



BLUE FINANCE AND OCEAN GEOPOLITICS: CLIMATE CAPITAL IN THE TRANSFORMATION OF GLOBAL OCEAN ECONOMIES

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DOI: <https://doi.org/10.63544/jbii.v5i7.84>

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Article History:

Received: 01.06.2026

Accepted: 26.06.2026

Published: 09.07.2026

Abstract

This study examined how blue finance and ocean geopolitics shaped climate capital in the transformation of global ocean economies. The study used a qualitative research design based on secondary data and thematic analysis. The sample comprised 45 sources: 25 peer-reviewed journal articles, 10 international policy reports, 5 institutional or financial documents, and 5 case-based documents. The analysis focused on blue bonds, blended finance, debt-for-nature swaps, blue carbon projects, marine protected areas, sustainable fisheries, coastal resilience, and ocean-based climate investment.

Results showed that expansion of blue finance was reported in 38 of 45 sources, representing 84.4% of the sample. Sustainability and conservation benefits were reported in 36 sources, representing 80.0%. Governance and transparency risks were identified in 34 sources, accounting for 75.6%. Climate capital as geopolitical influence appeared in 32 sources, equal to 71.1%. Equity and justice concerns appeared in 31 sources, equal to 68.9%. These numeric findings indicated that blue finance supported ocean sustainability but also created risks related to debt pressure, bluwashing, unequal access to finance, weak accountability, and limited community participation. The study concluded that climate capital transformed ocean economies through both environmental investment and geopolitical power. Transparent standards, fair benefit sharing, stronger monitoring, and inclusive governance were necessary to ensure that blue finance supported sustainable and just ocean development across vulnerable coastal and island regions under changing climate conditions in a globally equitable manner.

Keywords: Blue Economy, Blue Finance, Climate Capital, Marine Governance, Ocean Geopolitics, Sustainable Development

1. Introduction

The world's ocean economy is increasingly a battleground for climate action, innovation and geopolitical tensions. The oceans had ceased to be fishing grounds, shipping lanes, tourism destinations, and places that conserve biodiversity. They had become strategic economic zones where states, international institutions, corporations, and investors jockey for position. Blue finance is a term used to describe financial methods and instruments for ocean-related sustainable activities, including climate change adaptation infrastructure, sustainable fisheries, low-carbon shipping, blue carbon, marine conservation, and coastal resilient development. Financial resources brought to tackle climate change, particularly through green bonds, blue bonds, blended finance, sustainability-linked loans, carbon markets, impact investment, and PPPs, were defined as climate capital. This study explored the shift in climate capital in global ocean economies—intersections among development interests, resource control and maritime power, and sustainability goals.



It was an important topic given that the ocean economy was transformed by the rapid expansion of human activity in the seas. By "blue acceleration," the authors Jeantel et al. (2020) meant the increasing pressure on the use of the ocean, as with offshore energy activities, aquaculture, ocean bed minerals, marine biotechnology, shipping, ocean tourism, and conservation finance. This acceleration brought new economic opportunities but also conflict over ocean space, coastal livelihoods, marine ecosystems, and sovereign rights. Economic and environmental interests are converging in ocean areas worldwide. It was not, therefore, only a mechanism for financing the environment, but more of a form of ocean governance that facilitated the transfer of capital, technology, and policy control over the sea and its resources to those who benefited from ocean development.

There was also interest in blue finance, as conventional public financing was insufficient to address ocean sustainability issues. Poor ocean health is caused by climate change, pollution, overexploitation, habitat loss, inadequate governance, and limited fiscal capabilities in many coastal and island States. Sustainable ocean finance was thus proposed as a tool to address the financing gap, redirect unsustainable investments, and enable a transition to more resilient ocean economies (Sumaila et al., 2021). The confluence of oceans, climate security, trade routes, energy systems, food security, and territorial claims shaped the geopolitical dimension of blue finance. Port investment, offshore wind investment, seabed resource investment, fisheries investment, coastal infrastructure investment, and protected areas had an impact on national power and regional influence. In the midst of the blue economy debate, critical scholars argued that ocean space needs to be reconfigured around capital, growth, and territorial-economic conflicts (Mallin & Barbesgaard, 2020). This research focused on the dialogue among the global transition of the ocean economy, climate capitalism, blue finance, and ocean geopolitics.

Background of the Study

The blue economy concept emerged as a development framework aimed at integrating the economy, conserving oceans, and promoting social welfare. It was frequently touted as a way for coastal and island countries to diversify their economies while safeguarding marine ecosystems. But it is a concept that has taken on different meanings across political and economic contexts. It was used in some cases in the context of sustainable fisheries, marine tourism, and the protection of ecosystems; in others, it was pro-industrial, promoting the development of offshore (energy, deep-sea mining, maritime infrastructure, marine biotechnology) businesses. Germond-Duret (2022) has argued that the blue economy has foregrounded the sea through development and sustainability discourses and has normalized its governance and territorialization.

