of activities like business or production or services that fetch relatively high income.

5.2.1.1. Agriculture: In agriculture mono crop cultivation, small land holding of farmers, lack of irrigation facilities, maximum proportion of unirrigated land, unfavourable climatic condition, low soil fertility status, low productivity of land except paddy, low output of farmers, land-labour disequilibrium, no means of processing the agricultural produce (lack of rice mills), lack of credit facilities, lack of available choice related to equipment and other agricultural implements, lack of access to markets, poor roads and transportation, lack of knowledge about latest technologies on implementation of Agricultural Marketing Act, lack of field level and water soil testing facilities etc. are the constraints for the agricultural development (Nath [Bhadra] and Khan 2015) .

5.2.1.2. Fishing: In the fishing activities market trends and price determined by middlemen or intermediaries, young men involved in fishing not pursuing education, increase in river water pollution due to the use of mechanized boats, lack of weather related information from appropriate authority, lack of knowledge on available insurance facilities, lack of adequate credit facilities, lack of jetties at various points, lack of ice factories, lack of cold storage, many go for fishing without license, lack of disaster management systems, lack of better equipment for catching fish, lack of technological facilities, non-implementation of provisions in Fisheries Act etc. together create problems in the development of fishing. Strong hold of middlemen or intermediaries, low price for catch at collection level, children dropping out of school for seed catching, mainly women and girls involved no assessment of environmental cost etc. are the weaknesses of prawn seed collection (Nath [Bhadra] and Khan 2015).

5.2.1.3. Forestry: Depleting forest cover, lack of security, disappearance of some mangrove species (like Sundari and Nipa or Golpata), lack of knowledge and awareness of forest regulations among people are the weaknesses in the forest sector (Nath [Bhadra] and Khan 2015).

5.2.1.4. Livestock Farming: Paucity of good pasture and acute shortage of good fodders have deteriorated the quality of livestock farming in the study area. Except this, the animal husbandry in the study area could not be developed due to inadequate veterinary coverage (Nath [Bhadra] and Khan 2015).

5.2.1.5. Small Scale & Cottage Industry: Village industries or artisan in the study area are limited. It's a pity that the artisans are not getting the benefits directly as they sell their products to the intermediaries who make sufficient profits. Inaccessibility of the region and dearth of infrastructure facilities, etc. appear to account for this industrial backwardness (Nath [Bhadra] and Khan 2015).

5.2.1.6. Tourism: Although the tourism industry may earn prominence in the pockets of the study area and it may also supplement a major part of the financial set up and can support the economy to a large scale, but due to inadequate infrastructural facilities the study area faces lots of constraints in the development of the tourism industry (Nath [Bhadra] and Khan 2015).

5.2.2. Seasonal Sources and 5.2.3. Other Sources of Income

In fact that there are very few occupational diversifications towards the non-agricultural sector in the study area that does not necessarily mean that the surplus labourer in agriculture is pulled into a flourishing non-agricultural sector. The livelihood pattern of the households shows some variation with similar trend of large dependence on daily physical labour either in the agriculture or in the non-agriculture and less dependence on regular jobs either in the unorganized sector or in the organized sector. Deriving livelihood from the earnings of wage labourer or of a cultivator is relatively more common in the study area.

5.3. Management Practices Locally

Most of the managements in respect of agriculture, fishing and forestry practices in the study area are traditional and unsustainable. Although so many Government and NGOs' sponsored rural programs to uplift the economic condition of the poor people are going in the study area, but till now it didn't get the fruitful result to alleviate poverty of the local people.

5.4. Prospect of Blue Economy for the Economic Development in the Coastal Rural Areas

Blue economy in the context of livelihood strategy and poverty eradication is one of the important tools available for achieving sustainable development. More simply, blue economy is marine based economic development that leads to improved human well-being and social equity while significantly reducing environmental risk and ecological scarcities.

Nowadays Blue Economy is growing to combat poverty and accelerate prosperity in the coastal rural areas. The world counts numerous coastal and island countries with lower and lower-middle income levels, for whom oceans represent a significant jurisdictional area and a source of opportunity. In those countries, innovation and growth in the coastal, marine and maritime sectors could deliver food, energy, transport, among other products and services (Table 5.1), and serve as a foundation for sustainable development. Diversifying countries' economies beyond land based activities and along their coasts is critical to achieving the Sustainable Development Goals and delivering smart, sustainable and inclusive growth globally (World Bank Group, 2016).

