



Working paper

Closing the blue funding gap

How can Small Island Developing States mobilise a blue innovation fund for community development?

Karuna Rana | SIDS Future Forum 2024

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Abstract

Small Island Developing States (SIDS) are, in fact, Big Ocean States (BOS), controlling 30% of global oceans, making a sustainable blue economy a viable path towards resilient, inclusive prosperity, and positioning SIDS as leaders in blue innovation. However, current financial flows into the blue economy often continue to support unsustainable activities and extractive industries that do not necessarily benefit local communities and which can harm marine and coastal ecosystems. Moreover, in the race for untapped ocean resources as the next frontier for sustainable development, SIDS are being left behind, failing to receive crucial investments, and raising concerns about equity and benefit sharing between them and the Global North. Examining three case studies from Mauritius and Seychelles reveals that current national policies and ecosystems are not conducive to fostering blue innovation or supporting small-scale, early-stage innovators and entrepreneurs working in ocean-related areas. These barriers limit the ability of SIDS to actively participate in sustainable sectors of the blue acceleration, impeding the provision of potential benefits to local communities.

Having identified a clear and significant funding gap in the blue economy for SIDS, a Big Ocean States Innovation and Impact Fund (BOSIIF) is proposed as a holistic, contextually sensitive and targeted intervention to address this gap. This strategic approach combines SIDS' two major assets – the ocean (their natural capital) and the local communities (their human capital) – to propel them towards a truly sustainable trajectory of growth and attract necessary investments. The BOSIIF, if instituted, would also work to invest away from extractive industries and towards more nature-positive, science-focused, climate-resilient, and community-led approaches for the blue economy. The key modalities proposed are designed to address some of the underlying causes of the blue funding gap, going beyond financial support to also include mechanisms that remove barriers to entry for early-stage and small-scale initiatives. The BOSIIF therefore potentially stands as a strategic addition to the ongoing SIDS Centre of Excellence proposal.



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About this paper

This is one of 12 papers commissioned for the Small Island Developing States (SIDS) Future Forum, co-hosted by RESI and Island Innovation, alongside partners UN-OHRLLS, UNDESA, UKAid and AOSIS.

In each paper, a leading expert analyses one of five themes identified in the preparatory documents for the UN's Fourth International Conference on Small Island Developing States (SIDS4) in May 2024. The papers will contribute to SIDS4 as supporting material/annexes to the next 10-year roadmap for SIDS, the Antigua and Barbuda Agenda for SIDS.

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Acronyms

BOS	Big Ocean States
BOSIIF	Big Ocean States Innovation and Impact Fund
EEZ	exclusive economic zone
ISA	International Seabed Authority
NGO	non-governmental organisation
R&D	research and development
RESI	Resilient and Sustainable Islands Initiative
SIDS	Small Island Developing States
VC	Venture capital

1 Introduction

Despite the ocean's vital role in livelihoods, nutrition, and climate change mitigation, Sustainable Development Goal (SDG) 14, 'Life Below Water', remains the least-funded SDG, hindering the achievement of its 2030 targets. Through their exclusive economic zones (EEZs), SIDS (or BOS) control around 30% of global oceans (UN-OHRLLS, 2024) and hold a unique power to foster a sustainable blue economy, crucial for attracting necessary investments. Further, the human capital within islands – their local communities – represents an invaluable, untapped repository of local knowledge and innovation for this emerging sector.

The concept of the 'blue economy' itself gained prominence following the 2012 UN Conference on Sustainable Development where the sustainable and equitable use of the ocean was central to the outcome document, particularly focusing on building the capacity of developing countries to address 'equity in access to development of and the sharing of benefits from marine resources' (UN, 2012). In a concept note by UNEP (2016), the pioneering of the blue economy initiative is attributed directly to SIDS and is defined as an initiative that produces 'improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'. It has undergone increasing integration into national, regional and international policy instruments and roadmaps. But there remains concern with competing and conflicting interpretations of the concept: it is often used interchangeably with the 'ocean economy', which is more broadly defined as the sum of the economic activities of ocean-based industries (Kildow, 2021), with little-to-no consideration of environmental sustainability. A genuinely sustainable blue economy that puts local communities at its centre has the potential to elevate those communities, while achieving climate resilience. For instance, Phelan et al. (2020) illustrate how community-based ecotourism plays a multi-benefit role of enhancing both livelihoods and the sustainable use of marine resources, while also enabling low-resource coastal communities to contribute to the wider development of the blue economy.

The literature on innovative financing models, such as blue bonds for marine conservation and impact investment, offers valuable insights into diversifying funding sources for sustainable blue economy initiatives (Thompson, 2022). Adapting these models to the SIDS context could offer potential solutions. Benzaken et al. (2022) identify access to private capital through these types of innovative financing, and attractive development and livelihood opportunities, as among the key drivers of blue economy development in Seychelles – a genuine pioneer in blue economy and blue finance (Saddington 2023). However, Benzaken et al. (2024) highlight the challenges associated with securing and delivering on debt-based finance in Seychelles, stating these transactions to be complex, investor-driven, and expensive. As noted by Pouponneau (2023), there exists a sizeable gap in the academic literature focused on SIDS. Therefore, this paper makes a case for more research on, and perspectives from, SIDS experts regarding the implementation of the blue economy, including within financing fora, to feed in a greater diversity of voice, perspective, and illustrative examples or experiences of innovative blue financing models.