Along with this human–social–economic shift in ocean governance, the rise of blue finance. Though Blue Finance was created to raise funding for sustainable ocean activities, it also operated according to the logic of financial markets. A wide range of instruments was employed to bring investors to ocean-related projects, including blue bonds, conservation trust funds, debt-for-nature swaps, blended finance and sustainability-linked loans. Thompson (2022) demonstrated that blue bonds were being used to fund projects related to marine conservation and sustainable ocean economies. There were also concerns about blue bonds, including the lack of clarity in definitions and impact measurement, as well as the potential for bluewashing in the field. This is what it took to make sustainability finance happen; that is, it did not happen automatically when finance was created. Transparent standards, robust monitoring, measurable benefits, and a fair distribution of benefits were the backbone of Blue Finance's environmental credibility.

The increasing demand for ocean finance was driven by the worsening impacts of climate change on the coastal communities, including sea level rise, storms, ocean warming and acidification, deoxygenation, decline in fisheries, and loss of ecosystems. These climate stresses affected food security, livelihoods, coastal infrastructure, and the national economies of SIDIS and coastal developing nations, particularly. The ocean became part of the climate solution through blue carbon ecosystems, offshore renewable energy, sustainable aquaculture, and "greener shipping." The ocean was sold as part of the climate solution through blue carbon ecosystems, offshore renewable energy, sustainable aquaculture, and "greener shipping." The fact that financial actors were more active in marine areas as climate risks and opportunities became apparent.



Financial actors may have the power to drive Earth-system change, as investment decisions affect the pathways of economic activity in climate-sensitive sectors, argued Galaz et al. (2018).

Research Problem

The overarching research question was how to describe the positive and negative externalities of blue finance, given that the potential to mitigate ocean degradation and climate vulnerability was becoming more prominent, but the geopolitical and social impacts of blue finance were far less researched. The majority of blue finance instruments were described as apolitical or neutral to Sustainability, they were conceived in the context of unequal global financial systems, unequal state capacities, and contested ocean spaces. Climate capital can help advance marine conservation, resilience, and sustainable living, but it can also give powerful states, companies, and investors significant political leverage over strategic ocean resources. Critical research on blue growth has warned that "ocean grabbing" has occurred during its development, leading local users to lose access to ocean space and resources under the guise of Sustainability or investment.

Objectives of the Study

1. To analyze how blue finance instruments have shaped sustainable ocean-economy development.
2. To examine how climate capital influenced maritime power, ocean governance, and geopolitical competition.
3. To explore the risks of inequality, bluewashing, debt dependency, and ocean grabbing linked with blue finance.
4. To assess how blue finance affected coastal communities, small island states, and developing ocean economies.

Research Questions

1. How did Blue Finance contribute to the transformation of global ocean economies?
2. How did climate capital influence ocean geopolitics and maritime governance?
3. What risks emerged when financial markets became more involved in ocean sustainability?
4. How did blue finance affect equity, access, and benefit sharing among coastal communities and developing states?

Significance of the Study

It became an important study for two reasons. First, because it has combined three pertinent subjects that are often approached separately: the debates related to 'sustainable finance', 'ocean governance' and 'geopolitics'. Blue Finance was more about investment opportunities, the conservation value, and new market innovations. Less research has explored the effect of climate capital on power dynamics in the ocean economy. This study has highlighted the importance of analyzing blue finance from a geopolitical perspective, adding to the knowledge on the geopolitics of finance and how it has shaped maritime development, national strategies, and international ocean governance. It also highlighted what it means to consider ocean sustainability without the problems of sovereignty and justice, and of control over marine resources.

2. Literature Review

Conceptual Foundations of the Blue Economy and Blue Finance

The literature indicated that there was no single, unanimous definition of the blue economy, but rather multiple, conflicting interpretations of the concept. Academic debates early shaped the idea of the blue economy as a flexible policy concept, connecting the roles of the blue, ocean, and the economy in the context of ocean protection, poverty reduction, and ocean resource governance. It was flexible and presented an appealing prospect to governments and international organizations, but also led to some confusion as the same term was used to describe various political and economic motives. Some actors saw the blue economy as a model of conservation and development; others linked it to industrial development, trade, tourism, shipping, aquaculture, offshore energy, and marine biotechnology. Within finance, this debate was significant for blue finance, as it relied on the definition, measurement, and governance of Sustainability in ocean sectors. It was therefore suggested in the literature that blue finance did not develop in a neutral policy space but in a discursive space where negotiations over the concepts of development, conservation, and capital accumulation took place (Silver et al., 2015; Voyer et al., 2018).