Table 5.1 Components of the Blue Economy

Type of Activity	Ocean Service	Industry	Drivers of Growth
Harvest of living resources	Seafood	Fisheries	Food Security
		Aquaculture	Demand for Protein
	Marine biotechnology	Pharmaceuticals, chemicals	R&D for healthcare and industry
Extraction of nonliving resources, generation of new resources	Minerals	Seabed mining	Demand for minerals
	Energy	Oil and gas	Demand for alternative Renewable energy sources
		Renewables	
Fresh water	Desalination	Demand for fresh water	
Commerce and trade in and around the oceans	Transport and trade	Shipping	Growth in seaborne trade; International regulations
		Port infrastructure and services	
	Tourism and recreation	Tourism	Growth of global tourism
Coastal Development		Coastal urbanization Domestic regulations	
Response to ocean	Ocean monitoring	Technology and	R&D in ocean

health challenges	and surveillance	R&D	technologies
	Carbon Sequestration	Blue Carbon	Growth in coastal and ocean protection and conservation activities
	Coastal Protection	Habitat protection and restoration	
	Waste Disposal	Assimilation of nutrients and wastes	

Source: World Bank Group, 2016

FAO estimates that fishers, fish farmers and those supplying services and goods to related industries assure the livelihoods of as many as 660–820 million people worldwide. In addition, women play a critical role in fishery supply chains – it is estimated that women account for 15 percent of people directly engaged in fisheries and up to 90 percent of jobs in secondary activities (particularly in fish processing, whether in the formal or informal sector). Oceans and coasts also form the foundation for extensive employment in tourism - one of the top five industries in most small island states (World Bank Group, 2016).

A large number of developing coastal and island nations depend on tourism and fisheries for a significant part of their gross domestic product and public revenues. Aquaculture is projected to continue to grow rapidly and if done sustainably, can serve as a major source of food and a cornerstone of the blue economy. Advances in seaweed production hold promise for replacing fishmeal and animal feeds with plant materials produced with less pollution. Tourism, and particularly nature-based tourism, also provides an important path towards the sustainable development of marine and coastal ecosystems. Coastal tourism is a key component of small island state economies. The value of nature-based tourism is expected to increase over time as the supply of pristine natural assets declines while demand, which seems impervious to economic shocks, increases with rising GDPs (World Bank Group, 2016).

5.4.1. Significance of Blue Economy in the Context of Coastal Rural Regions of West Bengal

The importance of blue economy is to contribute in the study area to food security; poverty alleviation; the mitigation of and resilience to the impacts of climate change; enhanced trade and investment; enhanced maritime connectivity; enhanced diversification; job creation and socio-economic growth. The Blue Economy may offer a partial path towards food security in the study area.

Blue Economy as a new pillar of economic activity in the coastal areas of West Bengal can be linked hinterlands through sustainable tapping of oceanic resources.

The coastal blocks of West Bengal are Contai 2 & 3, Deshparn, Basantia, Khejuri, Narghat, Nandakumar, Mahisadal, Chandipur, Nandigram 1 & 2, Roeapara, Herial 1 & 2, Kalagachia, Kamarda, Sourabera Japi of Purba Medinipur district, Kakdwip, Kulpi, Sagar Island, Namkhana of South 24 Pgs. district and Taki, Basirhat 1 & 2 & Haroa of North 24 Pgs. District. These parts of West Bengal are blessed with the Bay of Bengal, the largest Bay in the world which has enormous potentials for the Blue Economy for overall economic as well as rural development of the study area. The scope for business activities including industrial on and around the sea are enormous, the coastal areas of West Bengal is no exception. Aquaculture, fisheries, minerals extraction, transportation and tourism are some of the long known business endeavors on and around the sea. In a nut shell, the potentials are boundless -water helps lives to grow and supports sustainable living.

6.0. CONCLUSION

The essential objective is to develop Blue Economy through a robust regulatory framework which contributes to sustainable use of existing natural resources. That's why first of all consider the socio-economic status, infrastructural development, local people's participation and Govt. and Non-Govt. initiatives for successful implementation of such newly concept of blue economy for the benefit of the coastal rural poor of the state. Oceans need to be protected; only then they will bestow humankind with more gifts that are essential for its material progress in the future. Therefore, The study concludes that the coastal rural regions of West Bengal has potentials and scope for implementing the Blue Economy but strong political commitments, plenty of researches, societal awareness and attitude to optimize the dependency are required to achieve long-term sustainable prosperity.

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