Given the evident challenges faced by SIDS governments in accessing sustainable blue financing, the disparity in opportunities between local communities in SIDS versus the Global North in accessing resources needed for ocean-related innovations is particularly high. This disparity in ‘blue funding’ hampers innovation, resilience and prosperity, and represents a lost opportunity for communities to convert their local knowledge and lived experiences into innovative ocean-related solutions. It also contributes to ‘brain drain’ as innovators from SIDS may prefer taking their innovations to the Global North for better funding and livelihood opportunities. This policy-focused research paper aims to understand the underlying causes of the ‘blue funding gap’ for SIDS, assess its impact on local communities, and provide evidence-based recommendations for the design and effective implementation of the world’s first blue innovation and impact fund for SIDS. This is proposed as a targeted solution to address the blue funding gap, thereby empowering and elevating its local communities. To make this case, it examines three case studies, two of which are derived from the #SeeingBlue call for solutions on marine plastic pollution and ‘blue’ tourism that ran in Mauritius and Seychelles between 2016 and 2019. By way of background, #SeeingBlue, led by the SIDS Youth Aims Hub (SYAH) of Seychelles and the Global Shapers Port Louis Hub, was an ocean leadership project focused on supporting (pre-incubating) ocean sustainability innovations and solutions by youth in the two countries.

2 Current funding landscape for blue innovation in SIDS

To grasp the funding landscape, it is important to understand which ocean industries are thriving globally, who is benefiting from them, who is being left behind, and why. Three hypotheses emerge, each exploring the different facets of the current trajectory of SIDS within the blue economy.

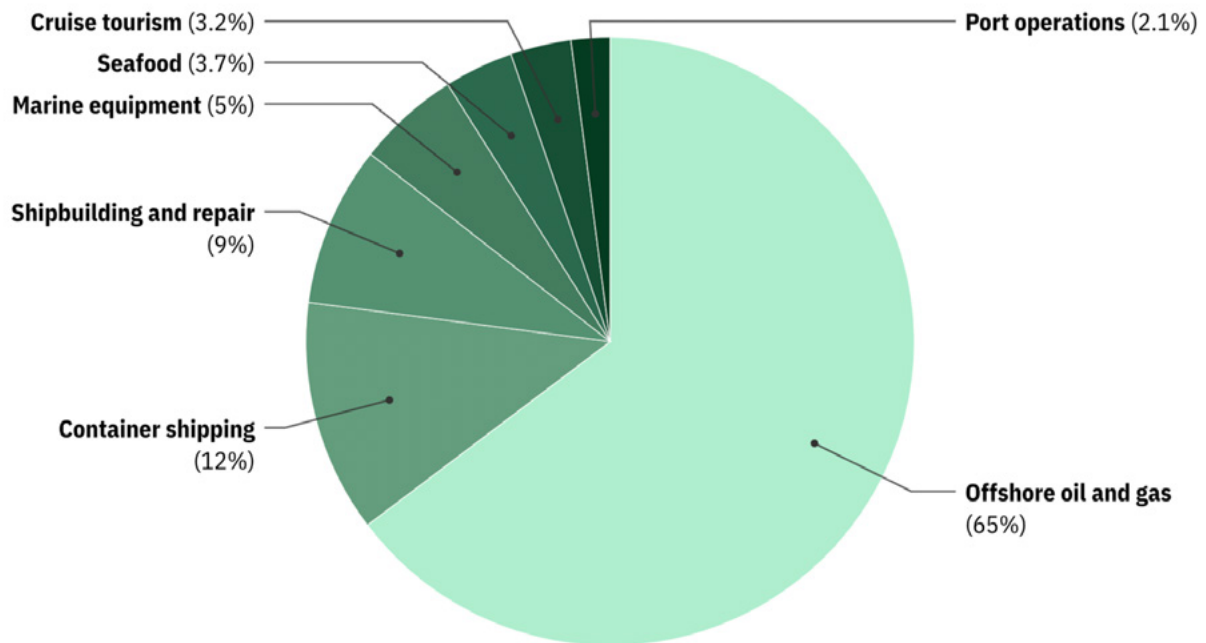
2.1 Hypothesis 1

Current financial flows into the blue economy continue to support unsustainable activities and extractive industries that do not necessarily benefit local communities and which often result in harm to marine and coastal ecosystems.

Global outlook: the ‘Ocean 100’

Globally, the blue economy continues to depend heavily on oil and gas, polluting shipping practices, poorly designed port activities, overfishing, and unsustainable tourism (European Commission, 2020). This is substantiated by an analysis by Virdin et al. (2021) of the 100 largest corporations (the ‘Ocean 100’) that operate within eight ocean industries. As per their analysis, the ‘Ocean 100’ generated \$1.1 trillion in revenues in 2018, of which offshore oil and gas was the biggest industry, accounting for approximately 65% of total revenues. In fact, nearly half of the ‘Ocean 100’ are offshore oil and gas companies, including the biggest company by annual revenue and 9 of the top 10. This was followed by shipping (12%) and shipbuilding and repair (8%), amongst other industries, as summarised in Figure 1. Offshore wind generated <1% of total revenues, represented by only one company in the ‘Ocean 100’.

Figure 1 The biggest industries (by revenue of transnational corporations) operating within the ocean economy



Source: Virdin et al., 2021; Capital Monitor, 2022.