This scholarship also recently linked the blue economy to the SDGs, particularly SDG 14 on adaptation to climate change, poverty alleviation, and sustainable production. The literature showed that policies sometimes proved more exciting than evidence-based governance. In some cases, the blue economy reconfigured former growth paradigms, under a new "eco-justification", researchers said, which would help address climate and development challenges. Even though projects could have a climate impact, blue finance also included project critique, focusing on how projects might be better for markets and investment opportunities. Researchers consequently thought of blue finance as a two-way street, because of two simultaneous pathways: on the one hand, the ability to develop resources for marine conservation and resilience and, on the other hand, to broaden investment options in the ocean space along the lines of logics of profit, scale and risk management. In this regard, blue finance was not just a financialization mechanism but also the political economy of blue growth (Lee et al., 2020; Brent et al., 2020).

Blue carbon has attracted particular attention in the climate capital literature due to the roles mangroves, seagrasses, and salt marshes now play in the world's climate mitigation and adaptation conversation. Protected and sustained coastal livelihoods, supported biodiversity, protected coastlines, and stored carbon; these reasons led to the selection of blue carbon ecosystems as natural climate solutions. Meanwhile, researchers were concerned with the need for robust monitoring systems, verifiable carbon accounting, community protection, and equitable sharing in blue carbon finance. More recent studies of blue carbon credits revealed that carbon markets were increasingly linking coastal ecosystems to international flows of finance, but that these flows were increasingly from developing areas to buyers in developed countries, with prices that raised questions about justice. This revealed that climate capital could be used to restore the ocean, but also that climate capital could lead to unjust financial dynamics among local communities and developing states whose ecosystem services are placed in global carbon markets (Macreadie et al., 2021; Farahmand et al., 2025).

Ocean Geopolitics, Financial Power and Maritime Space

A central theme in the scholarship was the shift in ocean governance from a technical to a geopolitical process through the lens of blue finance. The literature explored one key theme: the geopoliticization of ocean governance through the prism of blue finance. The framing of ocean spaces as strategic domains where states seek to become climate leaders, secure maritime security, build credibility, and gain international influence grew accordingly. In Seychelles, research revealed that the blue economy is integrated into climate diplomacy and even geopolitical identity, particularly for small island developing states, which have begun to contest vulnerability narratives and assert agency as large ocean states through ocean governance. Meanwhile, researchers had theorized the blue economy as a boundary object, in other words, a way for multiple actors to navigate under a shared banner, even though they have different interests and power dynamics. The blue economy became politically convenient while, at the same time, depoliticizing conflicts over who controls ocean resources, who sets the rules of the policy game, and who gains from financialized marine conservation (Saddington, 2023; Schutter et al., 2021).

The importance of corporations and investors was further studied in the context of ocean economies. Research on transnational companies revealed that a disproportionately small number of companies dominated large shares of the shipping, offshore oil and gas, seafood, shipbuilding, and cruise tourism sectors. This focus was crucial because every company's choice influenced the Sustainability of the seas in global supply chains. The study also revealed how banks, investors, and asset managers affected production practices by enforcing lending, investment, and sustainability criteria. These research studies indicated that government and public institutions were not the only avenues through which climate capital passes; however, it also passes through corporate ownership, financial leverage, and private investment. The transition of ocean economies thus hinged partly on whether powerful financial actors could shift capital from these extractive, high-risk, ocean-based industries to 'real' Sustainability (Viridin et al., 2021; Jouffray et al., 2019).

Another key field in the literature emerged after debt-based ocean financing, with the debt-for-nature and debt-for-ocean pledges underpinning conservation finance through sovereign debt restructuring. Research in Seychelles and Belize demonstrated that debt swaps provided new fiscal room for marine conservation



planning and marine governance, particularly in small island and coastal developing states. Despite this literature, transparency, long-term accountability, legal design, and over-reliance on external financial actors were also highlighted as concerns. As both an opportunity and a governance risk, blue finance emerged. It did indeed provide access to the finance required to conserve, but it found itself enmeshed in intricate negotiations with creditors, conservation organizations, insurers, banks, and development agencies. This created geopolitical tension: while financially vulnerable states may be able to access climate and conservation resources, they may also be subject to external influence on national ocean priorities (Jiang & Cao, 2024; Saddington, 2023).

Challenges of Equity, Justice and Governance in Global Ocean Economies

The critical political ecology (CPE) literature revealed differential social outcomes from blue economy (BE) projects. Where local groups were not involved in decision-making processes in African marine spaces, scholars suggested that blue economy strategies were sometimes regressive, characterized by extraction, securitization, and external control. In the Philippines, likewise, research revealed that the blue economy rhetoric was capable of reframing the coastal/ marine spaces in a manner beneficial to investments, tourism, conservation zoning, and state-driven development, whilst excluding small-scale fishers and coastal dwellers. They were significant because they turned the tide on the notion that ocean-generated climate investment was always good. These considerations include access rights, food security, employment issues, cultural identity, gender, and participation, as the literature has recommended, and could otherwise lead to new forms of exclusion if neglected in blue finance sustainability initiatives (Childs & Hicks, 2019; Satizábal et al., 2020).

