

Blue Economy - A Methodological Framework for Evaluating Impact through Sustainability Criteria

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1 Introduction

The concept of “Blue Economy” is recent and was coined from the United Nations Conference on Sustainable Development held in 2012, which presents a division of socio-economic development from environmental degradation (UNCSD, 2012). The term Blue Economy has been used in different ways, relating its usage to the Sustainable Development Goals (SDG), while recently the World Bank has provided a more robust definition: “Blue Economy concept seeks to promote economic growth, social inclusion, and the preservation or improvement of livelihoods while at the same time ensuring environmental sustainability of the oceans and coastal areas” (World Bank; UNDESA. 2017, p.6). The blue economy is a specific part of the green economy that focuses on the sustainable use of marine resources highlighting the pivotal role the oceans play in limiting temperature rises and stimulating socioeconomic development.

Albania has a coastline 427 km long: 273 km of coast in the West facing the Adriatic Sea and 154 km of coast in the Southwest on the Ionian Sea. Internal waters space amount to 735 km² and the territorial waters (extending from the internal waters to 12 nautical miles offshore) amount to 5,322 km². Continental Shelf in the north extends up to 25 nautical miles into the Adriatic Sea and 2-3 nautical miles to the south in the Ionian Sea.

Given this context, the blue economy has a great importance in the sustainable development of Albania. The latest and most comprehensive study on the potential of the Blue Economy in Albania aimed at filling the knowledge gaps to help advance Albania’s vision of the Blue Economy, in the context of the country's aim of joining the EU (World Bank, 2020). The study concludes that the Blue Economy can become a driver of this economic development, through well-established marine-based economic sectors through reforming fisheries and aquaculture management, promoting unique tourism products, and reducing marine litter all offer good starting points for defining the priority actions.

The objective of this paper is to provide a methodological framework for evaluating impact through sustainability criteria, as the World Bank activated a US\$ 80 million fund to the Government of Albania (GoA) to operationalize the blue economy approach in Albania through the Albania Blue Economy Development Project, ALBLUE, and the specific inclusion of the development of the blue economy as a key objective of the upcoming National Strategy for Development and Integration.

2 Blue Economy Sectors and Sustainability

Every year, millions and millions tone of litter end up in the ocean worldwide. In addition to demonstrating that an economy is unsustainable and resource inefficient, marine litter disrupts both terrestrial and marine ecosystems, affecting their regenerative capacity, degrading the blue natural capital and its ability to supply valuable ecosystem services (European Commission,

2021). Kathijotes (2013) suggests that the aim of Blue Economy models is to shift society from scarcity to abundance – based on the endowed resources, and to start tackling issues that cause environmental and related problems through novel ways. In his study, he identified that some major factors that cause ecological alterations to coastal and surface waters and contribute to nutrient inputs include municipal wastewater and storm water discharges; combined sewer overflows; other urban runoff; agricultural runoff; aquacultures; and various others, while recommending that novel actual management techniques are needed in the sector.

Mulazzani, Luca, et al. (2016) present a management tool based on ecosystem service framework to solve the coastal blue growth, which when tested showed that increasing tourist flow and related infrastructure are not perceived as threats to the local ecosystem equilibrium, but the problem of water quality should be might future negative feedback. Blue economy is usually linked with the blue growth concept. Blue growth concept can be traced back to sustainable development, with the increase of international communication and in-depth study of the blue economy concept, interdisciplinary and multidisciplinary research has been very important in studying blue economy cases, especially one of the main challenges is how to integrate across the involved disciplines (Wenhai, Lu, et al., 2019)

The blue economy is composed of sectors, including established sectors such as fisheries, tourism, transport and trade, but also new and emerging activities, such as renewable energy, aquaculture and marine biotechnology (Table 1). A number of services provided by blue economy sectors do not have a market but contribute the sustainable development through the preservation of the environment such as carbon sequestration, coastal protection, waste disposal and the existence of biodiversity.