Investments are key to driving blue innovation, and as such, the allocation of funds within ocean industries is a crucial indicator of the trajectory of blue economy sectors. An analysis by Capital Monitor (2022) revealed that a select group of three influential investors hold significant stakes in some of the largest and least ESG-friendly companies within the ‘Ocean 100’. Focusing specifically on the global fisheries sector, around \$22 billion out of the annual investment of \$35 billion is directed towards supporting harmful fishery subsidies (Sumaila et al., 2019). Data on future investment trends are similarly bleak; at least one third of investments in the blue economy (equivalent to around €250 billion) are projected to be unsustainable by 2030 (European Commission, 2020).

These revenue and investment data not only confirm our first hypothesis, but also highlight a global financial divergence from science. According to a 2023 analysis, seven ocean-based climate solutions have been identified to potentially reduce the emissions gap by up to 35% on the 1.50^c pathway by 2050, thus significantly contributing to the Paris Agreement on climate change. Halting the expansion of and phasing down offshore oil and gas extraction offered the largest potential of these reductions (up to 39%), followed by ocean-based renewable energy (up to 26%) (Hoegh-Guldberg, 2023). This is in stark contrast to current investment trends and revenues from the ‘Ocean 100.’

Focus on SIDS: a climate justice paradox

A focus on SIDS reveals significant support to extractive industries by some of these big ocean states in their EEZs, as well as beyond national jurisdiction waters. Of the 31 contracts for exploration by the International Seabed Authority (ISA), 7 are sponsored by the following SIDS: Nauru, Tonga, Kiribati, Singapore, Cook Islands, Jamaica, and Cuba (as part of the Interoceanmetal Joint Organization consortium) (ISA, 2024). Similarly, several SIDS have long been involved in oil and gas exploration, or demonstrated interest for the same in their national budgets and roadmaps, as highlighted in Table 1.

Table 1 An overview of SIDS involved in oil and gas exploration, or with sustained interest within their national budgets and roadmaps

Involvement	Country	Characteristics and trends
SIDS with an active petroleum industry	Trinidad and Tobago	First of-its-kind indigenous petroleum industry to subsidise both producers and consumers, produce and export oil, and conduct substantial oil and gas exploration activities along its coasts (Scobie, 2017).
	Papua New Guinea	Extractive industries, mainly focused on oil, liquefied natural gas (LNG), and mining activities constitute the backbone of its economy, the country having been exporting crude oil since the 1990s (PwC, 2024).
	Guyana	Set to become the highest oil-producing country per capita in the world since the massive discovery of oil and gas reserves in 2015 (OilNOW, 2024).
	Timor-Leste	Economy highly dependent on oil exploration, with oil contributing to about 48% of its GDP and 97% of exports in 2020 (Almeida et al., 2023); however, policies now in place to invest in diversification of its economy towards sustainable blue and green sectors (UNDP, 2022).
	Suriname	Has an active onshore oil industry, with energy giants and investors betting big on the country's offshore oil via ongoing offshore oil and gas exploration projects (Forbes, 2023).
	Barbados	Smallest oil producer in the Caribbean with an active onshore oil industry and recent support to multiple offshore oil and gas exploration schemes in its waters (Bnamericas, 2023).
SIDS not producing petroleum, but with sustained interest in it	Mauritius	Has plans to develop Mauritius into a petroleum and bunkering hub, with announcement first made in 2013 under the ocean economy programme (Mauritius Ports Authority, 2024).
	Seychelles	Has signed agreements to allow for international companies to explore for oil in its waters (Offshore, 2022).

Source: author's compilation.

It is important to note that not all SIDS equate extractive activities to building a blue economy. The Fossil Fuel Non-Proliferation Treaty proposal brought to the negotiation tables of COP 28 was supported by 11 nation states, nine of which are SIDS, including Samoa, Antigua and Barbuda, and Timor-Leste, amongst others (Fossil Fuel Non-Proliferation Treaty Initiative, 2023). Similarly, Fiji, Solomon Islands, Palau, Vanuatu, and Tuvalu are part of the Pacific Parliamentarians' Alliance on Deep Sea Mining (Pacific Blue Line, 2023).

In understanding this divergence, it is perhaps important to consider the countries' socioeconomic status and motivations. Studies show that higher-income countries are more likely to deploy renewables as they can better afford the cost of its technological development and the economic incentives associated with it. Meanwhile, national energy security issues have not been shown to positively impact a country's deployment of renewables, the country often opting for more fossil fuels due to their cost advantage and strong lobby from the fossil fuel industry (Aguirre & Ibikunle, 2014). Like other forms of resource extractions, oil and gas extraction is promoted as a model of development in these countries, with a promise to increase jobs, innovation, and energy security in a war climate. Many of these SIDS also want to champion and control their own development, aiming to overcome the legacies of colonisation. There is also an argument that developed countries are not keeping their promises to phase out fossil fuels, as stated by Barbados, noting a lack of compensation and financial support by the international community for SIDS to keep oil in the ground and transition to net zero (Barbados Today, 2023).

Nevertheless, it cannot be denied that the involvement of certain SIDS in extractive activities undermines the ability of SIDS as a collective, and individually, to demand for a 1.50C target. It also undermines the credibility of SIDS in ocean-related negotiations, putting their reputation as custodians of the ocean at risk.