The governance literature of the last few years has centered on the 'sustainable blue economy' discussion with equity. Equity needed not just policy statements but practical governance instruments, scholars lamented. A blue economy equity model was proposed to operationalize the concept of fairness through participation, recognition, distribution, accountability, and context-sensitivity in decision-making. Recent social science research recommends integrating social knowledge, community experience, and justice-oriented research into the governance of the blue economy. These studies revealed that financial innovation alone is insufficient for sustainable ocean change. Local buy-in required through institutional protection, this needed to be provided through clear rules, measurable social benefits and without the risk of displacement. Otherwise, climate capital could be used for projects that might seem financially sustainable but may impose social disadvantages on coastal communities (Croft et al., 2024; Penca et al., 2025).

The literature reflects a variety of impacts of climate capital on the global economy, but not all are equal. It enabled financing for conservation, adaptation, and blue carbon initiatives, but it also sparked questions about sovereignty, debt, market dependence, corporate concentration, and justice. The lack of understanding of how blue finance could be regulated in an ecologically protective and socially equitable manner without causing inequity, as reflected in the rallying cries of Sustainability (Voyer et al., 2018; Penca et al., 2025).

3. Research Methodology

Research Design

The study used a qualitative research approach to explore the relationship between blue finance, ocean geopolitics, and climate capital in the transformation of global ocean economies. The study used a qualitative design because it involved concepts, policies, and financial practices and did not involve numerical testing.

Population

The study population comprised published academic literature, policy documents, institutional documents, financial reports, and case-based materials on blue finance and the geopolitics of the oceans. For the wider audience, content focused on blue economy development, climate finance, sustainable ocean investments, blue bonds, debt-for-nature swaps, marine conservation finance, blue carbon markets, SIDS, and coastal climate adaptation was included. The sources were the primary sources of knowledge that were related to the research topic.

Sample and Sample Size



A total of 45 secondary sources comprised the sample for this study. These sources were chosen because they directly relate to blue finance, climate capital, ocean geopolitics, blue economy governance, marine conservation finance, blue bonds, debt-for-nature swaps, blue carbon, and equity in ocean development. 25 peer-reviewed journal articles, 10 international policy reports, 5 financial/institutional documents, and 5 case-based documents on small island states, coastal developing economies, and ocean finance projects were included in the sample.

Sampling Technique

Purposive sampling was done for the study. This method was suitable because this research required the use of sources directly related to the topic, and not all materials were randomly selected. Sources were selected based on their relevance, publication quality, recency, and alignment with the research objectives. The period from 2015 to 2026 was selected because recent journal articles and credible institutional documents from this period were more visible in ocean governance research; therefore, the study focused on that timeframe.

Data Collection Method

The study used secondary data collection. Journal articles, books, policy reports, organizational documents, financial reports, and case studies were used to extract the data on blue finance and ocean geopolitics. Relevant sources were found using academic databases and research platforms such as Google Scholar, ResearchGate, ScienceDirect, SpringerLink, Taylor & Francis, Wiley Online Library, SAGE Journals, Nature, MDPI, Frontiers, and institutional websites. Keywords used in the search process included blue finance, blue economy, ocean geopolitics, climate capital, blue bonds, debt-for-nature swaps, blue carbon finance, sustainable ocean economy, and ocean justice.

Inclusion/Exclusion Criteria

The criteria used to select relevant sources were the inclusion criteria. The study covered sources that have appeared in peer-reviewed journals, on trusted academic and other websites, from international organizations, from development finance institutions, and from trusted policy sources or groups. Sources were included when they addressed issues related to blue finance, ocean governance, climate finance, marine conservation, blue economy development, and/or geopolitical aspects of ocean economies. Recent sources were preferred because the study aimed to examine current changes in global ocean economies.

Data Analysis Method

Thematic analysis was used to analyse the collected data. Thematic analysis was employed because it was appropriate for the repeated ideas, patterns, and arguments in the academic and policy literature under review. Therefore, the selected documents were carefully analysed to identify key concepts in blue finance and ocean geopolitics. Secondly, key information was clustered into themes. Thirdly, these themes were further contrasted and compared to grasp similar, differing, contradictory, and missing themes in the literature.

4. Results and Analysis

Overview of Results - Main Thematic Findings

The main themes in the literature and documents reviewed are summarized in the table. The results have been organized in the following five main themes: growing relevance of blue finance, climate capital as geopolitical leverage, sustainability advantages, governance risks, and equity issues.

