

Strategic Importance of Blue Economy to Sri Lanka and Challenges

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Abstract— *At the COP+21 conference, the idea of blue energy and blue economy first emerged as a component of green economy. At a time when the world is moving away from the Millennium goals towards a Sustainable Development, the emergence of sustainable blue economy seems vital. Blue economy is the sustainable use of marine resources for economic purposes. It generates an economy through the usage of marine and oceanic resources. National policies have also shifted for a greener aspect with an intention to promote a sustainable balance between economic growth and ocean health.*

Sri Lanka, an island strategically positioned in the Indian Ocean amidst major commercial trade routes encompasses a sea area which is seven times larger than its land area. Having the geographical and territorial advantage, its potential in Blue economy is immense given accurate implication and strategic planning. Rising from the ashes of a thirty-year civil war, the country struggles to strengthen its economy while fostering the rehabilitation and reconciliation processes. The true potential of the nation is hindered by various state and extra territorial non-state actors. This paper intends to address potential of blue economy in the changing global challenges, strategic advantages and national prospects.

Keywords— Blue Economy, Sustainable Development Goals, Human Security

I. INTRODUCTION

Oceans cover more than 72% of the Earth's surface and constitute more than 92% of the biosphere. Oceans contribute to the main lifeline of the human kind, generating oxygen, absorbing Carbon dioxide, recycling nutrients, and regulating global climate change and temperature. Oceans are also the means of transport for 80% of the Global Trade and also the main source of protein for the world community. At the Rio +20, United Nations Conference on Sustainable Development, where the main theme was Green Economy and the advancement and development of Institutional framework for Sustainable Development, a concept of a Blue Economy emerged due to the concerns raised prior to the conference by the coastal countries. Thus Rio+20 marks the first instance where the phenomena of 'Blue Economy' was raised in an International platform.

The ideology behind the concept was that Oceans, being the common heritage of the human kind, represent the man's quest for sustainable development. Since Rio +20, there has been combined and Institutional effort to develop and expand Blue Economy, and its importance

was reflected, when protection of seas was recognised by the United Nations Resolution as a priority objective of its Sustainable Development Goals, Agenda 2030.

The seabed provides for 32% of the global supply of hydrocarbons and contributes to the global tourism industry. However, only 5 to 7% of the Ocean is yet explored, thus the potential for expansion and development is vast. Advancing technologies open up opportunity from bio-prospecting of the Ocean to mining of the seabed mineral resources, extracting of oil and other bio gases and other renewable 'blue energy' sources like wind, tidal, thermal and biomass.

Human Development activities and global challenges like climate change, global warming, melting of glaciers have started to exhaust the resources that are available for human consumption. It is known that we have already used up all the land based resources due to the 'Brown Economy' concept and are facing the consequences. The days where the Oceans were used for resource extraction and waste dumping has left the world with severe penalties. The world collectively must look forward to the future and use resources sustainably, which is the Global objective since 2015.

Since Ocean remains the major natural resource in the world that is yet to be fully consumed and explored, it is crucial that each State, Institutions, Human beings individually and collectively take initiatives to use the resources in a sustainable manner. The prospective for Oceans to meet the goals of sustainable development is immense, given it can be maintained and restored to a healthy state. Thus Oceans are becoming a major focal point in the growth and sustainable development, both domestically and internationally. With the economic priorities are expected to be based on Ocean, the challenge is how the seas are maintained to facilitate the ocean health and long term benefits of the ocean ecosystems.

Sri Lanka, a small Island nation in the middle of the Indian Ocean consists of a sea territory which is 7 times larger than its land area. While Sri Lanka does not belong to the category of Small Island Developing States (SIDS) which concentrates on Blue Economy and upon which the principles are developed on, it is necessary that we take sustainable ocean economic measures for the goodwill of the future of the country. Strategically located amidst the Western Indian Ocean and the South East Indian Ocean, and having no immediate territorial neighbour apart from India on its North, Sri Lanka has a vast if not the most potential for Blue Economy in the South Asia.