Environmental and socioeconomic impacts of an extractive blue economy

Although the aforementioned divergence is not exclusive to SIDS, it introduces distinctive risks and dimensions as these countries remain among the most vulnerable to climate change impacts and are reliant on healthy marine and coastal ecosystems for their livelihoods. Offshore oil and gas operations are large contributors to greenhouse gas emissions, including methane, which in turn exacerbate ocean acidification and other climate change impacts such as sea-level rise and coastal flooding (Andrews et al., 2021). A study by Long et al. (2021) links the loss of biodiversity at Lake Kutubu, a Ramsar wetland in Papua New Guinea, to the beginning of mineral resource extraction facilities in the 1980s. Similarly, the Gulf of Paria, accounting for more than 60% of Trinidad and Tobago's fishing activity, has been plagued by numerous oil spills by its offshore infrastructure over the past few years, directly impacting its locals (Thompson, 2014; The Guardian, 2021).

These impacts are not limited to the environment. Large-scale blue economy initiatives often prioritise economic gains at the cost of the exclusion of local communities (Okafor-Yarwood et al., 2020). Moreover, these economic gains only benefit a selected few, sidelining traditional livelihoods, small-scale local operations, blue innovation, and human rights. For instance, the anticipation of transforming Papua New Guinea through the extraction of its abundant resources, particularly oil and gas, has not materialised, and the country remains one of the poorest in the world (Mongabay, 2016). There is also the backdrop of the Paris Agreement and the widely agreed need to move to a net zero greenhouse gas emissions position by 2050, against which investments in fossil fuels look unsustainable and short-sighted: only a temporary source of income for these countries.

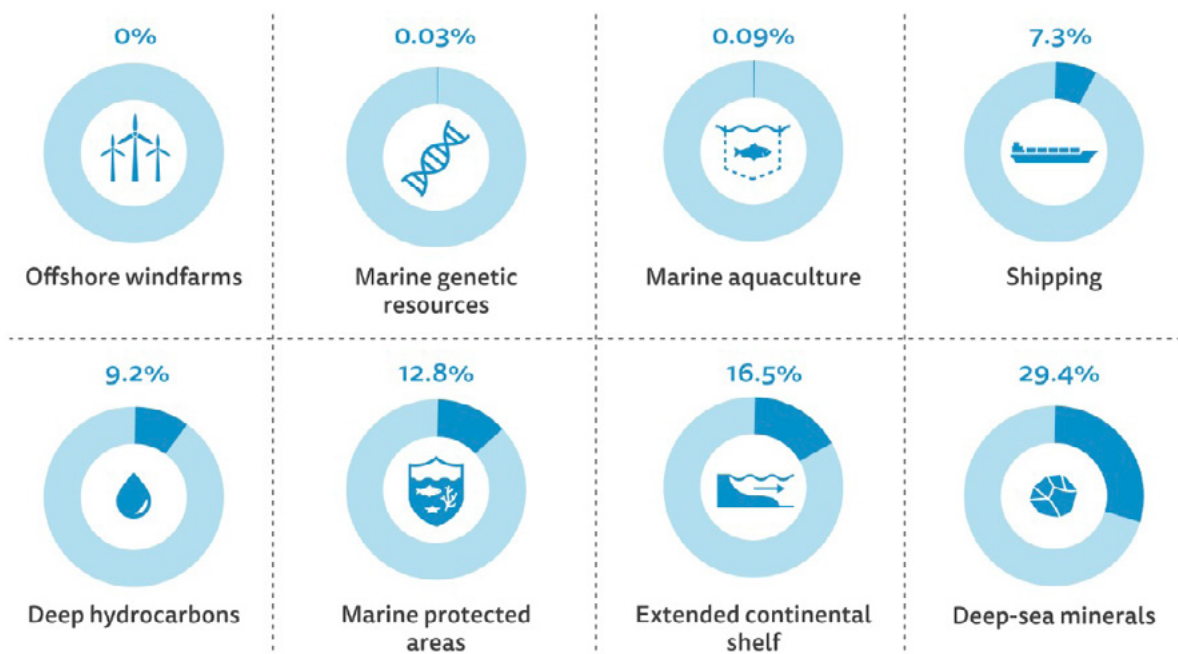
2.2 Hypothesis 2

In the race for untapped ocean resources as the next frontier for sustainable development, SIDS are being left behind, failing to receive crucial investments, and raising concerns about equity and benefit sharing between SIDS and the Global North.

Humanity is in a new phase of its relationship with the ocean. The current rush to exploit an ocean economy is unfolding with unprecedented speed and intensity – a term coined as ‘blue acceleration’ by Jouffray et al. (2020). If questions about which ocean industries are receiving the largest financial investments (and who is sponsoring these) are key to identifying unsustainable blue economy trajectories, questions about who is benefiting from this blue acceleration will be crucial to exploring equity issues, especially for SIDS.

A SIDS lens on the blue acceleration

A geographical lens on SIDS demonstrates little to no blue acceleration. The fisheries industry is a good example of this. Fisheries are a major source of wealth and nutrition for most SIDS, yet 7 of the 10 most vulnerable countries to climate change impacts on fisheries are SIDS (Blasiak et al., 2017). Considering their Big Ocean State status, SIDS should be at the forefront of marine aquaculture – the world’s fastest food production sector. However, only 0.09% of global marine aquaculture production is taking place in SIDS and least developed countries (LDCs) (Jouffray et al., 2021). Similar trends are observed in the biotech industry: only four out of the 13,000+ patents associated with marine genetic sequences are from institutions located in SIDS (Blasiak et al., 2018). Offshore wind farms – a major ocean-based climate solution that could also contribute to increasing SIDS’ national energy security/independence – are literally non-existent in SIDS. The contributions of SIDS and LDCs to the blue acceleration are presented jointly in Figure 2.