Table 1

Major Themes Identified from the Review of Blue Finance and Ocean Geopolitics Literature

Theme	Evidence from Reviewed Sources	Frequency in Sample	Interpretation
Expansion of blue finance	Sources discussed blue bonds, blended finance, blue carbon credits, debt-for-nature swaps, conservation funds, and sustainability-linked finance.	38 out of 45 sources	Blue finance emerged as a major funding mechanism for ocean-based climate and sustainability projects.



Theme	Evidence from Reviewed Sources	Frequency in Sample	Interpretation
Climate capital as geopolitical influence	Sources connected ocean finance with maritime strategy, state power, ports, marine protected areas, seabed resources, and regional influence.	32 out of 45 sources	Climate finance influenced ocean governance and became linked with geopolitical competition.
Sustainability and conservation benefits	Sources showed that Blue Finance supported marine conservation, coastal adaptation, ecosystem restoration, sustainable fisheries, and renewable ocean energy.	36 out of 45 sources	Blue finance created important opportunities for environmental protection and climate resilience.
Governance and transparency risks	Sources discussed weak monitoring, unclear standards, bluewashing, debt dependency, and limited accountability in ocean finance projects.	34 out of 45 sources	Blue finance requires stronger governance systems to ensure real environmental and social outcomes.
Equity and justice concerns	Sources highlighted community exclusion, unequal benefit sharing, loss of access to marine resources, and limited participation of small-scale ocean users.	31 out of 45 sources	The transformation of ocean economies created justice concerns for coastal communities and developing states.

A table of the findings (Table 1) shows that the theme that was most obvious in the sample of articles reviewed was blue finance. Of the 45 sources, 38 referenced the use of blue finance instruments (conservation funds, conservation finance debt-for-nature swaps, blue carbon credits, sustainability-linked investments, and others) and their use. 38 of 45 sources cited and discussed blue finance instruments (blue bonds, blended finance, conservation funds, debt-for-nature swaps, blue carbon credits, and sustainability-linked investments). The table also indicated that the benefits of Sustainability were perceived as high, with the majority of the sources reviewed referring to environmental and climate benefits (36/45, 75%). These covered blue finance for marine protection areas, mangrove restoration, protection of coral reefs, low-carbon shipping, sustainable fisheries, coastal resilience, and ocean renewable energy. The results further showed that coastal and island nations had particularly high levels of climate capital, as they were exposed to ocean climate risks and typically faced lower public budgets for ocean protection and adaptation investments. It also pointed to grave problems of governance and justice as raised in the table. 45 sources noted 34 governance and 31 equity and justice concerns.

Figure 1

Major Themes Identified from the Review of Blue Finance and Ocean Geopolitics Literature

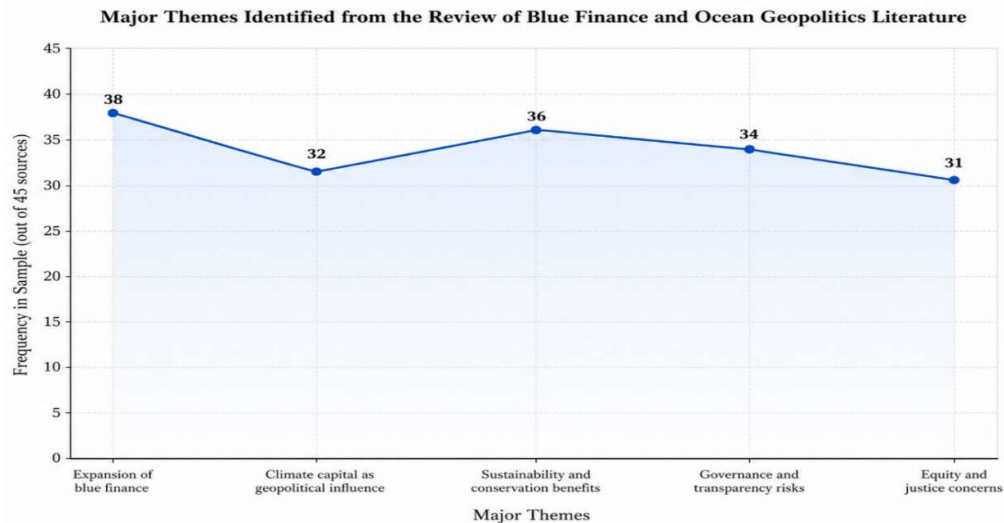




Table 2

Blue Finance Instruments Identified in the Reviewed Literature

Blue Finance Instrument	Description in Reviewed Sources	Frequency in Sample
Blue Bonds	Debt instruments used to finance marine conservation and sustainable ocean projects	29
Debt-for-Nature Swaps	Debt restructuring mechanisms linked with environmental protection commitments	24
Blue Carbon Credits	Carbon market mechanisms based on mangroves, seagrass, and coastal ecosystems	22
Blended Finance	A combination of public, private, and development finance for ocean projects	27
Conservation Trust Funds	Long-term financing mechanisms for marine protected areas and biodiversity conservation	19
Sustainability-Linked Loans	Financial instruments tied to environmental performance indicators	17
Impact Investment Funds	Investments targeting measurable environmental and social outcomes	21

