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Review

Who Is in and Who Is out in Ocean Economies Development?

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Abstract: This review engages with the ongoing blue economy debate to decipher old and emerging forms of economic, institutional, physical and social exclusions of local communities and vulnerable societies that may result from the development of ocean projects and policies across the globe. The results of this scientific and policy review show that, whereas for some traditional maritime activities such as fisheries, the drivers of exclusion are well studied and somehow addressed in policies, for other emerging sectors, such as ocean energies or deep-sea mining, there is a lack of understanding on how to recognise and prevent the different forms of exclusion. Exclusion is likely to occur when decisions are taken at the highest level of governance to achieve national or international targets of economic growth, food safety, clean energy or leisure, with little consideration of the effects on local economic, social and environmental contexts. On the other hand, when the principles of inclusiveness are given due consideration, they prove to be beneficial for the societies' well-being, increasing the chance of long-term social acceptability. We conclude that, to embrace inclusiveness, both governments and industries have to (a) go beyond the capitalist commodification of nature and recognise benefits other than the economic ones, namely, emotional, cultural and spiritual; (b) promote initiatives that fulfil local needs in the first place and are adapted to local contexts; (c) cooperate with local institutions and stakeholders to promote the co-management of resources and adaptive development. Likewise, research institutions, funding organisations and governmental agencies have to engage in new ways to assess the effects of ocean development that go beyond the quantitative approach and seek to integrate qualitative information, traditional knowledge and local perceptions.

Keywords: blue economy; blue growth; inclusiveness; local communities; marine governance



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1. Introduction

Successful attempts to sustainably manage and govern common natural resources can be traced back to the first part of the 20th century [1]. In policy, the concept of sustainable green and blue economy is relatively more recent [2]. For instance, the Declaration of the United Nations Conference on the Human Environment (Stockholm, 1972) and the United Nations Conference of Rio +20 (Rio de Janeiro 2012) marked a milestone in the establishment of sustainability principles and goals.

Whereas many analogies can be found between the past and the current initiatives of ocean resource exploitation, the modern ocean economy is driven by 'key' industries such as renewable energy, aquaculture, seabed mining and marine biotechnology.

Despite the positive outlook that the blue economy has been casting for the future of ocean exploitation, in terms of innovation, employment creation and economic growth, a new frontier has emerged to criticise the principles and the inadequacy of achievements of the so-called 'sustainable blue growth'. Major criticism has been deployed on the lack of social soul inherent to the way the blue economy is being developed, and the

marginalisation facing local communities across the world [3]. The blue degrowth thesis, the antithesis of blue growth, argues against the inadequacy of the blue growth paradigm to fulfil social sustainability due to the narrow vision of monetary-valued growth [4]. Recently, blue degrowth scholars have deliberated on the many ways by which the blue economy is failing its promises of providing just and fair grounds for local communities to benefit from the ocean economy pillars, and thus forsaking their wellbeing [5]. Most of the scientific and policy exploration of injustice is focused on the fishery sector (e.g., Blue Justice Initiative) or on communities losing fishing ground due to other forms of coastal development [6]. However, the spectrum of the unjust and non-inclusive ocean economy goes beyond the fisheries pillar and vulnerable segments of societies, for instance, indigenous populations and developing countries. By applying to the blue economy the core principle of the green economy paradigm “inclusive green growth is the pathway to sustainable development” [7], we explore the concept of inclusiveness in ocean development. We adopt the principles and goals established by the United Nations Conference on Sustainable Development, to concentrate on the four dimensions of inclusiveness: Economic, Institutional, Physical and Social (EIPS, Figure 1):

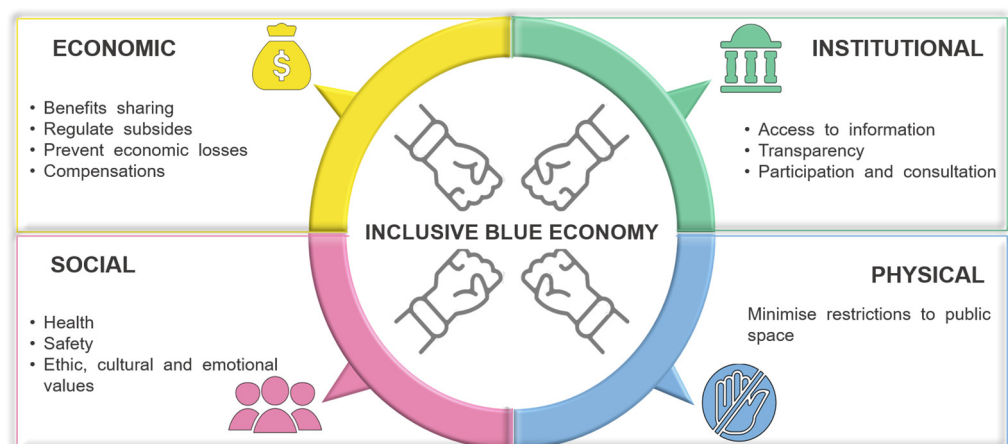


Figure 1. EIPS inclusive ocean development.