Table 1. Sectors of Blue Economy

Type of Activity	Ecosystem Service	Sector	Drivers of Growth
Harvest of living resources	Seafood	Fisheries	Food Security
		Aquaculture	Demand for Protein
	Marine biotechnology	Pharmaceuticals, chemicals	R&D for healthcare industry
Extraction of non-living resources, generation of new resources	Minerals	Seabed mining	Demand for minerals
	Energy	Oil and gas	Demand for alternative energy sources
		Renewables	
	Fresh water	Desalination	Demand for fresh water
Commerce and trade in and around oceans	Transport and trade	Shipping	Growth in seaborne trade
		Port infrastructure and services	

	Tourism and recreation	Tourism	Growth of global tourism
		Coastal development	Coastal urbanization
Response to marine health changes	Ocean monitoring and surveillance	Technology and R&D	R&D in ocean 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, (2016).

An economic enterprise is considered to be an ocean-based economic sector if it exhibits one or more of three characteristics—being physically located in the ocean, using ocean resources as an input to production, or directly outputting goods or services to the ocean (Park, Dr, et al., 2014). Aquaculture, wind and wave power, seabed mining, and tourism are recognized as emerging economic sectors and blue growth focal areas by the European Union (European Commission, 2012).

While recently the study conducted in Albania highlighted a series of key recommendations for priority reforms and investments to realize the Blue Economy Potential in Albania, specified in four main areas (World Bank 2020):

- Improving the Blue Economy Development Framework by expand the knowledge base and reinforce cross-sectoral coordination on planning and monitoring of marine-based sectors -with Marine Spatial Planning, improving their management and extend marine areas under conservation.
- Presenting fisheries, aquaculture, and seafood as key blue economy sectors, while proposing improvement in:
 - Expand market share and develop a ‘Blue Albania’ brand to compete with neighboring countries.
 - Unleash the growth potential of Albania’s aquaculture -by stimulating innovation and investment in alignment with the European Green Deal.
 - Address the ineffective management of fisheries and reform it in line with the priorities of the Fisheries Strategy and recommendations for the EU accession.
 - Close the marine resource science gaps and increase the research and scientific support to the sector.
 - Improve fishers’ marketing power through stronger fishermen’s organizations and an electronic auction platform.

- Take advantage of the local market in order to increase domestic fish consumption.
- The major importance of blue tourism in the blue growth by:
 - Addressing regulatory and enforcement aspects in a holistic manner and create an enabling framework for private sector investment.
 - Foster the development of marine (or ‘blue’) clusters to boost Albania’s nautical tourism.
 - Tap into growth opportunities of the nautical sector by improving critical infrastructure and enablers for private sector participation.
- Protection of marine environment from plastic pollution.

3 Sustainability Criteria Framework

The sustainability criteria framework for the blue economy includes three main steps (European Commission, 2020):

1. *Identify Sector Relevant Sustainability Criteria*: Based on the methodological literature, the structure of the Blue Economy Sustainability Criteria follows a so-called “nesting” approach: linking criteria and indicators to the four dimensions of sustainability (economic, environmental, social and governance). For each dimension, a number of key sustainability aspects have been clustered into sustainability criteria. Indicators have then been derived from these criteria – allowing for the measurement of key sustainability aspects. The indicators establish the core of the framework, providing a powerful tool to analyse the complexity and characteristics of sectors in a structured and coherent way. The BESC provides a series of highly relevant sustainability topics (the criteria) which have been further developed into indicators. The units of these common and (sub)sector-specific indicators provide a means of measuring the sustainability criteria for a particular activity, company or sector.
2. *Conduct Value Chain Analysis*: The objective of the value chain analysis approach (VCA) is to introduce and characterise a blue economy sector. The theoretical background originates from Porter (1985): a value chain is defined as “a set of activities that a business carries out to create value for its customers”. It is useful to examine the business activities; see how they are interconnected and understand which of them add value (and so identify sources of competitive advantage). Porter’s VCA enables the analysis of sectors distinguishing the different segments in the production cycle including a) inbound logistics, b) operations, c) outbound logistics, d) marketing and sales and e) service.
3. *Apply Criteria*: The “quick scan” VCA enables the end-user to identify the generic opportunities and constraints regarding environmental, economic, social and governance sustainability for each segment. While having the sector specified, the next step is to choose from the matrix the criteria relevant to the sector and to the specific activity.

