Deutsches Institut für Entwicklungspolitik
German Development Institute
d·i·e

Joint project with:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Briefing Paper 22/2021

Towards Sustainable Ocean Governance: A Call for Blue Climate Action in International Development

Summary

The ocean is vital for life on earth and yet it is under serious threat from climate change and resource overexploitation. Environmental change in the ocean significantly undermines human livelihoods, especially in the developing and least developed countries where people are particularly vulnerable to climate change-related losses and damages. This Briefing Paper outlines challenges that people, development cooperation and policy face and suggests ways forward for sustainable ocean governance through sustainable resource use, comprehensive risk management and enhanced climate action.

Life in the ocean is threatened in various ways by human activities. Climate change, as one severe consequence, leads to ocean warming and ocean acidification putting complex ecosystems and their sensitive species in danger. Such climatic impacts are exacerbated by pollution, especially plastic, and the overharvesting of many marine species. As a result of the confluence of these developments, many local coastal communities lose their livelihoods.

At the same time, climate change increasingly threatens coasts through sea level rise, salinisation and growing frequencies of extreme weather events, such as floods and storms. This puts the 2.6 billion people living at or near the coasts at high risk; low-altitude small islands are expected to become uninhabitable within the next decades if current global warming trajectories continue.

Furthermore, the ocean contributes to climate change mitigation because marine ecosystems absorb CO_2.

In response to these challenges, there is a need for sustained awareness raising on the importance of the ocean for development as well as for the need of enhanced international cooperation for joint action. Conscious politics, substantial action and financial resources are needed at multiple levels of governance, from empowering local stakeholders to developing locally sound solutions to political guidance through national and international policy-making processes. From a development policy angle, this Briefing Paper specifically suggests that current climate and biodiversity policy processes pay enhanced attention to the ocean under climate change, pollution and overexploitation stress. This should be guided by the overarching vision of a sustainable blue economy. More concrete reform needs are

- a stronger focus on responsible stakeholder inclusion at all levels in ocean governance in general, ranging from individual households to communities, private sector and governments;
- expansion of marine protected areas and promotion of marine and coastal nature-based solutions to complement sustainable blue economies while ensuring their inclusive and rights-based governance;
- support for sustainable small-scale fisheries and promotion of eco-friendly mariculture and aquaculture;
- expansion of the reach of the UNFCCC's Nairobi Work Programme and the Warsaw International Mechanism for Loss and Damage (WIM) to oceans and coasts; and
- support for radical decarbonisation pathways and a carbon-neutral blue economy.

Introduction

A healthy ocean is key to life on earth and, therefore, deserves the utmost attention in international cooperation for sustainable development. As a major global climate regulator, the ocean has up to now absorbed around one-fourth of global CO_2 emissions and produced around 50 per cent of atmospheric oxygen (IPCC, 2019, p. 456). Marine biological resources and ecosystems make essential contributions to people's livelihoods; for instance, fish, shellfish or algae are a major component of many people's nutrition, and mangroves or coral reefs provide protection against floods and storms (IPBES, 2019).

However, anthropogenic pressures on the ocean through greenhouse gas emissions, pollution and resource overuse are accelerating dramatically and sometimes with mutually reinforcing consequences. Coastal communities in Least Developed Countries (LDCs) and Small Island Developing States (SIDs) are particularly affected by climate change as their livelihoods depend strongly on healthy marine ecosystems and vulnerability of assets and people to extreme ocean-related climate events is especially high in LDCs and SIDs. Globally, over 2.6 billion people live near the coast. Levels of urbanisation in coastal areas, the dependence on coastal and marine resources and the need for coastal protection are high and projected to increase with global population growth (IPBES, 2019, p. 647).

Sustainable ocean governance (including coastal zones) is critical for managing the interaction between the ocean, society, and economies and a crucial building block for achieving the Sustainable Development Goals (SDGs) and the Paris Climate Agreement. Yet we argue in this Briefing Paper that current efforts to alleviate pressures on marine resources, for coastal climate risk management and for the mitigation of global warming are not sufficient to substantially reduce the immense risks that climate change impacts on the ocean and coastal zones pose for humankind.