Global Challenges like climate change, global warming, melting of the glaciers, growing global population, poverty and food security and healthcare are inevitable phenomena which everyone has to counter. Acceptance of the realities of the changing global circumstances will give an insight into the need for the protection of the resource scarcity and thus the sustainable use of the resources and energy for the future consumption as well. 'The Great Acceleration', the plunge of economic and industrial activity in the last 20th century has led to harsh consequences in the ocean ecosystems. Therefore, countering the global ocean health challenge is a matter of urgency.

With the growing population and the resource crunch thereto, Sri Lanka must take measures to move away and put a halt to its harmful oceanic practices like waste dumping, unauthorised fishing practices and non-eco-friendly tourism to address the global challenges of climate change and global warming. It is necessary that Blue Economy initiatives are taken, however small, for it is already accepted that Oceans are the future of the Earth, and therefore to ensure human security.

This paper intends to draw an analysis of the concept of Blue Economy and speak of its components and applicability to Sri Lanka. It will look at the application of Blue Economy by Island nations like Seychelles and Mauritius and its efficiency. The paper will speak of the Sri Lanka's position in Ocean economy, its true potential and the current practices and of how policy initiatives can be taken to adopt a sustainable ocean/ marine policy to uphold Blue Economy. The paper also intends to look at the issues and challenges Sri Lanka as a country must overcome in order to lay out an efficient and a practical Blue Economy Strategy.

II. METHODOLOGY

Blue Economy is a fairly new concept, having first spoken of in 2012 and developed thereafter in 2014 onwards with its applicability in the Sustainable Development Goals. Therefore, not many literature is available on the subject, however several analysis and concept papers are published by various International and Independent Organisations as well as Non-Governmental Organisations.

The methodology of the paper is therefore a qualitative one, based mainly on resources available online and white papers of Governments working on Blue Economy. It should be noted how a great comparison and an analytical deciphering of the available resources is not possible due to lack of a time frame for the outcome and efficiency of the policies. Apart from the online resources, an interview was conducted with Admiral (ret'd) Dr. Jayanath Colombage who helped the author immensely in understanding the concept, its relevancy to World and Sri

Lanka and for providing with reading material on the subject for a greater understanding.

III. DISCUSSION AND RESULTS

A. Defining Blue Economy

Blue Economy in its simplest form would mean the sustainable development of ocean economy. Some would also call it the 'greening of the ocean economy' since the concept originated from the broader Green Economy concept and with the awareness of destruction brought upon by the ocean ecosystems by human activity. Blue economy, blue growth, sustainable ocean economy are all terms that came into the existence in the very recent past and remains ill-defined giving ample of room for wide interpretations.

The European Commission defines Blue Economy as "all economic activities related to the oceans, seas and coasts. This includes the closest direct and indirect supporting activities necessary for the functioning of these economic sectors, which can be located anywhere, including landlocked countries" (European Commission, 2012).

According to The Economist Intelligence Unit, 'A Sustainable ocean economy emerges when economic activity is in balance with the long-term capacity of ocean ecosystems to support this activity and remain resilient and healthy' (Economist & Unit, 2015). The Governments, NGOs and others look at the broader view of blue economy and seek to strike a balance between economic growth and ocean health. Though blue economy is used as a guiding principle in national development strategies, it is up to the policy makers to fill the gaps. While developing ocean economic practices is upfront, what amount to sustainable ocean economic measures remain uncertain. States must take measures to adapt blue economy to its resources and within their Exclusive Economic Zone.

The Australian government defines Blue Economy as "...one in which our ecosystems bring economic and social benefits that are essential, equitable and sustainable" (Govt. of Australia, 2013).

The contribution of ocean economy into one's overall economy is generally underrated. In 2014, 10% of China's GDP was from Ocean economy (Zhao, et al., January 2014), whereas in Indonesia, it adds up to about 20%, a similar ratio to other low-middle-income countries with large ocean territories (Economist & Unit, 2015). However, obtaining exact statistics is hard for there is only a very fine line between coastal and oceanic economy.

Blue Economy though misinterpreted as a synonym for ocean, marine and coastal economy, encompasses all three within its ambit as well as other ocean based and ocean related economies. Thus, the scope of blue economy is very vast and given the unaccounted and undiscovered resources, the potential is very large.