Figure 2 Relative contributions of SIDS and LDCs to the blue acceleration

Note: In these data, Singapore accounts for more than 65% of container port traffic and Angola contributes 78% of offshore deep hydrocarbon production.

Source: Jouffray et al. (2021).

These data raise concerns about the systemic inequity in the current blue economy. Differential power and access to resources and markets, coupled with existing political and economic systems and colonial legacies, result in economically powerful states and corporations disproportionately benefiting from the blue economy, with environmental and social harms largely affecting local communities and developing nations such as SIDS. Take, for instance, the ‘Ocean 100’, where the concentration of revenues is not just in selected companies and ocean industries, but also in specific parts of the world. Most of their revenues are concentrated in just seven countries: the USA, Saudi Arabia, China, Norway, France, the UK, and South Korea. None of these largest corporate beneficiaries of ocean resources have headquarters in SIDS, except for a very few companies based in Singapore (Viridin et al., 2021).

Ocean-impact investment funds and the blue funding gap for SIDS

Venture capital (VC) and impact investing in the blue economy offer a range of different tools that have the potential to close the existing funding gap for SIDS. Every US dollar invested in an ocean-themed fund can generate a minimum of \$5 in sustainable impact by 2050 (Konar and Ding, 2020). However, SIDS have thus far experienced limited success in catalysing public and private investments in the blue economy at scale, including via ocean-based funds.

With a value of \$3.1 billion in 2023, blue economy VC funding is nearly 10 times the size it was in 2015, and has grown nearly 300% in the last six years, making it one of the fastest-growing

VC sectors. A higher number of blue economy start-ups have also been founded in the last five years, with the number of early-stage rounds far outnumbering exits. However, blue economy VC funding is still at an earlier stage of development and is a much smaller overall market than many others (Dealroom, 2024). As of 2022, out of the 221 ocean-based funds globally, 196 funds were established in Europe alone (Impact Investor, 2023).

An analysis of the investment portfolios of five of the biggest and most active blue economy VC and impact investment funds with global interests and portfolios reveal a stark gap in portfolio investments made between regions, as shown in Table 2. Companies headquartered in Europe and North America received the greatest number of investments (over 50% in most cases) – Norway and the USA receiving most of it. There were almost no businesses with headquarters in SIDS who received investments: only a handful of companies in Singapore and a seafood traceability company in Costa Rica. This is not to assume that these blue economy funds are intentionally excluding SIDS from their portfolios, but it necessitates further research and discussion with investors, SIDS-based blue economy companies, and other stakeholders to explore ways to close this major funding gap for SIDS.

Table 2 Showcase of five of the biggest and most active blue economy VC and impact investment funds with global interests and portfolios (as at March 2024)

Fund (Name, size, business scale)	Countries with highest portfolios	Investment portfolio by region	
		All regions	SIDS
SWEN Blue Ocean			
\$185 million (raised)	France: 6 (50%)	Europe: 11 (92%)	0
Start-ups (typically Series A)	Norway: 2 (17%)	Asia: 1 (8%)	
Ocean 14 Capital		Europe: 7 (58%)	
\$174 million (raised)	Norway: 2 (17%)	Asia: 2 (17%)	1
Early growth stage	USA: 2 (17%)	North America: 2 (17%)	
		South America: 1 (8%)	
Propeller VC			
\$117 million (raised)	USA: 10 (77%)	North America: 12 (92%)	0
Typically pre-seed and seed	Canada: 2 (15%)	Asia: 1 (8%)	
Aqua-Spark (2024)		Europe: 11 (46%)	
\$97 million (raised)**	Norway: 3 (12%)	Asia: 5 (21%)	1
SMEs (typically Series A)	USA: 3 (12%)	Africa: 4 (17%)	
		North America: 3 (12%)	
		South America: 1 (4%)	
Katapult (2024)		Europe: 33 (54%)	
\$50 million (target)	USA: 11 (18%)	North America: 14 (23%)	4
Early-stage with proven product-market fit	Norway: 11 (18%)	Asia: 7 (11%)	
	UK: 9 (15%)	Australasia: 4 (7%)	
		Africa: 3 (5%)	

Note: ** According to European Commission (2023)

Source: Author's compilation, using data from the showcased company websites.

2.3 Hypothesis 3

Blue innovation is a viable path towards a resilient, inclusive prosperity for SIDS; however, current national policies and ecosystems are not conducive to fostering blue innovation or supporting small-scale, early-stage projects.

Three case studies in Mauritius and Seychelles were selected for an interview with the project owners to understand challenges and gaps in running blue innovation projects and enterprises in these countries.

2.4 Case study 1: a multi-step barrier to filter pollution at source, Mauritius

In 2015, Marie Anielle Espiegle was part of an all-women team that designed a multi-step barrier to filter pollution at source and prevent it from getting into the sea. The four-part barrier was composed of mangroves, fencing, small rocks, and *Eicchornia crassipes* (water hyacinth) to capture debris while also breaking down toxic waste. The proposed project, led by this team of BSc Applied Biochemistry students at the University of Mauritius, won first prize in the 18–30-year-old category of the #SeeingBlue call for solutions on marine plastic pollution and garnered praise from industry experts. The multi-step barrier was to be tested at the Tombeau river in the north eastern part of Mauritius, as a case study, because of the prevalence of plastic waste, pesticides, and chemicals from industries in that area.