Economic inclusion consists of (a) ensuring that communities and societies have access to the fair and equitable sharing of benefits arising from the exploitation of common marine resources, and (b) preventing any form of environmental deterioration that can result in the loss of incomes or profitability of other activities;

Institutional inclusion refers to the premise that all relevant stakeholders are integrated into the process of ocean development, encompassing small local projects to national or regional strategies;

Physical inclusion is about the minimisation of conflicts in the assignment and use of common ocean space and coastal areas;

Social inclusion refers to the forms of ocean development that ensure the health and safety of locals and that pay due consideration to the ethical, cultural and emotional values of marine ecosystems and their services.

Through a literature review from across the globe, we want to delve into the different forms of inclusive (who is in?) and non-inclusive (who is out?) ocean development systems to identify and showcase the mechanisms behind them.

2. EIPS Exclusion in Marine Development

Whereas exclusion can affect anyone, certain groups of society are at a greater risk to suffer from it because of the higher dependence on natural resources. Following the inception of the blue economy idea by UNEP in the Blue Economy Concept Paper [8], a number of studies across the world have observed that local communities have experienced many forms of exclusion while being the most affected by the environmental impacts

deriving from activities development and policy decisions [3,5,9–12]. As showcased in the upcoming examples, both traditional and emerging marine sectors may lead to different types of exclusion but some might have a more devastating effect than others, with some instances leading to irreversible effects on local communities (Figure 2; Table A1).

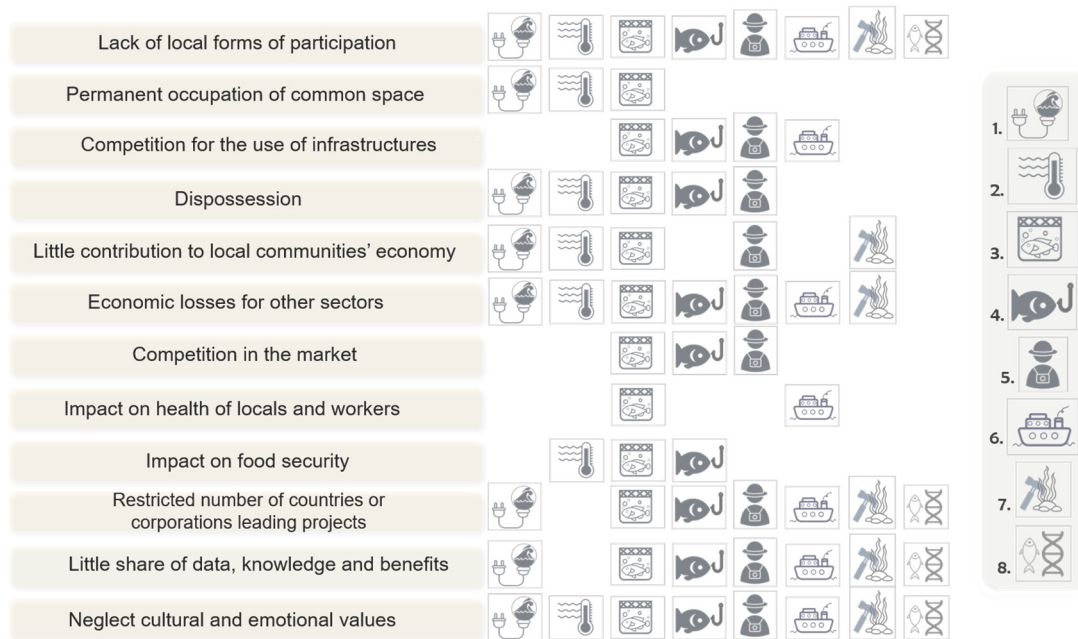


Figure 2. Drivers of non-inclusive blue economy per marine sector identified in the literature, summarised in Table A1) (1. ocean energies; 2. climate change mitigation; 3. aquaculture; 4. fisheries; 5. marine tourism; 6. shipping; 7. seabed mining; 8. blue biotechnologies).