Below is presented the list of selected as “key indicators”, established an essential and required set of criteria and indicators for conducting a review of the sustainability of a given activity.

Figure 1: Proposed Common Criteria and Indicators for the Environmental Dimension			
Criteria	Code	Indicator	Unit
Mitigation	C.EN.1	Gross value or percentage of revenue invested in environmental causes related to the sector’s activities directly (e.g. mitigation restoration, monitoring) or indirectly (offsetting).	- m EUR/year or % of revenue/year
Emission to Air	C.EN.2	Emissions of CO ₂ , SO _x , NO _x , and P.M.	- Tonnes of CO ₂ equivalent / year - Tonnes of SO ₂ equivalents / year - Tonnes of NO ₂ equivalents / year - Tonnes of pollutant / year
Impact on Ecosystem	C.EN.3	Extent of coastal and marine habitat positively/negatively impacted	Area of positively and negatively impacted habitat in hectares
	C.EN.4	Threatened species (IUCN red list) of known species	- %
	C.EN.5	Support given to local entities working on the protection, conservation and management of local biodiversity and landscapes	- % Of turnover dedicated to such support or - If in-kind support (such as making manpower or machinery available free of charge, or donating land), specify.
Level of Energy Consumption	C.EN.6	Energy consumption	- Tonnes of oil equivalent (TOE) /year - % total primary energy supply
	C.EN.7	Energy demand met by renewable energy	
Energy Efficiency	C.EN.8	Measures taken to increase energy efficiency	- Yes / no. If yes, specify
Waste / Waste Water Management	C.EN.9	Waste generated and recycled Wastewater generated and reused	- Tonnes of waste generated and recycled /year - Million m ³ of wastewater generated and reused/ year
	C.EN.10	Technology available for solid waste and wastewater treatment	- Yes/ No. If yes: specify

Figure 2: Proposed Common Criteria and Indicators for the Economic Dimension			
Criteria	Code	Indicator	Unit
Concentration Of Businesses	C.EC.1	Existence of clusters	- Yes/No
Economic Benefits	C.EC.2	Total revenues generated by local enterprises	- % Total revenues generated by local enterprises
	C.EC.3	Local public revenue generated through time (taxes, fees, etc.)	- m EUR/year
Economic Viability	C.EC.4	Gross value added (Size of the national / regional sector)	- m EUR/year - m EUR/year - m EUR/year
	C.EC.5	Sector specific investments in the region	
	C.EC.6	Turnover	
Employment	C.EC.7	Direct and indirect jobs	- No. of direct and indirect jobs x1000 persons/year
Financial Viability	C.EC.8	Additional streams of finance/investment attracted	- m EUR/year
	C.EC.9	Financial returns reinvested in local activities	- % Financial returns reinvested in local activities
	C.EC.10	Financial self-sustainability of supported activities	- Number of years required to achieve the full financial self-sustainability of supported activities (e.g., debt-to-equity ratio)
Funding	C.EC.11	Public/private funding	- % Of turnover
Costs	C.EC.12	Average personnel costs	- x1000 EUR / year
	C.EC.13	Maintenance costs	- Yes/ No. If yes: specify

Figure 3: Proposed Common Criteria and Indicators for the Social Dimension			
Criteria	Code	Indicator	Unit
Employment Conditions	C.SO.1	Average wage of employees compared to sector average or national average	- EUR/year
	C.SO.2	Presence and activeness of labour unions in the company/sector	Yes/no. If yes, specify
	C.SO.3	Informal employment ⁵⁴	% Informal employment of total employment

Health And Safety Management	C.SO.4	Frequency of auditing by external health & safety experts	No. of audits by external health and safety experts, including evidence of application in practice such as technical measures, regular medical screenings, etc.m
	C.SO.5	Existence of policies and measures to combat occupational diseases and accidents	Yes/no, if yes: specify
Inclusiveness	C.SO.6	Employees with no post-school diploma	%
	C.SO.7	Employment rate of vulnerable groups	% Vulnerable workers of total work force per social category (see guideline). For every social category define: Gender (% male/female/other) Average age
Fairness In Remuneration	C.SO.8	Evidence of unequal pay between social categories for equal work	Yes/no, if yes: explain evidence, type of work and social categories affected, degree of discrimination in pay
Level Of Acceptance by Stakeholders	C.SO.9	Acceptance of environmental, economic and social impact by stakeholders	No. of reported actions of stakeholders against environmental, economic or social impacts