An unfulfilled potential

In a recent interview, the now 29-year-old biochemist shed light on the challenges that led to the shelving of her project. Espiegle identified lack of funding as the primary hurdle – though the project had needed a mere MUR 25,000–50,000 (US\$550–\$1,100) to conduct necessary laboratory tests at the University of Mauritius. When asked to rank other common challenges related to early-stage innovations, she ranked a lack of mentorship and guidance as the second highest barrier to success, followed by a lack of advanced technology, and limited access to networks and skilled professionals. Espiegle also provided valuable insights from a gender perspective, gained from her experiences approaching potential partners and investors. She remarked, ‘As a group of young women, it seemed that people took us less seriously and assumed we lacked the experience and capacity to implement a scientific project of that scale.’ Despite initial plans for the five-member team to each take turns in working on the project full-time and conduct necessary lab testing, the persistent uncertainties surrounding funding sources, coupled with the ambiguity of future prospects and parental pressures to secure employment, led to the collective decision to shelve the project and redirect their efforts towards securing jobs.

2.5 Case study 2: seaweed-based replacements for plastic packaging, Seychelles

Mariette Dine, a 32-year-old innovator and entrepreneur, has been working to convert seaweed and other natural plant fibres into sustainable replacements for plastic packaging in Seychelles since 2015. She has developed prototypes in the form of bags made from seaweed, banana fibres, and invasive species, as well as a seaweed-based bioplastic sheet. For the seaweed inputs, she used sargassum, a beach-cast seaweed that is readily available on local beaches. However, the seaweed-based prototypes were not replicable, and thus not viable for long-term use and larger applications. Dine is now exploring other seaweed species with funding from the Seychelles Conservation and Climate Adaptation Trust; she was awarded the SeyCCAT grant to conduct a feasibility study on the potential contribution of seaweed cultivation and use across multiple

sectors in Seychelles. She is also conducting research and development to produce an upgraded version of her prototypes using simpler natural ingredients and equipment that are available locally, and will be focusing on seaweed-based fabrics to combine her work with her love for fashion.

Ongoing delays in research and development (R&D)

Dine described diverse challenges to her journey as a ‘blue’ innovator and entrepreneur. Acquiring seed capital emerged as the biggest obstacle. Accessing loans from banks necessitated property or asset ownership: something recent graduates rarely have. Similarly, accessing other local grants, such as the SeyCCAT Blue Business Grant for start-ups and entrepreneurs, was not an option due to stringent criteria for eligibility. These challenges signal the need for a review of such eligibility criteria, and for tailored support for new and smaller enterprises. Dine was finally able to get her seed capital from a grant awarded by the Tony Elumelu Foundation. She also set up her own consultancy firm to sustain herself financially while working on her innovation. She has been investing part of her earnings into the R&D of the new seaweed-based biofibre prototypes.

Besides financial constraints, Dine highlighted infrastructural deficiencies, training gaps, and a lack of biotechnology experts as the other major hindrances in her innovation and entrepreneurial journey. ‘When it comes to (local) business training, it is mainly about how to make a business plan. We need to go beyond business plans and train innovators on how to get from idea to prototype to commercialisation,’ she stated. In sharing more about the barriers, Dine spoke of the absence of a research and testing facility or incubator in Seychelles, as well as a lack of packaging facilities for products like hers. The solitary nature of the project, which Dine described as a ‘one-woman show’, contributed to feelings of being overwhelmed and presented major delays in the R&D process.

Dine’s remarks in the interview are consistent with recent literature. In highlighting Seychelles’ experience with debt-based financing to address the blue funding gap in SIDS, Benzaken et al. (2024) have called for greater attention to local social determinants. They propose the strengthening of local enabling environments and private-sector capacities through incubators and accelerators, investment in research and innovation, and support for the commercialisation of innovative ideas. Recognising the small-scale nature of several island-based projects, they propose regional approaches to financing these projects, such as international and regional bank blue bond issuances, and regional SME platforms.

2.6 Case study 3: sustainable crab aquaculture, Mauritius

Jessan Persand, of Persand Royal Company Ltd, is the founder of a sustainable crab aquaculture business set up in 2013 in Mauritius. The company employs an innovative approach to mud crab aquaculture in the lagoon of Mauritius: one that prevents cannibalism and increases the crabs’ growth rate in a sustainable manner. The farming happens at Petit Barachois Poudre D’Or,

a site conducive for the farming of crabs and oysters due to the presence of phytoplankton and mangroves. By way of background, a barachois is a shallow lagoon formed by a sand bar and particularly well suited for crustacean farming. The annual production of the company is approximately 5 tonnes of crabs and 1 million oysters, as well as other crustaceans such as clams. These are sold to local hotels, restaurants and supermarkets at an affordable price. The company has been successful in reducing reliance on imported seafood and increasing the affordability of high-quality crabs and oysters in Mauritius. As part of the company's next growth phase, the 29-year-old entrepreneur is now setting up an eco-tourism project: a small restaurant at the farming site, which aims to provide Mauritian tasting menus using seafood from the farm.