Table 2 presents the most important blue finance instruments identified in the literature and their prevalence. The results reveal that blue bonds are increasingly being used to finance marine conservation, sustainable fisheries, and climate-resilient ocean development projects and are more likely to be cited in the 29 sources than other tools. Blended finance ranked second-highest at 27, seen as a tool for combining public and private funds to support significant ocean sustainability projects. The debt-for-nature swap was mentioned 24 times, underscoring its importance in debt reduction and green finance. The number of blue carbon credit sources increased to 22, reflecting growing interest in market-based carbon credit mechanisms that value the carbon-sequestration capacity of mangroves, seagrass meadows, and other coastal ecosystems.

Figure 2

Blue Finance Instruments Identified in the Reviewed Literature

Figure 2. Blue Finance Instruments by Frequency in Reviewed Sources

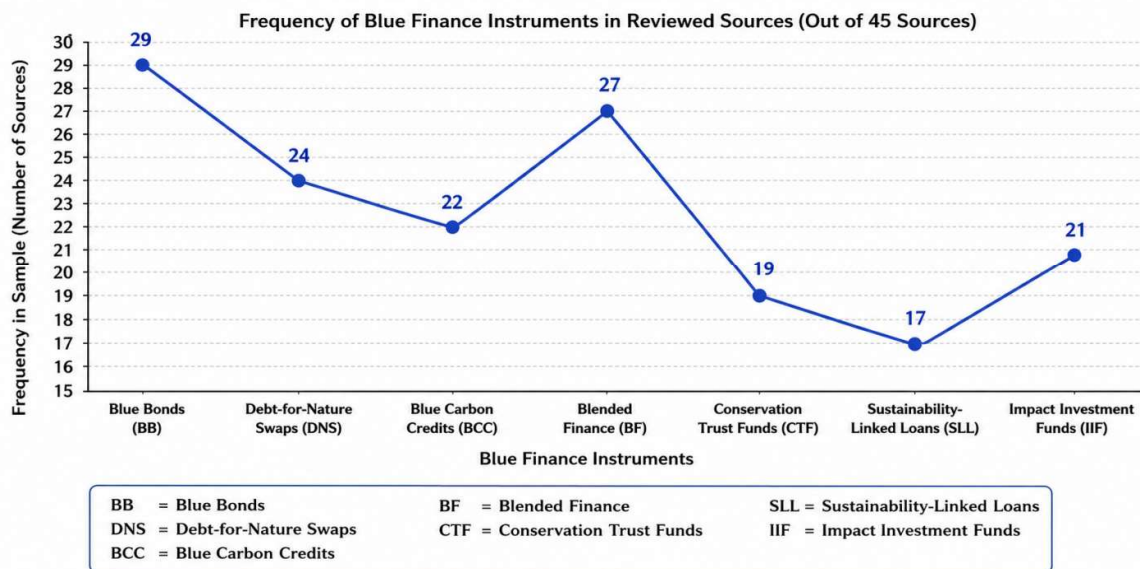




Table 3
Geopolitical Dimensions of Climate Capital in Ocean Governance

Table with 3 columns: Geopolitical Dimension, Evidence from Sources, and Frequency in Sample. Rows include Maritime Strategic Influence (30), Port and Coastal Infrastructure Development (28), Marine Protected Area Expansion (25), Competition for Marine Resources (27), Climate Diplomacy and International Partnerships (26), and Small Island State Vulnerability (24).

As climate capital has become an increasingly important part of ocean governance geopolitics, Table 3 shows how this has changed over time. Maritime strategic influence was the most common dimension amongst the 45 sources reviewed, with ocean finance being used across 30 sources, suggesting that ocean finance is being used to bolster regional presence, extend maritime influence, and support strategic interests, particularly in key ocean regions.