A warming ocean and resource governance

The effects of climate change on the ocean increasingly undermine its provision of natural resources for human livelihoods as climate change puts marine species and ecosystems under immense stress. The ocean absorbs more than 90 per cent of the Earth's excess heat energy (IPBES, 2019, p. 629), and ocean warming causes changes in the reproduction, growth and survival of marine life. Since the 20th century, this has resulted in a global decline of about 4 per cent in maximum fish catch potential per decade (IPCC, 2019, p. 451). Tropical species in particular, which have low adaptation capacities, will likely move poleward, decreasing species richness in the tropics (IPBES, 2019, p. 634). Moreover, the ocean's uptake of carbon leads to increasing levels of ocean acidification, which prevents shellfish from shell development and has negative impacts on food and income generation (IPBES., 2019, p. 348). Eventually, climate change causes the reduction of proteins, lipids and fatty acids in some seafood while more than 4.5 billion people globally obtain over 15 per cent of their protein intake from seafood (algae, marine mammals, fish, and shellfish). Climate change-induced losses in seafood availability and nutrient levels most severely affect the people most dependent on them, especially in East Asia, the Pacific, and Central and West Africa (IPCC, 2019, pp. 503 and 512).

Negative effects of climate change on marine life are exacerbated by resource overexploitation and pollution of marine and coastal ecosystems. This is expected to continue with further economic development. For instance, ocean mining has been increasing and there are now circa 6,500 offshore oil and gas installations located in 53 countries. Moreover, almost 75 per cent of major marine fish stocks are overexploited or depleted (IPBES, 2019, pp. 58-59). Key contributing factors are overfishing in general, illegal, unreported and unregulated fishing (IUU), insufficient international regulations and quotas, subsidies for industrial fishing (estimated at USD 35 billion in 2009) and pollution, including plastic debris and run-offs from agriculture (IPBES, 2019, pp. 446-449).

International development policy processes prominently address the need to conserve marine biological resources from pollution and overexploitation in SDG 14 "Life below water". Moreover, several Aichi Targets of the Convention on Biological Diversity (CBD)'s most recent strategic plan for 2020 call for the sustainable management of fish and aquatic plants as well as some kind of protection status for 10 per cent of ocean and coasts (IPBES, 2019, p. 405). Protected areas can play an important role in conserving or restoring habitat under conditions of climate change (IPCC, 2018, p. 266) and can, thereby, support human livelihood security in times of climate change. Since the turn of the millennium, the coverage of marine protected areas (MPAs) has more than centupled. Yet their effective and socially sound governance have received far less attention. Experience shows that an exclusionary governance of marine areas that strictly prohibits local communities' (sustainable) use regularly puts their livelihoods even further at stake (De Santos, 2013).

The ocean and climate risk management

Climate change-induced increases in frequency and intensity of extreme weather events, such as tropical storms, combined with slow onset processes, such as sea level rise, create compound risks in coastal zones. A combination of sea level rise with higher wave run-up, increasing aridity, and decreasing freshwater availability due to saltwater intrusion might leave small atoll islands uninhabitable at a global temperature increase of 1.5°C (IPCC, 2018, p. 235). Furthermore, historically rare extreme sea level events, such as high-intensity tropical cyclones, are projected to occur once per year in many locations by 2050 (IPCC, 2019, p. 20). More than 600 million people live in coastal areas that are less than 10 meters above sea level, and with 25 to 123 cm sea level rise by 2100, 0.2 to 4.6 per cent of the global population is predicted to be flooded each year with material damages totalling 0.3 to 9.3 per cent of global GDP (IPCC, 2019, p. 376). Lack of resources, information, capacities and support

to effectively address such risks further aggravate the situation (GIZ, 2021).

To avert the risk of losses and damages from climate change and to enhance socio-economic and ecological resilience of vulnerable developing states, several multilateral climate funds have been set up to assist developing countries, inter alia, in enhancing their adaptation capacities through investments in pertinent projects and programmes. The Green Climate Fund (GCF) is the largest among these funds, and programmes on climate risk management are gaining further attention against the background of growing concern and threats. Among the dominating coastal hazards and impacts addressed by adaptation projects funded by the global climate funds established under the United Nations Framework Convention on Climate Change (UNFCCC) are flooding and erosion. Overall, however, adaptation funds are insufficient, and responses to slow onset processes have received only limited funding to date. There are, therefore, more and more calls to mobilise private sector investments for adaptation to climate change's impacts on the ocean and beyond (UNEP, 2021).