A success story

Though he faced initial barriers in accessing seed funding, Persand attributed his success to having had access to a family-owned barachois permit where his farming operations are based. Without this access, Persand would have faced regulatory barriers: applying for a barachois permit is not only a long and tedious process, but is also normally only granted based on prior experience in running similar operations – something that Persand did not have. His uncle, the permit holder, had already been involved in crab farming for several years. As such, his uncle not only provided necessary support and guidance to Persand to transform his idea into a viable business, but also provided the market credibility and site access Persand needed to conduct his pilot farming operations. For instance, the Anzisha Prize fellowship, which he deemed key to his success, was only awarded to him because he was able to use his uncle's existing barachois permit to demonstrate pilot farming results and have them available for investors to visit as due diligence. When asked what other factors contributed to his success, Persand spoke of his company being first to market in providing high-quality crabs and oysters on a large scale in Mauritius. His farms and products have also been awarded multiple certifications – an investment his company deemed important to increase their competitiveness on the Mauritian market. Persand recently partnered with UNDP to train 15 women in oyster farming, and regularly hosts BSc Aquaculture students from the University of Mauritius to conduct their research at his farm. This shows that community-led initiatives tend to promote and support more community-led initiatives.

Perspectives on the blue economy and a proposed blue innovation fund for SIDS

Providing insights into the potential of the blue economy as a viable career path in SIDS, the interviewees expressed a very positive view. Alongside this optimism, however, the Mauritian interviewees voiced concerns about the political dynamics in Mauritius, as well as observing that societal attitudes are not favourable to entrepreneurial and blue economy initiatives. All interviewees highlighted the competitive landscape and the difficulties associated with resource access, with one of them noting that a select group of individuals tended to monopolise available opportunities.

The interviewees expressed support for the establishment of the proposed blue innovation and impact fund for SIDS. They emphasised the importance of such a fund going beyond financial support to also offer administrative (e.g. accounting) and legal help, sustained guidance, mentorship, long-term monitoring, and relevant skills training to facilitate the successful transition of ideas to commercialisation. Suggestions were also made on collaborating with research institutions in neighbouring islands when a country lacked necessary research facilities.

3 Towards a SIDS blue innovation fund

Having identified a clear and significant funding gap in the blue economy for SIDS and gained insight into some of the underlying causes, this section proposes a Big Ocean States Innovation and Impact Fund (BOSIIF) as a holistic, contextually sensitive and targeted intervention to address this gap. This strategic approach works to create enabling conditions and success factors to close this blue funding gap and drive investment towards SIDS. Most importantly, it aspires to combine SIDS' two major assets – the ocean (their natural capital), and the local communities (their human capital) – to propel SIDS upon a truly sustainable trajectory of growth. This regional approach is aligned with the literature review and case studies presented in this paper, both of which demonstrate that regional funding is key to supporting small – and early-stage island-based projects.

The title of the proposed fund deliberately uses the term BOS to change the narrative descriptors for SIDS from 'small' to 'big' and from 'victims' to 'leaders' in the blue economy.

The key modalities of BOSIIF are designed to achieve the following objectives:

- Invest away from extractive industries towards more nature-positive, science-focused, climate-resilient, and community-led approaches for a blue economy.
- Convert lived experiences and local knowledge into high-impact solutions.
- Boost blue innovation, research, and development.
- Remove barriers to entry, especially for early-stage and small-scale initiatives.
- Benefit the local communities of SIDS.
- Facilitate inter-regional (South–South) data and knowledge exchange, and cooperation.
- Promote SIDS as ocean custodians and global leaders in blue innovation.
- An outline of the key modalities of BOSIIF is presented below.

3.1 Strategic intent

Geography

Exclusively catering for beneficiaries based in SIDS

Sectors of focus

Preliminary sectors identified include:

- marine aquaculture and 'blue foods'
- ocean-based renewable energy and decarbonisation
- marine pollution and waste management

- blue biotechnology and new materials
- sustainable tourism
- marine carbon dioxide removal, capture and storage
- marine conservation.

Scale

Early- to growth-stage businesses and solutions, including those at the ideation stage and focusing on supporting innovations to move from ideation to prototype to market. A focus on early-stage, small-scale solutions would enable direct benefits to the local communities, often overlooked in large-scale solutions.

3.2 Fund size and sourcing

- **Size:** \$50 million to \$100 million
- **Source:** Public, private and philanthropic contributions, including environmental fiscal policies and innovative financial tools such as blue bonds

3.3 Fund hosting, membership and management

- **Host organisation:** A consortium comprising SIDS governments, local non-governmental organisations, industry stakeholders, and international organisations
- **Fund custodians:** Intergovernmental organisations representing each of the three SIDS regions, such as Indian Ocean Commission, CARICOM, and Secretariat of the Pacific Regional Environment Programme (SPREP)
- **Membership:** BOSIIF's financial donors
- **Management:** A governance structure (with country hubs) that ensures transparency, inclusivity, accountability, and regular strategic updates to all members and stakeholders

3.4 Fund activities

Table 3 Fund activities

Activity	Description and benefits
Innovation mapping and needs assessment	<p>Collaboration with local institutions, NGOs, industry experts, and communities to map existing innovations across SIDS, identify priority areas for blue innovation and impact, and perform a needs assessment to understand the unique challenges faced by these existing projects.</p> <p>This mapping exercise ensures that BOSIIF's initiatives are data-driven and aligned with the specific needs of its beneficiaries, adjusting modalities to cater for what they actually need rather than an assumption of the same.</p>
Innovation boosting mechanisms	<p>Ideation competitions, innovation labs, and pre-incubators</p> <p>Partnering with local organisations to organise innovation challenges and labs at national, regional and interregional levels. These competitions could be theme-specific, shifting among BOSIIF's different priority sectors. A three- to six-month pre-incubator programme would then be set up to provide winning entries with resources to validate and refine their ideas, preparing them for more intensive phases of solution development.</p> <p>These competitions and labs promote creativity, innovation, and inclusiveness, and help identify both traditional and novel solutions to local challenges. Ideation competitions are not new but often go unnoticed by local communities; partnership with local organisations ensures that communication channels remain inclusive.</p> <p>Research and development (R&D) collaboratives</p> <p>Facilitating partnerships between local and regional research institutions, private enterprises, and international organisations.</p> <p>Not all SIDS have the necessary R&D infrastructure in place; the collaboratives can advance scientific knowledge and help accelerate the development of working prototypes.</p>