2.1. Ocean Energies

A growing number of countries are replacing fossil fuels with the use of low-carbon sources of energy in an attempt to mitigate the effects of climate change. Nowadays, renewable energies provide almost 30% of global electricity [13]. The different types of ocean energies exploit the power of waves, tides, thermal and salinity gradients, whereas others occupy sea space but work with wind power. Despite contributing to reducing the emissions of CO₂, certain marine renewable energy projects are not supported by an adequate participatory process with affected coastal users [14]. This type of initiative, both along the coast and offshore, can potentially exclude others from the use of such space, for instance, the occupation of a fishery ground [15] or important shipping routes [16]. Forms of economic exclusions vary largely according to the local context. It may result from the lack of a fair distribution of benefits with the surrounding communities, including local taxation or job opportunities [17]. Moreover, the changes in environmental and aesthetic conditions, albeit minimal, can result in economic losses by other sectors; for instance, the negative impact on the touristic value of a place resulting from the alteration of the seascape [18]. Studies on the effects of offshore wind farms show contrasting effects of the electromagnetic field, underwater noise, particle motion and vibration on fish and fisheries [19], whereas there is agreement about the lack of social acceptability of fisheries groups to energy projects concerned with the impact on the environment and thus on their business [20].

Social exclusion in ocean energy development is related to, for example, the lack of consideration of the place attachment and place identity of locals during the site selection process [14,21].

2.2. Climate Change Mitigation and Marine Conservation

Coastal reforestation projects, also known as blue carbon initiatives, aiming at storing CO₂ in coastal ecosystems, have been considered as part of the blue economy [22], and there is growing interest from corporations who wish to offset greenhouse gas emissions (blue credits). A growing body of research on climate change adaptation measures indicates the failures of such measures to include local perspectives in decision-making [23], increasing inequality [24] and culminating in social opposition [23,25]. A review of 46 studies analysing blue carbon projects across the world highlights the gap of social research in each case study, leading to the lack of understanding of the consequences on local wellbeing. Another study on mangrove reforestation projects in Senegal concludes that, albeit considered successful in terms of planted surface, these did not meet the expectations in terms of carbon sequestration and were poor in terms of social and cultural inclusiveness [25].

Similarly, the conservation initiatives of marine resources to enhance the resilience of ecosystems to climate change, in the form of marine protected areas (MPAs) or restrictions on captures of certain fish and shellfish, have also been controversial. In this case, the exclusion is related to the partial or full restriction of a local small-scale fishery to protected areas [26,27] or the lack of integration of local communities from financial benefits deriving from the related touristic activity despite the alleged attempt to promote 'community-based' conservation [28]. When adaptation measures to climate change are established without the consultation of local societies, they can actually increase people's vulnerability leading to what is called maladaptation. Forms of exclusion that result in maladaptation are related, for example, to the construction of infrastructure to protect against the effects of sea-level rise, salt-water intrusion and coastal storms [29,30].

2.3. Aquaculture

The rapid increase in aquaculture production in recent decades has contributed to food security worldwide but it has also resulted in increasing conflict with local groups and traditional coastal users [31]. For instance, the exclusion of relevant stakeholders and their concerns over aquaculture project development has been associated with social inequity and opposition [32]. Protests against aquaculture from indigenous groups worldwide including Canada [33], New Zealand [34], Chile [35] and tropical areas [36] have been linked to the effects of aquaculture on land/sea rights.

The environmental degradation that may result from unsustainable practices can have heavy consequences on the economic profits of the sectors with which marine farms share adjacent space. For example, fish escapes from sea cages, like the salmon incidents occurring in Chile in the last ten years, have had a considerable impact on the environment, the economy and the people. Such escapes led to the depredation of local fish stocks and affected local communities due to contamination from antibiotics. Simultaneously, such incidents triggered market shocks due to the influx of salmon supply, which ended in the black market [37]. Similarly, aquaculture projects in Europe [27,38] and North America [39] have compromised the ability of local commercial fisheries to secure their livelihood. Indirectly, aquaculture farming is hampering local food security because of the growing demand for fish meal. According to [40], coastal communities are selling increasing amounts of their catches to aquaculture corporations instead of satisfying local market demands.

2.4. Fisheries

Intensive and industrial fishing triggers several mechanisms of exclusions as manifested in the literature. For instance, in their historical analysis of the blue economy development spanning the last 40–800 years, [41] conclude that the drivers leading to the failure of sustainable fisheries' exploitation are related to a shift from local to national techno-political control, technological advances enabling exploitation beyond biological limits and the fact that local stakeholders' traditional knowledge becomes less relevant in decision-making. The intensive exploitation of tuna stocks in the Western Indian Ocean

illustrates the paradox of sustainable tuna fishery where national governments worked with industrial fishery, marginalising small-scale fishery actors and increasing social inequity [42]. The well-known Newfoundland cod stock collapse in 1992 resulted from overexploitation and the state's mismanagement and the consequent quota cuts, which mostly affected inshore fishers who relied on this species to ensure their livelihoods and the food security of their communities [43].

