Journal of Ocean and Coastal Economics

Volume 10 | Issue 1 Article 3

June 2023

Blue Economy Coastal Resources: Economic Valuation and Governance for Achieving Sustainable Development Goals

Unmana Sarangi
Government of India

Recommended Citation

Sarangi, Unmana (2023) "Blue Economy Coastal Resources: Economic Valuation and Governance for Achieving Sustainable Development Goals," *Journal of Ocean and Coastal Economics*: Vol. 10: Iss. 1, Article 3.
DOI: https://doi.org/10.15351/2373-8456.1132

1. Introduction

The concept of blue economy has linkages and ramification with respect to approaches to ocean governance for coastal communities. With few exceptions, it does not meet the diverse development aspirations of coastal communities or ensure healthy oceans for current and future generations. The blue economy is expected to grow to USD2.5–3 trillion by 2030, and there is particular interest in its potential to alleviate poverty in Least Developed Countries(LDCs) and Small Island Developing States(SIDS), and to support a blue recovery from the COVID-19 pandemic. Putting coastal communities at the center of a clear vision for an inclusive Sustainable Blue Economy and co-developing a shared and accessible language for communities, practitioners and policy-makers is essential for a more equitable ocean economy, alongside mainstreaming social justice principles and integrated governance that can bridge different scales of action and opportunity.

2. Blue Economy and Coastal Communities

The blue economy is said to offer indirect opportunities to coastal communities through:(i) national blue economic development "trickling down" to coastal citizens *via* creation of jobs and new financial opportunities; (ii) increased ocean rents and re-direction of subsidies and investment toward the environmental and social pillars of the blue economy; iii) improved infrastructure and technology enhancing access to information, energy and other services; iv) co-location of activities with co-benefits including climate change adaptation, provision of substrate or infrastructure, and enhanced cultural value; v) potential to enhance protection and restoration of ecosystem services, and vi) strengthened national sovereignty.

A sustainable blue economy can present direct opportunities for coastal communities through improving markets, catalyzing new sustainable development sectors and directing investment into community development and livelihoods projects. Direct opportunities include: (i) alternative, enhanced and sustained livelihoods; (ii) enhanced food and nutritional security; (iii) Payments for Ecosystem Services; (iv) capacity development, and; (v) improved governance, equity and rights.

3. Literature Review on Blue Economy Coastal Communities and Coastal Management

There are concerns that the dominant blue economy agenda prioritizes economic growth over sustainability and equity, with oceans viewed "as a source of wealth and prosperity whose economic potential needs unlocking"(**Childs and Hicks,2019,p.324)**. The blue economy agenda has been described as akin to a blue frontier or a blue rush. Importantly, despite continued prominence in some blue economy narratives, evidence suggests that the 'trickle-down' of benefits from ocean-based economic growth to communities is unlikely (**Wieland etal., 2016 ; Akinci, 2018**), and prioritization of economic over environmental and social objectives can accelerate unsustainable use of marine resources, increase sectoral and user conflict, lead to elite capture and exacerbate inequities. Such business-as-usual and blue growth trajectories pose indirect and direct risks to coastal communities.

Coastal habitat status and management is assessed with either a hyper-local or regional lens. For example, some of the literature cited focused on a specific bay, estuary, lagoon, or other specific coastal system within a state. Coastal habitat management is governed by the State coastal management policy which is a complex framework that includes regulatory restrictions and planning or information exercises that cross federal, state, and local jurisdictions and multiple agencies. No one governmental unit has sole authority for the four focal habitats or responsibility for addressing the impacts from the multiple stressors for these ecosystems. Overall, it indicates that states rely on broad coastal management law and policy, rather than a habitat or threat-specific approach. In addition, the habitat-specific policies are narrowly tailored and do not address all threats to the four focal habitats. The governance framework includes local action that could not be adequately assessed, but is an essential component in understanding each state's policy landscape. The multi-directional nature of coastal regulations is not unique and is similar to many environmental regulation and protection frameworks. Federal, state, and local laws and policies work together to create a complex web of authority, roles, responsibilities, information flow, incentives, and disincentives. State-level coastal management programs are all distinct and developed to include regulation, financial instruments, and education tools that protect or enhance the coastal area. States are encouraged to develop their own priorities within several areas, including protecting natural resources and improving coastal water quality. Coastal Zone Management Authority (CZMA) encourages states to develop coastal management plans that are integrated into the state's policy context to address common categories of coastal impacts in an adaptable, flexible manner. The adaptable nature of the state coastal management programs is essential to create a dynamic program that adapts to new or emerging challenges, while still protecting the state's coastal resources (**Bailey and Fletcher2013**).