Activity	Description and benefits
Removing barriers to entry	<p>Flexible financing models and strategic innovation grants</p> <p>Providing a range of financial instruments, including grants, low-interest loans, patient capital, and equity investments, allowing for a diverse portfolio.</p> <p>Flexible financing models ensure that financial constraints do not hinder the development of innovative ideas and that they accommodate the diverse needs of various scales, types, and risk profiles of initiatives.</p> <hr/> <p>Innovator fellowship programme</p> <p>Establishing a paid fellowship programme for a 1- to-2-year period for fellows to work full-time on their innovations, based on predefined project milestones.</p> <p>This is a targeted approach to bridge the funding access gap between early-stage innovators located in SIDS versus the Global North. Paid fellowships would ensure that the innovators, who are often recent graduates without any savings, are able to dedicate their time to their innovations without having to seek alternative employment or prematurely give up on their ideas. It also holds them accountable for successful development and implementation of their innovation. Such a fellowship programme is also important within the cultural context of SIDS, whereby a stable monthly income is favoured over entrepreneurship, especially for new graduates.</p> <hr/> <p>Capacity-building initiatives</p> <p>Implementing training programmes, workshops, and mentorship pairing, covering areas such as grant writing, branding and marketing, business plan development, and project management.</p> <p>In addition to financing, many new entrepreneurs lack prior experience in setting up a business and/or converting their ideas into a business.</p> <hr/> <p>Streamlined approval processes</p> <p>Simplifying application and approval procedures to minimise bureaucratic hurdles, including setting up third-party support for applicants with language barriers.</p> <p>This would encourage more innovators to participate, especially those with limited resources, language barriers, and smaller-scale ideas.</p>
Supporting local communities	<p>Community benefit agreements</p> <p>Establishing agreements that guarantee tangible benefits for local communities from funded projects, which include provisions for job creation, skills development, and revenue-sharing mechanisms.</p> <p>This strategy is crucial in enhancing social equity and prosperity, especially for SIDS populations, who often receive minimal shares of the benefits of their labour and the resources around them, especially in large-scale activities.</p> <hr/> <p>Community impact framework</p> <p>Developing a comprehensive framework to assess the social, economic, and environmental impact of funded projects at the community level, enabling community members to engage with funded projects, share feedback, and participate in the project lifecycle.</p> <p>Regular impact assessments ensure that projects stay aligned with local needs, fostering sustainable development and addressing any unintended consequences.</p>

Activity	Description and benefits
Promoting visibility, leadership, and South–South cooperation	<p>SIDS innovation platform</p> <p>Creating an interregional user-friendly online platform featuring innovation profiles, success stories, and collaboration opportunities from across SIDS. The platform would also connect funders and partners to the innovations.</p> <p>Such a platform would increase the visibility of blue innovations, but also of SIDS as leaders in blue innovation. It would also foster South–South cooperation, allowing SIDS to learn from each other and collaborate.</p>
	<p>SIDS innovation dialogues</p> <p>Organising periodic regional and interregional events to showcase the various blue innovations and start-ups from SIDS, also inviting potential funders, partners, and mentors.</p> <p>These innovation showcase events will enable innovators to interact with experienced professionals, potential investors, and like-minded peers who can offer valuable insights, support, collaborations, and networks.</p>

3.5 Link with the SIDS Centre of Excellence

The Big Ocean States Innovation and Impact Fund (BOSIIF) stands as a strategic addition to the SIDS Centre of Excellence that is being proposed for the 10-year agenda of the 4th International Conference of SIDS. By offering a targeted approach to boost an inclusive, sustainable blue economy across SIDS – the ocean being their natural capital – BOSIIF is uniquely designed to complement the broader goals of the SIDS Centre of Excellence in fostering the regional and global integration of SIDS. The community-centric approach of BOSIIF will also increase support to and ownership of the SIDS Centre of Excellence, ensuring an equitable distribution of its benefits.

BOSIIF is directly aligned with the technology mechanism proposed during the 2023 AIS Regional Preparatory Meeting held in Mauritius, as it commits to fostering blue innovation, research, and technology development in SIDS. At its core, BOSIIF wants to ensure that the latest technological advancements in the blue economy are shared for mutual benefit amongst all SIDS. BOSIIF can also serve as an active partner in mapping, sourcing and promoting blue innovations, and work with the dedicated Project Formulation Facility to better support smaller SIDS and their innovators in accessing needed financial resources. The SIDS innovation platform and SIDS innovation dialogues proposed within the modalities of the BOSIIF can be jointly organised with the SIDS Davos-style biennial dialogues. This synergised approach will not only facilitate exchanges and collaboration, but also increase the visibility of SIDS as champions and leaders in blue innovation.

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