High seas fisheries are receiving growing attention from scholars trying to assess the impact on biodiversity in economic and social terms. By combining satellite data with other public statistics, [44] demonstrated that 100 companies are accountable for 36% of high-seas fishing efforts. Moreover, six countries are accountable for 77% of the global high-seas fishing fleet, namely, China, Taiwan, Japan, Indonesia, Spain, and South Korea which would largely be unprofitable (54%) without subsidies and low labour costs [45]. These figures continue to confirm the realities of economic exclusion faced by communities whose access to resources is outcompeted by their bigger industrial counterparts.

2.5. Marine Tourism

Whereas travelling for recreational purposes is not a new phenomenon, this practice started to assume the shape of an industry in the latter part of the 20th century, at the point, considered by many to be the single largest industry in the world [46]. The growth of the marine tourism sector has been so dramatic and fragmented that it is difficult to define and quantify its benefits and costs. In fact, it happens on the seafront with hotels and facilities (ports), on the sea surface (cruise ships, surfing, sailing, kayaking, wildlife watching, etc.) and under the sea (scuba diving and recreational fishing). Marine tourism offers enormous economic benefits but it also raises controversy regarding the impact on the environment and on the social and cultural context where it occurs [47,48]. When governments and policymakers promote international tourism, e.g., all-inclusive resorts and cruise tourism, in many cases they fail to include local communities [49]. Ecotourism—initially designed to improve the environmental sustainability of conventional tourism—is evolving to be socially and culturally inclusive ensuring the fair participation of local communities. However, a number of studies argue that it is focused on profit rather than conservation [50] excluding local coastal communities from the planning and decisions [51], and in some cases, undermining both commercial [52] and artisanal fishing [53]. In a recent cross-cutting analysis of tourism geography, [54] provides a critical view on dispossession, displacement, corruption, commodification and exclusion that may result from different forms of touristic development.

The cruise ship sector falls somehow in the middle between the shipping and tourism sectors. In their review of the socio-economic impacts of this industry, [55] demonstrated that the negative effects for the local economies are destination-specific and that in smaller host territories, such as islands, residents have more chance to experience different types of exclusions (competition for space and the use of local services). Cruise tourism may compete with local tourism businesses because the former does not contribute directly to local taxes [55], and hotels' reservations drop during ship schedules. Moreover, traditional tourists compete with cruise passengers for local attractions and goods [56].

2.6. Shipping

Maritime shipping has been considered for a long time the greatest environmental 'villain' and is one of the less regulated gas emissions sources [57,58]. Its impact on the environment is related to the risk of accidents, unintended or deliberate discharges of waste, the introduction of alien species and air emissions contributing to climate alternation and threatening human health [59]. Assessments on the consequences of such impacts on local populations are scarce in the literature. Heath issues and the associated economic costs are mostly related to the impact of NO_x, SO₂, and CO emissions [60].

Ship-breaking and shipbuilding activities are mostly located in developing countries such as Bangladesh, South Korea, Pakistan, China and Turkey and are performed by low

social classes and often untrained workers [61,62]. Although these activities are a catalyst for the economies of those countries, as they generate employment and steel production, the consequences for the local environment and the health and safety of workers are poorly quantified [63,64].

2.7. Seabed Mining

Deep-sea mining is defined as the process of retrieving mineral deposits from an area of the ocean below 200 m [65]. To date, mining operations are active only in shallow seabeds. The exploration of deep-sea resources is carried out by a restricted number of companies from China, the United Kingdom, Belgium, Germany, France and Japan for three different mineral resources: seafloor massive sulphides, ferromanganese crusts and polymetallic nodules [66]. The social impact of seabed mining is not well understood and assessed as the terrestrial one, but as it happens offshore, it is expected to have a lower impact on coastal populations [67]. Nonetheless, potential environmental degradation resulting from sea mining in terms of noise, dust and water pollution might create tension as observed in the Cook Islands and Papua New Guinea [67].