4. Coastal Sustainability

Coastal areas are under pressure from a multitude of direct drivers, such as an increasing demand for human settlement and socio-political and economic development. Next to these direct drivers, there are indirect drivers, such as climate variability, which exacerbate the degradation of natural coastal conditions. If left unregulated, impacts including flooding of urban areas due to coastal erosion, reduction of water quality due to pollution by hazardous waste, and air pollution due to maritime traffic and industries will occur more frequently and intensively. Further complicating the matter, coastal regions often accommodate a high degree of biodiversity and enhance important ecological values. Coastal ecosystem services, such as flood protection, biodiversity, and fisheries, may come under pressure from human actions such as the expansion of ports and coasts. The ongoing trade-off between increasing populations and the utilization of coastal regions is further muddied by realized and pending climate change impacts. Preparations and adaptation strategies to cope with the associated sea-level rise, changing storm intensity, and frequency due to a changing climate are required. Climate Change is a principal driver of sustainable action plans regarding coastal protection, coastal management, and maintenance planning. Sustainable coastal development, in view of social, environmental, governance, and economic considerations, is needed to balance the demands placed on coastal systems. As a result of the growing interest in developing sustainable coasts via the inclusion of nature-based solutions (NBS), increased policy implementation is needed to reduce the impact of climate change on both the natural coastal system and socio-economic activities.

5. Research Questions

a) How is blue economy useful for achieving coastal community development?

b) What is the role of blue economy in achieving coastal sustainable management?

c) How are both these concepts i.e. blue economy and coastal management helpful in achieving United Nations Sustainable Development Goals?

d) How is economic valuation of costal resources carried out?

e) What is the role of ocean literacy in promoting UN sustainable goals and the 2030 Agenda?

f) How is the assessment of risks, opportunities and strategies developed in respect of coastal communities in achieving sustainable blue economy?

6. Economic Valuation of Coastal Resources

Coastal areas around the world are dynamic environments at the interface of terrestrial, marine, and fresh water systems. Nearly 2.4 billion or 40 percent of the world's people already live in these areas. Coastal zones are increasingly attractive for development and tourism. However, the coastal ecosystems within these zones are vulnerable to a variety of impacts from anthropogenic activities, resulting in excess nutrients, invasive species, extreme weather, sea level rise, and oil spills, among others. These coastal ecosystems include, but are not limited to: estuaries, beaches, wetlands, shores, mangroves, sea grasses and salt marsh, coral reefs, and other essential habitats for marine life. The focus is on economic valuation of coastal and marine resource ecosystem services. Economic valuation is important because it provides methods and techniques to determine how changes in coastal and marine ecosystem services can be translated into benefits and costs to society. Economic values play an important role in everyday life and provide useful information about human happiness and welfare. Valuation provides a consistent framework to understand human–nature interactions across a broad range of coastal and marine resources, and to evaluate the sustainability of these interactions. The focus on ecosystem services provides new research on this innovative perspective on human–nature interactions that has profoundly changed the academic dialogue on natural systems, but has had limited impact on public dialogue and the policy process.

The practical importance of economic valuation information can hardly be overstated. Coastal and marine resource policy planning and management benefit from complete information on the impact of policy decisions. In addition, proper accounting of the impacts of these policy decisions is necessary for benefit-cost analyses and measurements of economic growth overtime.

7. Governing Coastal Resources in Achieving Sustainable Blue Economy

Coastal resources include fish, minerals and energy among others which are critical to people, nature and the economy, and area focus for the emerging sustainable blue economy agenda. It has long been recognized that a particular challenge in coastal areas is the management of land-based activities that generate detrimental impacts on coastal resources in the marine environment. Many of these pressures are negative externalities of land-based human activities that are not taken into account within existing resource-governance frameworks. While a range of market-based, non-market and other interventions are worthy of consideration, the development of improved approaches to land-sea governance that take account of how land-based activities affect the quality and availability of coastal resources. Coastal resources, particularly living resources, are negatively affected by stressors generated by land-based activities that may take place at

great distances from the coast. Land-based activities, however, are currently managed through sector-specific arrangements with limited, if any, regard for their effects on coastal resources. An additional barrier is that terrestrial and marine areas typically operate within separate governance frameworks with no means of coordination.