Figure 4: Proposed Common Criteria and Indicators for the Governance Dimension

Criteria	Code	Indicator	Unit
Permits	C.GO.1	Typical permitting regime followed prior to operations	Score: 1. No permitting or environmental administration required; 2. Permit procedure required, but below EIA threshold; 3. Permit with EIA procedure.
Impact Assessment	C.GO.2	Environmental Impact Assessment (EIA), Strategic Environmental Assessment (SEnA) and Socio-Economic Assessment (SEcA) conducted and enforced via monitoring and evaluation	Score: 1. No EIA/SEnA/SEcA conducted, 2. EIA/SEnA/SEcA conducted but not implemented/ enforced 3. EIA/SEnA/SEcA conducted and enforced via monitoring and evaluation
Nature – Based Solutions	C.GO.3	Application of Nature Based Solutions	Score: 1. Relevant, but not applied 2. Applied to some extent [example]

			3. Frequently applied [example] 4. Not applicable to the company/sector activities
Risk Management	C.GO.4	Existence / implementation of risk management plans taking into account the precautionary principle	Score: 1. No risk management plan 2. Risk management plan exists 3. Risk management plan exists, includes precautionary principles and is implemented
Strategy and Vision	C.GO.5	Integration of SDGs in the company's strategy and operations	% Of activities covered by SDG reporting
Climate Change	C.GO.6	Measures taken for climate change adaptation	Yes/no. If yes: specify
Innovation	C.GO.7	Attention to innovation (or investment in Research & Development)	% Revenue invested in Research & Development
Certification & Labeling	C.GO.8	Existence of a sustainability label or certificate	Score: 1. No sustainability label or certification 2. Sustainability label(s) or certification exists/awarded (please specify) 3. Sustainability label(s) or certification applied
Supply Chain	C.GO.9	Existence of supply chain policy	Yes/no. If yes: specify
	C.GO.10	Existence of Life Cycle Assessment policy	Yes/no. If yes: specify
Level of Stakeholder Engagement	C.GO.11	Mechanism for stakeholder engagement	Score: 1. No stakeholder involvement 2. Occasional consultation with stakeholders, focused on public actors 3. Specific mechanism for stakeholder engagement besides public actors
Education and Sustainability	C.GO.12	Participation in information and training sessions about sustainability	Yes/no, if yes specify

4 Conclusions

Blue Economy is a relatively new concept deriving from the Green Economy concept, basing its separation on use of marine resources highlighting the pivotal role the oceans play in limiting temperature rises and stimulating socio-economic development. Blue economy is an integration of sustainable development and green growth. It highlights an overall-planning and coordinated development between marine ecosystem and ocean and coastal zone economic system.

The blue economy sectors are clustered into four large groups: (1) harvest of living resources; (2) extraction of non-living resources, generation of new resources; (3) commerce and trade in and around oceans; and (4) response to marine health changes. The groups are composed of sectors, including established sectors such as fisheries, tourism, transport, and trade, but also new and emerging activities, such as renewable energy, aquaculture and marine biotechnology.

The structure of the Blue Economy Sustainability linking criteria and indicators to the four dimensions of sustainability: economic, environmental, social and governance. For each dimension, a number of key sustainability aspects have been clustered into sustainability criteria. The simple rationale behind the use of all criteria is the elimination of the simple cost – benefit analysis. While the Blue Economy Sustainability Criteria is relatively new (the comprehensive framework was drafted by European Commission in 2020) the usage of such criteria brings multiple advantages to push forward the sustainable development, by having a monitoring framework and evaluating (in the case of policy makers) or self-evaluating (in case of enterprises) the progress. Methodologies of modelling this data are yet to be developed, however there is much potential through this framework rather than the classic macro indicators (such as Gross Value Added of the Blue Economy). Due to simplicity the Blue Economy Sustainability Criteria can be applied to relatively can be applied to investments regardless of size: national level, company level, regional level.

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