2.8. Blue Biotechnologies

Blue biotechnology, defined as the application of scientific and engineering principles to the processing of materials by biological agents to provide goods and services [68], involves the exploitation of new products from marine organisms. The societal and economic benefits deriving from the use of marine biotechnologies include drugs and biomedical applications, seafood safety and supply, and the restoration of degraded ecosystems, whereas other applications remain unexplored [69]. The exploitation of marine genetic resources has huge potential for improving human well-being but also as a business opportunity. Over 18,000 natural products and 4900 patents are associated with genes of marine organisms [70] with ten countries claiming 90% of those patents [71]. Authors aiming to answer the question “who owns ocean biodiversity?” found that a single corporation registered 47% of all marine genetic sequences associated with patents [72]. The distribution of the ownership of genes of marine origins seems to be determined by the access to advanced technologies required to explore the oceans [71]. Rules and principles are urging to address emerging issues such as the biopiracy or benefit sharing, including knowledge, of such exploitation, especially for resources in international waters. Things become even more complicated when we have to understand who owns the genetic material from the high seas and how profits should be shared [73].

3. Moving towards Inclusiveness

Moving towards more inclusive blue growth might imply engaging in a blue degrowth or blue justice paradigm, where prosperity can take place with more consideration of locally adapted ocean exploitation [4]. In this section, we present a review of recent case studies of inclusive forms of ocean exploitation with the aim of identifying the mechanisms behind them (Figure 3).

3.1. Ocean Energies

The Scottish Government proposed a guide on *Good Practice Principles for Community Benefits from Offshore Renewable Energy Developments* [74] where the Ministers committed to providing local communities 100% of the net Crown estate revenue from marine activities that occur within 12 miles. This meant giving them a key role in managing the fund to support actions such as building capacity in the community, local business support, local electricity discounts, skills development programmes, supporting and developing women’s empowerment networks, among others. Similarly, tidal turbines installed in Northern Ireland and Cornwall’s Wave Hub development were supported by local residents for the economic benefits as well as the relatively low visual impacts, similar to lighthouses, that fit into the landscape [75,76]. Potential benefits from renewable energy

co-location with other maritime activities have been identified, namely, for fisheries [77–79] and aquaculture [80]. A review of 15 case studies on community-based renewable energy development in Europe and North America argues that these projects were more effective in minimising environmental impacts, maximising benefits for the locals and increasing social acceptability [81].

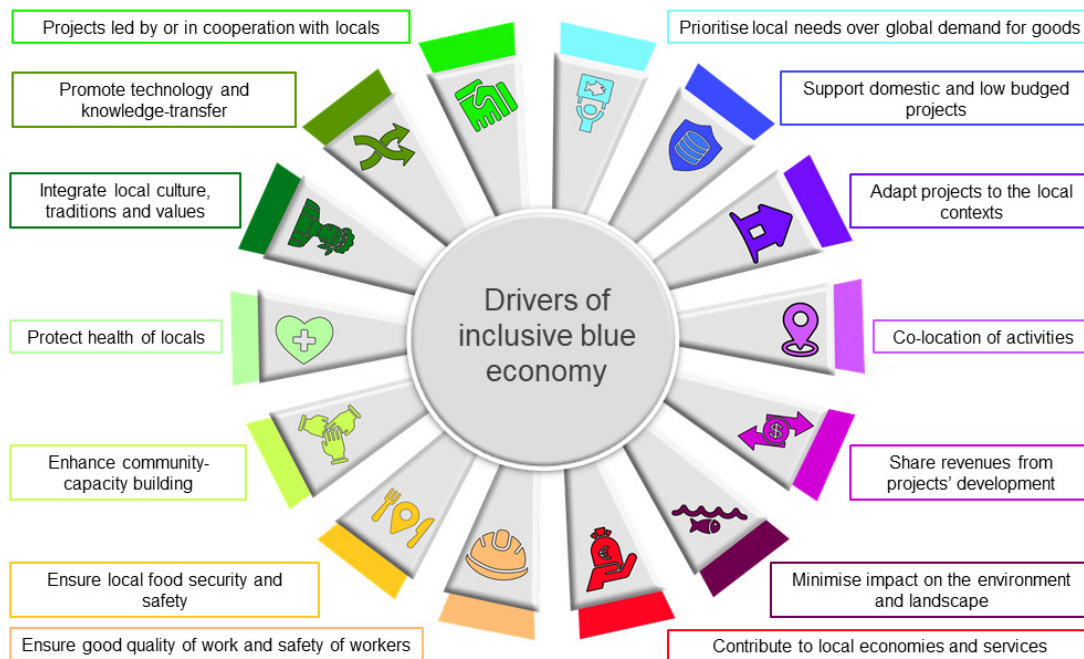


Figure 3. Drivers of inclusive blue economy as captured in case studies.