Complementary to global adaptation funding policies, comprehensive risk management (CRM) approaches have been promoted by several development cooperation actors. CRM considers risks triggered by the entire spectrum of hazards (from extreme weather events to slow onset processes). Effective and context-specific combinations of measures from climate change adaptation and disaster risk reduction, such as engineering solutions (like dykes and seawalls), nature-based solutions (NbS) and early warning systems, respond to risks identified though assessments. NbS are measures that draw on natural processes to address societal challenges such as climate change. Mangrove forests and coral reefs, for example, can act as natural "buffers" against storms, flooding and sea level rise. Further, hybrid solutions that combine engineering and nature-based approaches with innovative technologies, such as drones for monitoring, are applied to comprehensively manage risks. Through CRM those approaches are combined with innovative adaptation instruments, such as risk transfer instruments, notably climate risk insurance, and transformational adaptation approaches that target structural change more thoroughly, for instance, by livelihood diversification strategies (GIZ, 2021). However, available measures are insufficient to fully avert, minimise and address residual risks, and knowledge gaps on potential future impacts and applicability of measures exist.

The ocean and climate change mitigation

Climate action through mitigation lays the baseline for reaching the maximum global warming goal encapsulated in the Paris Agreement. Besides being seriously affected by climate change, the ocean also holds enormous potential to contribute to climate change mitigation as carbon sink. Several marine ecosystems, including salt marshes, mangroves and seagrass meadows, can sequester and store significant amounts of carbon, which is therefore called blue carbon (IPBES, 2019, p. 639).

The UNFCCC and its Paris Agreement recognise marine ecosystems as important greenhouse gas sinks and request that parties conserve them. Marine ecosystems' climate change mitigation potential feature in debates about NbS, for instance, with regard to the management and restoration of carbon-storing coastal ecosystems such as mangroves, salt marshes or seagrass meadows (IPBES, 2019, p. 444). Some estimates suggest that NbS might provide 37 per cent of climate change mitigation needed by 2030 to keep global warming below 2°C (IPBES, 2019, p. XXII). Accordingly, they appear prominently in the Nationally Determined Contributions that parties submit to the UNFCCC and that specify the measures they intend to undertake to help limit global warming (IPBES, p. 444).

Despite growing attention to the ocean's climate change mitigation potential, many uncertainties are still attached to the proposed measures and policies. This applies notably to the carbon mitigation potential of marine NbS, which might be no more than 2 per cent of current global emissions (IPCC, 2019, p. 455). Further, NbS interventions may interfere with pre-existing local practices in the coastal and marine space and, therefore, attention needs to be paid to their inclusive design.

The way forward

Sustainable ocean governance is of vital importance for human development. However, current environmental policies and measures do not suffice to maintain the ocean in a healthy state, and some measures like MPAs or NbS may even have adverse consequences for local coastal communities if they are not carefully designed. There is an urgent need for enhanced action for a sustainable blue economy that is inclusive of local stakeholders.

The Conferences of the Parties (COPs) to the UNFCCC and CBD in fall 2021 and spring 2022 offer the opportunity for the international community to adopt ambitious guidance for the protection of the ocean and coasts from the impacts of climate change. Yet for meaningful change that is environmentally and socially sound, parties to both Conventions also need to upscale their implementation commitments and work towards local stakeholder participation and improved knowledge about social and ecological relations to accompany all measures. The current UN Decade of Ocean Science for Sustainable Development provides an opportunity to foster knowledge generation for such an action agenda across scientific disciplines and through strong stakeholder involvement.