Therefore, in order to ensure the effective conservation and sustainable use of coastal resources, it is necessary to develop governance approaches that holistically take account of the individual and cumulative effects of land-based activities wherever and in whatever sector they originate. In order to be meaningful, the governance approach must overcome the legal and administrative barriers that result in marine and terrestrial environments being treated as separate governance units.

(i) Ecosystem-based management should be a guiding principle of coastal resource governance, as it provides a holistic approach to the consideration of all influences on coastal resources with an emphasis on a healthy under-pinning ecosystem.
(ii) Existing area-based management tools, with enhancement and adaptation, should be used to counteract the impacts of land-based activities on coastal resources such as marine protected areas, marine spatial planning, integrated land-use planning and integrated coastal management.
(iii) Improved coordinating mechanisms are needed to overcome fragmented governance between sectors and between terrestrial and marine governance arrangements.
(iv) Implementation focused capacity development programmes should be formulated and disseminated to target land-sea governance practitioners.
(v) Filling evidence gaps, particularly related to the impacts of land-based activities on biotic coastal resources, should be prioritized and their implications for effective governance determined.
(vi) Coastal governance should focus on the pathways connecting multiple land-based activities to coastal resources, and should not be constrained by arbitrary boundaries such as legal or administrative ones that disconnect causes from effects and frustrate coordinated governance responses.
(vii) Regional regulatory frameworks that place a legal obligation on land-based activities to take account of coastal resource impacts should be developed to reduce the impacts of land-based activities on coastal resources.
(viii) Natural capital safeguarding on land and at sea is a unifying principle that could be used as a common cause to connect otherwise fragmented governance systems.

8. Research Methodology Limitations and Drivers of Coastal Change

To address the research questions research methodology needs to be adopted/devised. The methodology has been adopted to address the issues of coastal management and coastal community development. The concepts and aspects of blue and sustainable development economy and issues relating to climate change has repercussions with respect to costal community development and the management of coastal resources. It is observed that the human intervention on coastal resources which include land resources has long-term repercussions on coastal management and development. Therefore, in order to have an analytical approach a methodology such as Drivers, Pressures, State, Impact, Response(DPSIR) framework as its conceptual under-pinning could be adopted. This analysis provides a globally recognized and scientifically credible framework through which inter-connected elements of a complex system can be meaningfully interpreted and in part to provide consistency with other International Resource Panel(IRP) reports, the majority of which also use the DPSIR framework. These are as follows:

I. **Driver** : These are major forces that affect the environment, whether societal such as energy development and demographics or natural such as climatic or oceanographic processes. The drivers relate to the forces that shape the development and scale of relevant land-based activities.

II. **Pressure** : These are the human activities that generate stress on the environment. These are land-based activities that have the potential to affect coastal resources. Pressures can generate stressors that affect the state of coastal resources.

III. **State** : This is the condition of the environment, including attributes that are important for society and/or for the functioning of an ecosystem. The state refers to the condition and availability for use of coastal resources, which can be affected by the stressors generated by pressures.

IV. **Impact** : This is a measure of change in the condition or availability of environmental attributes and the associated availability of benefits to society. The impact relates to how a change in the state of a coastal resource has the potential to affect sustainable blue economy sectors.

V. **Response** : These are societal interventions intended to shift a system to deliver desirable outcomes. This typically takes the form of efforts to reduce or remove pressures on the environment. The responses are governance interventions.

The following steps would be effective and useful:

(i) Identification of global forces driving land-based activities drivers.

(ii) Identification of relevant land-based activities pressures.

(iii) Identification of the effects of land-based activities on coastal resources state.

(iv) Identification of how coastal resource change affects sustainable blue economy sectors impact.

(i) The following limitations arise viz;

(ii) The analysis can be largely evidence derived from the published scientific literature.

(iii) Complex relationships between impact and response.

(iv) Selection and classification of activities, stressors and resources.

(v) Space, time, location and intensity of activities and stressors.

(vi) Scientific knowledge and bias.

8.1. Drivers of Coastal Change

The following are the drivers of coastal change viz;

(i) Urbanization

Over the last six decades, the global urban population increased rapidly from 30 percent in 1950 to 54 percent in 2014. By 2030, 60 percent of the world's population is expected to live in urban areas.(**UNDESA Population Division 2015**). While urbanization is a global trend, the level and rate of urbanization varies between regions. Rapid urbanization would lead to development of coastal resources and coastal communities at large.