3.2. Climate Change Mitigation and Marine Conservation

Blue carbon projects are considered successful when they achieve the expected results in terms of carbon sequestration and are integrated into the local context. Some examples of successful carbon initiatives across the globe are led by or implemented in collaboration with local communities [82] and revenues collected from the sale of credits have supported community development projects, e.g., rehabilitating local schools and providing piped water to the community [83]. In some cases, coastal communities have been paid in return for managing mangrove areas sustainably ('Forest Pact', Ecuador), and scientific knowledge has been provided to build the capacity of local management associations to protect their mangroves [84].

3.3. Aquaculture

As for the ocean energy sector, marine aquaculture inclusiveness relies on two main points: sharing benefits with locals that are excluded from the use of the space occupied by installations and ensuring that the habitat degradation that may derive from farm operations does not result in any loss of opportunities for others. New studies are trying to understand if moving marine farms offshore may solve the issue of physical exclusion and coastal habitat deterioration [85,86]. Many examples are found of local initiatives of aquaculture in some rural areas that have a positive impact on coastal livelihoods when it is integrated into the local economy [33,87–90]. New projects of low-impact aquaculture, such as the farming of molluscs and seaweeds, which depends on naturally occurring nutrients and plankton, are usually more easily integrated into the local context and have a better balance between costs and benefits for communities [91].

3.4. Fisheries

Similarly, inclusive fisheries are usually related to traditional forms of exploitation. Ref. [92] reviewed more than 30 case studies from around the world on small-scale fisheries' management and conclude that, to be inclusive, governance must occur in proximity to where small-scale fishers are situated. Successful community-based fisheries, characterised by the devolution of resource management authority to local communities, rely on effective information sharing, harvesting rules that combine traditional and emerging practices, strong leadership and resource monitoring [93]. The *Sustainable Fisheries Livelihoods Programme* (The Sustainable Fisheries Livelihoods Programme - a partnership between the Food and Agriculture Organization of the United Nations (FAO) the UK and 25 countries in Western Central Africa – on the phenomenon of the migration of fishing communities in west and central Africa, stress the need of finding mechanisms for integrating migrant fishers in fisheries policies and in local development and poverty reduction strategies (Njock and Westlund 2010). (SFLP) on the migration of fishing communities in West and Central Africa describes the magnitude of the phenomenon and stresses the need of finding mechanisms for integrating migrant fishers in the implementation of fisheries management policies and in local development and poverty reduction strategies [94].

3.5. Marine Tourism

Domestic and low-budget tourism and backpackers have a powerful positive impact on local economies in developing nations and do not require sophisticated infrastructures that can be provided by small-scale entrepreneurs [95–97]. There are good examples of community-based forms of tourism that enable locals to develop their own businesses, manage economic and social benefits and eventually mitigate negative impacts (see [98–100]). For example, fishing communities are providing local experiences to tourists through diversification (e.g., fishing tourism), which has proved to serve as an incentive for local communities' investments.

3.6. Seabed Mining

Although examples of inclusive seabed mining are lacking in the literature, the lessons learned in the land mining context can be used to set rules and guides to ensure best practices in ocean exploration and exploitation. Corporate social responsibility is based on four main pillars: environmental protection, health and safety, employee relations and community development [101]. Some of these pillars are already adopted in aquaculture and ocean energy development and can thus be replicated in the context of offshore and deep-sea seabed mining, e.g., through community involvement. Ref. [102] provides an example of the potential benefits to integrate indigenous creative practices into deep-sea mining in Papua New Guinea to give voice to marginalised communities and provide an alternative vocabulary for human encounters with extreme environments.

3.7. Blue Biotechnologies

Finally, despite being considered an emerging marine sector, biotechnologies are in fact receiving growing attention from research, and recommendations to ensure accessibility and sharing benefits from marine genetic resources exploitation have also been debated [103].

4. Political Commitments to Inclusive Ocean Economy: From Concepts to Actions

If spotting examples of inclusive or non-inclusive ocean development across the literature is a hard task, tracking down the evolution of this concept in marine policy and political commitments is even more challenging. In this section, we attempt to track the path of inclusiveness in policy to see how it evolved and what progress has been made. The EIPS forms of inclusion overlap in many cases and are somewhat interdependent. For instance, a fair spatial allocation of maritime activities along the coasts to minimise conflict with other users (physical inclusion) must be attained through a public participatory process which incorporates all interested parties (institutional inclusion).