United Nations conceptualises Oceans as ‘Development Spaces’ where spatial planning integrates conservation, sustainable use, oil and mineral wealth extraction, bio prospecting, sustainable energy production and marine transport. The Blue Economy initiative also aspires the same desired outcome as the Rio +20 Green Economy movement, namely “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” and intends to uphold the principles of “Low Carbon, resource efficiency and social inclusion”. This means a departure from the existing ‘brown’ model of development which does not take into account the ecological factor.

Therefore, it is necessary that a comprehensive definition is adopted by nations according to ones’ suitability and needs.

B. Potential of Blue Economy

The concept covers a wide range of activities which can be identifies by their geographical locations and sectors and specializations. The potential of blue economy ranges from fisheries and aquaculture to renewable ocean energy to marine biotechnology to tourism and coastal management.

Table 1: Taxonomy of Blue Economy Sectors and Activities

Sector	Activity
Fishing	Capture fishery, aquaculture, seafood processing
Marine Biotechnology	Pharmaceuticals, chemicals, seaweed harvesting, seafood products, marine derived bio-products
Minerals	Oil and gas, deep-sea mining, exploration of the rare earth metals and hydrocarbons)
Marine Renewable Energy	Offshore wind energy production, wave energy production, tidal energy production
Marine manufacturing	Boat manufacturing, sail making, net manufacturing, boat and ship repair, marine instrumentation, aquaculture technology, water construction, marine industrial engineering
Shipping, Port and Maritime Logistics	Ship building and repairing, ship owners and operations, shipping agents and brokers, ship management, liner and port agents, port companies, ship suppliers, container shipping services, stevedores, roll-on roll-off operations, custom clearance, freight forwarders, safety and training

Marine Tourism and Leisure	Sea angling from boats, sea angling from the shore, sailing at sea, boating at sea, water skiing, jet skiing, surfing, sail boarding, sea kayaking, scuba diving, swimming in the sea, bird watching in coastal areas, whale/dolphin watching, visiting coastal natural reserves, trips to the beach, seaside and islands
Marine Construction	Marine construction and engineering
Marine Commerce	Marine financial services, marine legal services, marine insurances, ship finances and related services, charterers, media and publishing
Marine ICT	Marine engineering consultancy, meteorological consultancy, environmental consultancy, hydro-survey consultancy, project management consultancy, ICT solutions, geo-informatics services, yacht design, submarine telecom,
Education and Research	Education and training, R & D

Source: (Mohanty, et al., 2015)

Being a ‘common’ global resource, blue economy should be promoted through regional cooperation. A draft paper by the Indian Ocean Rim Association Secretariat identified eight priority areas for regional cooperation in Blue Economy. Economies have identified that the fates of their economies and health of the planet is linked with the health of the ocean. The region is dependent on the Ocean for critical issues including food security, mineral and energy security, habitat security, industrial activities and other services which ultimately leads to the main objective of ensuring human security.

C. Case of Sri Lanka; Potential and Prospects

Sri Lanka, a small island nation in the Indian Ocean shares a very intimate, strong and a historical bond with water. Among the 103 rivers flowing through the country, 90% of the land area is covered by the river basins (Azmy, 2011). The Maritime Zone Law No 22 of 1976 provide for the national jurisdiction of the territorial seas and maritime zones of Sri Lanka. Accordingly, the ‘Exclusive Economic Zone’ extend to a distance of 200 nautical miles from the baseline which amounts to about 517,000 km² in extent, i.e. 7.8 times the total area of the land. Sri Lanka’s coastal area which constitutes of an area lying within the limit of 300m landwards of the Mean High Water line and a limit of 2km seawards of the Mean Low Water line covers up to 14 administrative districts which is approximately 23% of

the total land area of the country (Azmy, 2011). The coastal area of the country is thus home to 25% of Sri Lanka's population. Therefore, as a country where ¼ of the population rely on coastal and oceanic based activities, Sri Lanka must take serious measures to ensure the marine resources are used sustainably to secure the future generations and meet the universal goals.