A warming ocean and resource governance

When the CBD adopts a new ten-year strategic framework at the upcoming COP negotiations, the conservation and sustainable use of marine and coastal biodiversity under conditions of climate change should play a prominent role. The current draft of the framework foresees 30 per cent of sea areas being under some kind of protection status by 2030. Likewise, it contains a strong commitment to NbS as a way to integrate climate and biodiversity agendas. Yet the new draft framework is much weaker with regard to the protection of

local stakeholder rights in such measures, and delegates to the upcoming COP should include equally clear and ambitious commitments to stakeholder rights in the new framework. Moreover, there is a need for the new framework to provide clearer targets and guidance for the sustainable blue economy – especially with regard to marine aquatic resource use. Supporting small-scale fisheries and enterprises in developing countries in sustainable catch and processing should be high on the agenda alongside the reduction of subsidies for industrial fisheries. In addition, eco-friendly managed mariculture and aquaculture have high potentials to reduce the pressure on marine resources.

The ocean and climate risk management

Parties to the UNFCCC have adopted the Nairobi Work Programme (NWP) and the Warsaw International Mechanism for Loss and Damage (WIM) to promote implementation of approaches that avert, minimize and adress loss and damage from climate change. They serve as a knowledge and dialogue platform as well as instruments for finance, technology and capacity building. Yet their reach is limited and must be scaled up substantially for the protection of marine and coastal livelihoods. International cooperation needs to further scale up technical cooperation in these areas to reduce climate risks and enhance insurability of vulnerable populations. Comprehensive risk management approaches in the context of climate change hold the potential to address climate and disaster risks together and to most effectively and economically integrate available measures, instruments and resources. Nevertheless, political progress on ongoing discussions and identified shortcomings is needed to reduce and manage future losses and damages and to foster resilience to climate change in the ocean and coastal zones.

The ocean and climate change mitigation

International policies must reflect that the ocean cannot be counted on as a major carbon sink anymore and that its carbon sequestration capacity may only marginally be enhanced by NbS as their absorption capacity may be lower than some may hope. What is needed instead is to set all economies – particularly in developed countries – on a radical decarbonisation pathway. In terms of the ocean itself, a carbon neutral blue economy that tackles, for instance, the emissions from shipping and offshore oil and gas explorations will be a viable step in this direction.

Overall, it requires a smart mix of regulatory provisions and levers from sustainable finance as well as scientific and technical cooperation along enhanced international capacity-building efforts for risk and damage assessments. International cooperation that includes science and the private sector as well as development cooperation need to be more blue than they are today.

References

De Santos, E. (2013). Missing marine protected area targets: How the push for quantity over quality undermines sustainability and social justice. *Journal of Environmental Management, 124,* 137-146.

GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). (2021). *The ocean in a changing climate: Rapidly growing risk of loss and damage? Key insights from an expert dialogue*. Retrieved from https://www.adaptationcommunity.net/wp-content/uploads/2021/06/GIZ_Report-Expert-Dialogue_The-ocean-in-a-changing-climate.pdf

IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services). (2019). *Global assessment report on biodiversity and ecosystem services.* Retrieved from https://ipbes.net/global-assessment

IPCC (Intergovernmental Panel on Climate Change). (2018). *Global warming of 1.5°C.* Retrieved from https://www.ipcc.ch/sr15

IPCC (2019). *Special report on the ocean and cryosphere in a changing climate*. Retrieved from https://www.ipcc.ch/srocc

UNEP (United Nations Environment Programme). (2021). *Adaptation gap report 2020*. Retrieved from https://www.unep.org/resources/adaptation-gap-report-2020.

Dr Ina Lehmann, Associate Researcher, "Environmental Governance", German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)

Dr Michael Siebert, Head, Global programme "Climate risk management (Loss & Damage)", Section Climate Change and Climate Policy, GIZ

Nicola Hanke, Advisor, Global programme "Climate risk management (Loss & Damage)", Section Climate Change and Climate Policy, GIZ

Maximilian Högl, Junior Advisor, Global programme "Climate risk management (Loss & Damage)", Section Climate Change and Climate Policy, GIZ

Professor Dr Anna-Katharina Hornidge, Director, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)

DOI: 10.23661/bp22.2021

© German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE)
Tulpenfeld 6 · D-53113 Bonn · Tel.: +49 (0)228 94927-0 · Fax: +49 (0)228 94927-130
die@die-gdi.de | www.die-gdi.de | twitter.com/DIE_GDI | www.facebook.com/DIE.Bonn | www.youtube.com/DIEnewsflash
ISSN 1615-5483