4.1. Economic Inclusion

The literature review shows that the different forms of economic exclusions may result from all types of marine sectors. However, the lack of benefit sharing that may derive from the exploitation (or exploration) of ocean resources by some occurs both in the high sea and along the coasts. At the international level, the first big step towards an equitable and fair distribution of financial benefits that derive from ocean exploitation was taken in 1982 with the *United Nations Convention on the Law of the Sea* (UNCLOS). In March 2022, a conference was held in Singapore to celebrate the 40 years of the Convention—*UNCLOS at 40: An Assessment Singapore* <https://cil.nus.edu.sg/event/unclos-at-40-an-assessment/> (accessed on 1 February 2023)—and make the point of the achievements. Although there was agreement in considering the UNCLOS a landmark living treaty, many gaps still remain in the application of the principle that ocean resources are a common heritage, and its exploration and exploitation should be carried out for the benefit of mankind as a whole. It applies to the seafloor, high-sea fisheries and marine genetics. The participants agree that little progress has been made in establishing methods to assess monetary and non-monetary benefits, developing mechanisms of payment and integrating social and environmental costs of the impact of exploitation and the exploration of the natural capital (net benefit approach).

The issue of economic inclusiveness along coastlines refers to the sharing of the benefits of ocean development among the members of the community, which ensures that the development of a new activity does not hamper the financial fitness of existing users. To this end, a tool exists almost worldwide, known as the Environmental Impact Assessment. In many cases, this assessment requires an evaluation of the impact of human development on the environment, but in very few cases, it demands an economic analysis of the cost of environmental degradation to establish compensatory mechanisms. At the international level, the *Espoo Convention* for EIA [104] was adopted to prevent, reduce and control significant adverse transboundary environmental impacts from activities that might be prejudicial for the socio-economic conditions of another party (Art. 2). This Convention includes impacts on human health and safety, landscape, cultural heritage and socio-economic existing conditions (Art. 1) but it does not set any mechanisms of payments or compensation. Whereas a growing number of regulators are requiring a Social Impact Assessment, for instance, the *European Sustainable Finance Disclosure Regulation* (SFDR) 2019/2088, there is still a lack of indication on methods to measure the social impact [105].

4.2. Physical Inclusion

Marine Spatial Planning (MSP) is a widely recognised instrument to prevent or minimise the growing conflicts across coastal areas as well as within EEZs (Economic Exclusive Zone). UNESCO and the European Commission recently published a document, the *MSPglobal Guide*, to support the ongoing MSP processes worldwide aiming at promoting the coexistence and synergies of activities that share the same space [106].

Although it is often promoted as novel, the earliest attempt at integrated maritime spatial planning can be dated back to 1981 with the Great Barrier Reef Marine Park of Australia [107]. Whereas there is a general consensus that this exercise is essential to ensure the peaceful use of common marine space, recent assessments of national plans showed that integrating all the principles of good governance is quite challenging. For instance, plans are frequently focused on single sectoral objectives [108], and stakeholders' concerns and values are rarely granted real influence in the decision-making [109]. Moreover, there is a predominance of scientific data and operational tools (geospatial databases) and an exclusion of other forms of knowledge [110], unclear jurisdiction and conflicting priorities among institutions [111] with the prevalence of top-down decisions.

Even though conflicts may also occur in international waters, to date, no authority has the mandate to develop and enforce marine spatial plans for areas beyond national jurisdiction.

4.3. Institutional Inclusion

A growing number of formal and informal platforms are being developed at the international, regional and national levels to allow interested parties to be consulted in the governance processes of ocean development. At the international level, the above-mentioned *Espoo Convention* and the *Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters* [112] (<https://unece.org/environment-policy/public-participation/aarhus-convention/text>, (accessed on 1 February 2023)) are the two main tools that support public participation in environmental matters. In the ocean domain, the MSP is the most relevant legislation that has at its core the integration of all interested parties in the development of such plans. A growing body of literature criticises the lack of democratic consultation in the MSP exercise that is serving the needs of elite actors rather than common interests [111,113]. At the same time, many studies present successful stories of ocean development where local stakeholders were actively part of the process leading to increased social and economic wellbeing and an increased acceptance of the process over the long term (e.g., Panorama solution partnership (<https://panorama.solutions/en/about-panorama-solutions-healthy-planet> (accessed on 1 February 2023))).