Fish serve as the main source of protein in Sri Lanka amounting to 70% of the total animal protein share (Food and Agriculture Organization, 2014). In order to meet the demands of adequate and sustainable supply of fish, sustainable fishery methods like freshwater farming and mari-culture should be encouraged, and thereby managing the food security situation. The illegal and unhealthy fishing practices like using unauthorised fishing gear and using explosives to increase the fishing yield disturb the marine eco system which has long term effects on the regional marine resources. The lack of data and transparency in fishing activities and management also make the sustainable fisheries management in the region difficult.

D. Issues and Challenges

It is necessary that in order to move ahead with the sustainable Oceanic activity, there must be effective regional cooperation as the goal is to prevent a tragedy of commons. It is also vital that the challenges and issues are identifies and addressed to. Sri Lanka's on going conflict with India over the International Maritime Boundary Line Palk Bay and Gulf of Mannar prevents the two countries from identifying common goals of blue economy. The unhealthy practice of bottom trawling by the Indian fishermen cause severe harm to the marine eco-system (Goonetilleke & Colombage, 2017).

Sri Lankan waters have also become a transit hub for narcotic drugs and humans with the help of the fishermen. Lack of regulation and immigration practices on the fishermen make the task easier for the traffickers who carry out illegal business and transactions on the sea areas of Sri Lanka (Dissanayake, 2015). The fishing boats are also susceptible for exploitation by the terrorist group as it did during the civil war.

Apart from the above, at the 7th International Maritime Conference Admiral Dr. Jayanath Colombage identified several threats of sustenance of fisheries resources which range from deliberate destructive practices to accidental ones. These include, accidental oil leakages and release of gases during storage, shipping and overfishing which cause serious harm to the marine eco-system and the life thereof. Shipping though considered the most carbon efficient mode of transportation, emit greenhouse gases and cause acoustic pollution through hazardous waste which remain intact in oceans for long periods and thereby affecting the natural course of the food chain.

Developing sustainable coastal tourism is beneficial in blue economy. In 2015, 8.5% of the world tourism industry

amounting to US\$ 670 billion was form the IORA region (Mohanty, et al., 2015). Water based tourism and leisure based activities which foster smart sustainable and inclusive growth should be implemented. Sri Lanka currently has a wide array of leisure and please activities based on coastal areas but the endurance of the same is questionable. For example, whale watching in the North Western and Southern provinces of the country has gained much popularity over the recent years. However, it is observed that the boats get extremely close to the whales which disrupt their natural modes of communication by waves and hence their behavioural pattern which may have long term implications like coastal erosion, mangrove depletion and threaten to fish, wildlife and habitat. Land based Aquaculture projects result in habitat destruction through release of poisonous chemicals and drugs (Spalding, 2016).

All the above mentioned challenges and issues are intensified by the global challenge of climate change and global warming. With the excessive release of greenhouse gases and the increase in the surface temperature lead to melting of the glaciers thereby raising the sea level. Along with the rising sea levels, the changes in the sea temperature would directly affect the ocean acidification and the aquatic cycles. Climate change causing a rise in sea surface temperature, salinity, ocean acidification and thermal stress affect the fisheries distribution, migration and thus a break in the marine eco-cycle. These natural phenomena along with overexploitation and pollution dismay the fisheries industry. Rising of sea levels eventually lead to the depletion of the coastal area of the land thereby affecting more than 25% of the Sri Lankan population. With an annual population growth rate of 0.9% (Central Bank of Sri Lanka, 2015), the pressure on the land based resources increase exponentially and the strain only intensifies with the reduction of land area due to rising sea levels. The human security of the coastal community is greatly affected with them having no social, economic or food security. If the prolonging security issues are not addressed, there is a risk of the coastal community being hurled into illegal oceanic activities like piracy and trafficking.

E. Way Forward

In order to meet the objectives of goal 14 of sustainable development goals for the 2030 agenda, the country must adopt measures that are most efficient, sustainable and suitable for the country. For an effective plan to take action, there must first be a national maritime policy. Lack of a national policy and therefore a national strategy to deal with ocean can lead to the inefficiency and unaccountability of the authorities paving way for more misapprehensions of the process. When adopting a national blue economy policy, Sri Lanka could look at Mauritius and Seychelles who have successfully adopted blue economy as 'small island developing states' (SIDS) in the region. Though Sri Lanka does not come within the

ambit of SIDS, their practices on fishing industry and tourism can be adopted.