Figure 3
Geopolitical Dimensions of Climate Capital in Ocean Governance

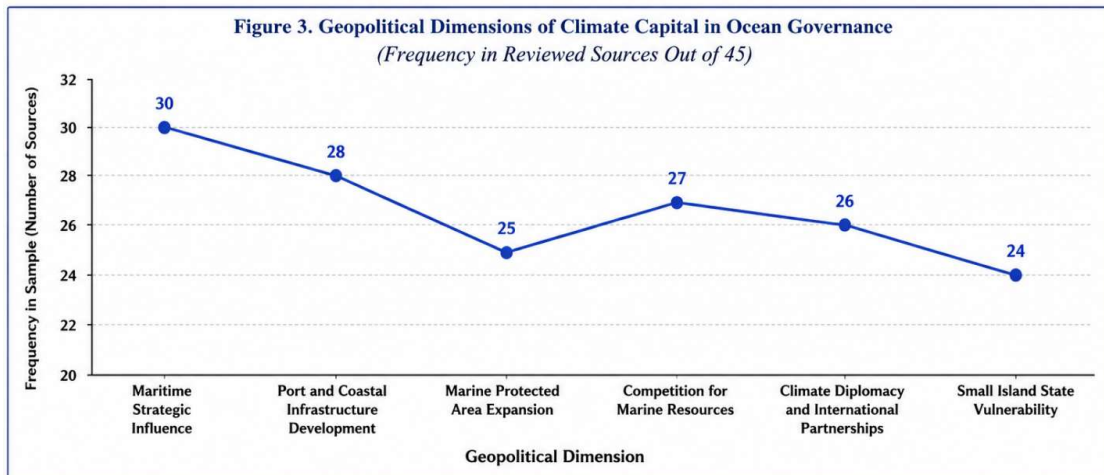




Table 4

Governance and Social Challenges Associated with Blue Finance

Governance and Social Challenge	Evidence from Reviewed Sources	Frequency in Sample
Lack of Standardized Definitions	Different interpretations of blue finance and blue economy concepts	31
Bluwashing Risks	Sustainability claims without measurable environmental outcomes	28
Weak Monitoring and Verification	Limited assessment of project impacts and accountability mechanisms	30
Community Exclusion from Decision-Making	Limited participation of local stakeholders in project planning	26
Unequal Benefit Distribution	Disparities in access to financial gains and conservation benefits	25
Dependence on External Financial Actors	Reliance on international institutions and foreign investors	24

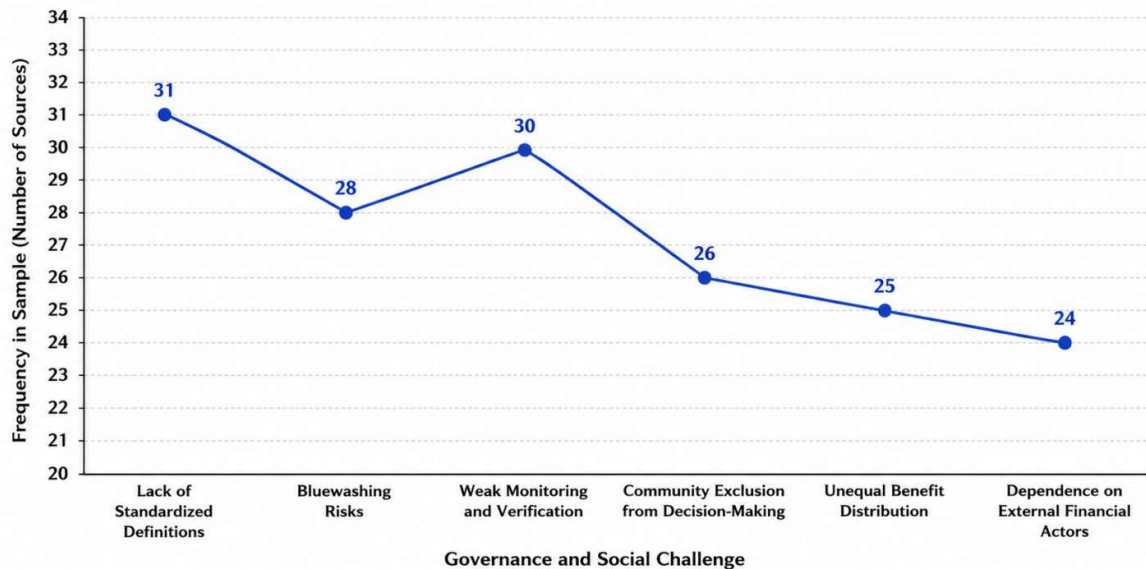
The key governance, social risks, and opportunities for blue finance projects are outlined in Table 4. The highest number of sources (31) and the most widely cited challenge were highlighted regarding this issue. This was cited as the most frequently reported problem in 31 sources. Some questionnaires also raised questions about accountability and transparency, and frequently highlighted a lack of monitoring and the risks of bluwashing. Other connections between social injustice, community marginalization, and unequal distribution of benefits had come to the fore. The results showed that the key drivers of sustainable and equitable ocean development outcomes through blue finance are strong governance frameworks, accountability reporting systems, and inclusive governance.