4.4. Social Inclusion

For the purpose of this review, social inclusiveness refers to the consideration of human health, values, traditions and emotions that are intrinsically related to a healthy ocean. These are broader criteria of inclusiveness, less tangible and thus more difficult to quantify and measure such as in the case of economic loss or physical exclusion. They differ not only from one community to another but also within the same community and evolve over time. Much progress has been made by international organisations to integrate the human dimension into marine development; thus, addressing these issues in international policy is particularly challenging. Nonetheless, the UNESCO organisation was established in 1945 with the aim of “bringing people together and strengthen the intellectual and moral solidarity of humankind, through mutual understanding and dialogue between cultures”. Since then, a number of tools were established to encourage the international circulation of literacy and scientific information (*Universal Copyright Convention*, 1952) to promote innovative approaches to economic development that are socially and culturally appropriate (*Man and Biosphere Programme*, 1971) and to preserve the balance between people and nature (*Conventions on natural and cultural heritage*, 1972; 2003)

This organisation has recently established a set of ambitious challenges—the United Nations Decade of Ocean Science for Sustainable Development (2021–2030)—with the principles of inclusiveness at the very core. Namely, technology and data transfer, the inclusion of local and indigenous knowledge, community-capacity building and participation in the co-management of marine resources. The extent to which this decade will change the fate of social inclusion in ocean development remains to be seen.

5. Conclusions

Whereas the definition of blue economy, or blue growth, is relatively recent, the idea of benefits from ocean resource exploitation is far from novel. This review of case studies of blue economy initiatives presented here to answer the questions, “who is out?” and “who is in?” shows that all marine sectors, both emerging and traditional, can result in different forms of economic, physical, political and social exclusions. Exclusion is more likely to emerge when the exploitation of ocean resources is driven by the economic profitability of the few rather than satisfying communities’ needs for basic goods. Moreover, exclusion may be at specific scales, or multi-scalar in the governance spectrum, i.e., from the local to the international level. In fact, although the exclusion of local communities from using spaces and resources is well documented, other forms of injustice take place in areas beyond national jurisdiction, e.g., high-seas fishing or seabed exploration.

To understand if inclusive blue growth is attainable, we illustrate some successful initiatives for the different sectors. Inclusive marine projects are usually led by or in cooperation with locals and tend to have a local dimension. However, some big projects may be considered inclusive and accepted by locals, if they demonstrate that benefits are shared and that the degradation of the environmental conditions does not result in any economic loss of existing business and social and cultural values.

At the international level, the blue growth political disclosure has evolved hand-in-hand with the sustainability principles at first to prevent the degradation of the sea and the overexploitation of common resources and more recently to ensure that marginalised and more vulnerable groups of societies are included in the process. Although there is wide agreement on the principles of equitable, fair and inclusive ocean exploitation at the international level, mechanisms to ensure that those principles are applied are definitely lacking. Although there could be common sense principles, there should not be universally agreed measures to ensure that those principles are respected in local initiatives. In fact, inclusivity should be ensured by locally adapted rules that differ from place to place according to the environmental but also socio-economic attributes of each place. As inclusiveness can be affected by the market, environmental and climatic conditions, and social evolution, two key principles should accompany blue development, namely, adaptive co-management and the precautionary principle, to have a prompt understanding of the negative effects of mismanagement practices on the environment and on people's wellbeing.

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Appendix A

Table A1. Literature review of the EIPS exclusion in blue economy initiatives per ocean industry.

Industry	Economic	Institutional	Physical	Social
Ocean Energies	[18] North Europe; [20] several; [19] Denmark	[81] several; [14] UK; [114] South Korea	[15] UK; [16] Celtic Seas	[115] USA; [14,21] UK
Climate change mitigation & Conservation	[116] West Africa; [28] Tanzania; [24] USA	[117] Brazil, Cameroon, Tanzania, Indonesia and Vietnam; [23,118] Kenya	[119] several; [120] Global South; [26] several; [121] several; [122] Pacific islands	[25] Senegal
Aquaculture	[39] North America; [33] Canada; [123] Malta; [35] Chile	[32] Spain; [34] New Zealand and Canada; [124] Europe; [39] Canada; [125] Faroe Islands	[31] South Europe; [38] Cyprus; [36] several; [126] India and Sri Lanka	[40] several; [127] Canada; [128] India; [129] New Zealand

Table A1. Cont.

Industry	Economic	Institutional	Physical	Social
Fisheries	[42] Western Indian Ocean; [44] several; [130] several; [131] Canada; [132] Iceland	[43] Canada	[133] Canada	[134] Denmark; [135] South Africa; [43] Canada; [45] Asia
Tourism	[55] several; [52] Mexico; [136] Australia	[49] several	[53] Galapagos	[50] several; [51] Tanzania; [54] several
Shipping	[64] Chine, Several; [55] Caribbean region; [56] central America and Caribbean; [137] several			[138] England; [139] Bering Strait; [60] Spain; [62] Asia; [61] Asia
Seabed mining	[67] Pacific Island states; [140] USA			[141] Several; [102] New Guinea
Biotechnologies	[71] several; [72] several			[142] French Overseas Territories

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