(ii) Population Growth

By 2030, the global population is projected to reach 8.6 billion people (**United Nations, 2019**). It is important to note that global demographic change, particularly falling birth rates, is causing a slowing of population growth rates and may in time reduce the pressures associated with population growth (**UNEP,**

2012), though overall population is still projected to grow by 2100. Population growth has implications with respect to urbanization. With the rapid urbanization process, the population growth decreases as the coastal communities are aware of the benefits of large-scale urbanization.

(iii) Industrialization

Industrialization or the rapid development of industries in a country or region on a large-scale, often in association with urbanization, has changed the Earth significantly over the last 200 years. Global economic output in the twentieth century grew 20-fold (**UNEP, 2012**). Continuing discovery and development of better and more efficient technologies have ensured continued industrialization in the developed world, while developing countries are experiencing widespread industrialization as their capacity and economies grow.

(iv) Migration

Humans have always migrated, but with economic growth and major developments in international transportation over the last century, migration has significantly increased. There are many reasons for migration including political, environmental especially due to climate change and economic factors.

(v) Climate Change

Global climate change has numerous, widespread impacts on human and ecological systems that act in isolation and cumulatively (**Innis*etal*., 2016; Masson Delmotte *etal*., 2018**), as well as being a key driver of change in many of the land-based activities that exert pressure on coastal and marine ecosystems. Shifts and changes in seasons and rainfall patterns require changes in agricultural practices, while climate change mitigation is driving reforestation initiatives and marine renewable energy development. Accelerated sea level rise and the amplification of extreme storm events are a threat to low-lying coastlines through erosion and flooding and area driver for the development of coastal defense infrastructure, while sea level rise can also cause increased saline incursion in solid imaging agricultural productivity. Increasingly, frequency and intense storms also pose a risk for sub-marine cables. The melting of the Arctic Sea is opening new shipping routes between the Atlantic and the Pacific Oceans.

(vi) Increased Personal Wealth and Living Standards

Increased personal wealth and the resulting rise in living standards have pushed up consumption of energy, food, and luxury goods. Expansion of these sectors, driven by

higher personal wealth, will increase the pressures on coastal resources and the marine environment.

(vii) Globalization

Globalization can be defined as the increasing linkages between different parts of the world through trade, communication, finance and technology. Globalization makes it possible for trends in other drivers to generate pressure in specific parts of the world. Following the transport and technology boom of the twentieth century and opening of global markets, globalization has become a prominent feature of modern society. However, many are starting to argue that increasing isolationism within some countries marks a turn in the tide of globalization; world trade is no longer growing at the same rate as the global economy(**Wolf, 2016**)

9. References

Child and Hicks, "*Literature Review on Blue Economy*", Journal of Political Ecology (2019).

Wieland at al, "*Ocean-Based Economic Growth to Communities*", Frontiers Journal (2018)

Bailey and Fletcher, "*Adaptable Nature of the State Coastal Management Programs*", Hastings Environmental Law Journal (2013)

Wolf, "*World trade is no longer growing at the same rate as the global economy*", World Trade Organization (WTO), Geneva, Switzerland (2016)

Walter.J and Alvarez, S., "*Coastal Resources Economics and Ecosystem Valuation*", Multidisciplinary Digital Publishing Institute (MDPI) Journal. (2019)

Louisa S. Evans, Pamela M. Buchan, Matt Fortmam, Maria Honig and Louisa Heaps, "*Putting Coastal Communities at the Centre of a Sustainable Blue Economy: A Review of Risks, Opportunities and Strategies*", Frontiers Journal (February 2023)

United Nations Environment Programme (UNEP), "*Annual Report*". (2012)

United Nations Environment Programme (UNEP), "*Governing Coastal Resources: Implications for a Sustainable Blue Economy*", Nairobi (2022)

United Nations, Department of Economic and Social Affairs, Population Division, "*Population Division Report*", New York (2015)

Jose Carlos Ferreira, Lia Vasconcelos, Renato Monteiro, Flavia Zurga Silva, Claudio Macedo Duarto and Filipa Ferreira, "*Ocean Literacy to Promote Sustainable Development Goals and Agenda 2030 In Coastal Communities*", Multidisciplinary Digital Publishing Institute (MDPI) Journal (February 2021).

Inniss, L, Masson-Delmotte, V, "*Global climate change has numerous, widespread impacts on human and ecological systems that act in isolation and cumulatively*", Intergovernmental Panel on Climate Change(IPCC), Geneva, Switzerland, (2018).

United Nations, "*The Sustainable Development Goals Report*", New York (2019).