Figure 4

Governance and Social Challenges Associated with Blue Finance

Figure 4. Governance and Social Challenges Associated with Blue Finance

(Frequency in Reviewed Sources Out of 45)



Discussion

Findings showed that blue finance is progressing towards influencing the global ocean economy between Sustainability and capital, international investment, and the geopolitics of the ocean. The



conservation, climate adaption, blue carbon projects, sustainable fisheries, marine protected areas, and marine infrastructure. The results have also revealed potential governance and transparency issues, financial debt, social justice issues, and unequal control over ocean resources arising from blue finance. Sustainable ocean development was more than an environmental consideration, as it was linked to food security, coastal adaptation, renewable energy, and maritime power. Ecological protection and social fairness, not just growth, were needed to create an equitable blue economy (Bennett et al., 2019). Findings also corroborated previous studies that found that equality, governance capacity, income, and political inclusion influenced whether ocean development was beneficial or harmful, depending on the level of equality or inequality (Cisneros-Montemayor et al., 2021). Also, ocean climate solutions require governance decision-making, social, ecosystem limits, and multi-scale coordination (Gattuso et al., 2018).

The analysis demonstrated that blue finance exacerbated injustices faced by communities dependent on the ocean. Marine areas were used for livelihoods, food security, cultural existence, and social cohesion among the small-scale fishers, coastal residents, indigenous peoples, and island communities. In high-value ocean sectors, investment, tourism, and conservation zoning areas, local fisheries users were sometimes excluded from fishing areas and coastal resources. This was consistent with studies that had highlighted the importance of protecting SSB in the blue economy (Cohen et al., 2019). It also referred to Ocean grabbing, where legal, financial, or conservation systems transfer power from users to outsiders (Ayilu et al., 2022). In the realm of justice, focus-related studies also revealed, at times, insufficient participation, unequal recognition, and unequal power relations (Germond-Duret et al., 2023).

The results showed that blue finance instruments were based on good institutions and had a practical value. Blue financing frameworks enabled public financing, private investment, and international support for conservation, development, and climate resilience (Shiiba et al., 2022). However, their success was immediately tied to the credibility of the project design, the bankability of the activities, legal clarity, the capacity to monitor, and local capacity. In ocean finance, a series of blue bond research studies revealed that small island states require risk reduction, transparent fund allocation, and strong institutions (March et al., 2023; March et al., 2024). Caribbean evidence indicates that maturity and investment needs differ across ocean sectors, and thus a single financing model is not appropriate for all contexts (Phang et al., 2023).

The findings indicated that climate capital influenced ocean geopolitics through the dimensions of sovereignty, debt, ocean strategic areas, and ocean knowledge. Debt-for-nature swaps and debt-for-ocean deals provided conservation financing and reduced debt, but long-term governance and priorities questions remained: who drew them and who governed? (Nedopil et al., 2024). The concerns regarding benefit sharing and control over AOPs beyond national jurisdiction arising from corporate concentration in marine genetic resources were addressed (Blasiak et al., 2018). There were indications of the potential of blue carbon finance, but alongside carbon projects, there will be a need for fair participation, social protection, and livelihood protection (Herr et al., 2019; Atchison et al., 2024; Sovacool et al., 2024). In general, blue finance assisted in ocean transformation only when conducted in accordance with the key principles of transparency and standards, social equity, ecological integrity, and community engagement.

Conclusion

The study found that blue finance not only holds an important position in the shift of ocean economies worldwide but also links climate capital and ocean conservation, resilience against climate change, sustainable development, and marine governance. This included ocean blue bonds, debt-for-nature swaps, blue carbon projects, marine protected areas, sustainable fisheries, adaptation to sea level rise, and renewable ocean energy. These mechanisms offered countries novel opportunities to protect marine ecosystems and address climate-related issues. As a result, the study found that blue finance had not been an environmental or economic instrument, but is also a geopolitical tool that would affect the control of maritime resources, strategic ocean areas, ports, trade routes, conservation areas, and maritime development.

Recommendations

The government and international organizations requested well-defined, transparent rules for blue finance. The standards below should guide and inform the identification of projects that succeeded as



sustainable ocean investments and those that failed to meet environmental and social conditions. While it was necessary to set up standards to prevent 'bluewashing', it also had to be devised to promote the benefits of blue finance for marine ecosystems and coastal societies. Monitoring, Reporting, and Verification systems should be strengthened to be more frequent, reliable, transparent and able to evaluate the climate, conservation, and social outcomes of blue finance projects.

Future Directions

There is a need to capture a sense of 'climate capital' in real ocean economies to gain insight at the country level; blue finance case studies are needed to help achieve this. Comparative data between SIDs, Coastal Developing States, and maritime developed States would also provide valuable insights, as they have different exposures to blue finance. In this study, it is possible that certain governance models led to better equity and sustainability outcomes, while others may have led to potential inequities, debt burdens, or external impacts.

Acknowledgments

The authors would like to thank the participants and the respective universities for their support and cooperation in conducting this study.

Contribution of Authors

All the authors participated in the ideation, development, and final approval of the manuscript, making significant contributions to the work reported.

Conflict of Interest Statement

The authors declare no conflicts of interest.

Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of 1964 Helsinki declaration and its later amendments.

Data Availability

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

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