While focussing on policy and national strategy on blue economy, it is necessary that the existing oceanic activities are revised and accustomed to sustainable, efficient measures. Colombo as one of the busiest ports in the region can recommend Triple E class (Economy of scale, Energy efficient and environmentally friendly) vessels to come into operation. More than 2/3rd of global seaborne trade are routed through Indian Ocean and Sri Lanka's geostrategic location gives immense potential for the port and shipping services. By imposing more systematic, target oriented and futuristic policies and regulations the services can be enriched.

The flora and fauna of the Indian Ocean provide the biggest opportunities for the tourist investment in the region but it is necessary that all activities are monitored to optimization. Coastal tourism amounts to 70% of the total tourism infrastructure in the country. Coastal tourism can be expanded to new heights, but there must be regulations in place to manage the activities and control the quality of the service. It must always be kept in mind that the activities should not disturb the development of natural marine-cycle or break apart the habitat. Coastal management should be a major component of the Sri Lankan blue economic policy.

According to International Energy Agency, the global primary energy demand would increase by 40% by 2030 and Asia and Middle East are predicted to be major contributors (IEA, 2015). Wave, solar, wind, hydroelectric energy can all be generated with the available resources in the country. We just need the proper research, development and implementation. Experiencing 2 monsoons throughout the year, Sri Lanka has great potential for tidal and wave energy along South-West and North-West coasts.

Most of the aquaculture industries which are land based carry out their functions without licence. The authorities must pass policies to address the small matters like licenses and the safety and hygiene measures. The unauthorised practices must be regulated and the owners and practitioners must be screened. All the regulations must ensure that the marine eco system is not harmed and the resources can be used by future generations.

While improving the existing measures and adopting sustainable measures, the country must invest in research and development. Since blue economy is a new concept, research is much needed. In order to bring marine biotechnology or marine technology, the technological know-how must be brought into the country.

IV.CONCLUSION

As a strategically located island in the Indian Ocean with an ocean territory which is 7.8 times larger than its land

area, Sri Lanka must know how to systematically and skilfully use its marine resources to economically sound the country. In doing so, the island must also ensure that the global objectives of sustainable development are met. It is the belief of many scientists, philosophers, strategists and economists that the future is going to be the 'era of the ocean'. With climate change and global warming shaping up the immediate futures, States must take action to prevent natural resources for the betterment of the future generations and thus consuming the existing resources sustainably.

Goal 14 of the Sustainable Development Goals, Agenda 2030 identifies the importance of 'life under water'. With this, the concept of 'blue economy', which was first conceptualised in Rio +20 conference, was given much prominence to and was taken more seriously. The objective was to develop and adopt sustainable oceanic economic measures. Though developed by Small Island Developing States, blue economic policies are much relevant to Sri Lanka as well.

This paper intended to give a brief understanding of the concept of blue economy, its scope and its applicability to Sri Lanka. It identified the drawbacks of the existing marine related industries and how they can be amended to efficient and sustainable measures. The fisheries industry, aquaculture industry, shipping, coastal management and tourism sectors which are exploited by various actors and authorities were looked at and recommendations for each were given.

What is important to note is that, ocean is a 'common good' and thus all humankind carry a responsibility to protect it for the future. In order to prevent a 'tragedy of commons', it is necessary to take necessary actions.

Sri Lanka though a member of the IORA, has not taken any initiative on the national level to address the global challenge of climate change. As a country whose 25% of population depends on coastal economy, Sri Lanka must ideally take effective policy measures and initiatives to uphold blue economy. The advantageous location and circumstances must be used tactfully to economically enhance the country. Lack of interest, knowledge, awareness, differing priorities have so far prevented any government or authority from taking any initiative. With Sri Lanka's marine territory, the willing and able coastal population, the nation must take steps of combatting global warming and climate change at the initial stages i.e. now rather than finding fixer uppers when tragedy strikes.

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