

INTERNATIONAL ORGANIZATION FOR MIGRATION (IOM)
AND OCEAN AND CLIMATE PLATFORM (OCP)

OCEAN, ENVIRONMENT, CLIMATE CHANGE AND HUMAN MOBILITY

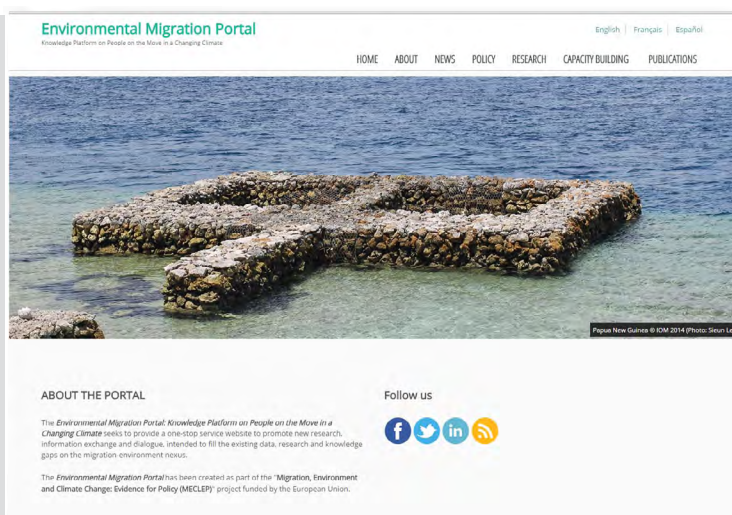


International Organization for Migration

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Cover photo: An elderly man poses on one of the atolls of the Carteret islands.
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OCEAN, ENVIRONMENT, CLIMATE CHANGE AND HUMAN MOBILITY

What is at stake?

The ocean is a crucial component of a series of natural equilibria that enable life on our planet. The importance of the ocean in climate regulation places it at the heart of climate change economic and social issues, and namely environmental migration-related issues. While the ocean limits global warming, it is also affected by the latter. It changes when it is hotter, more acidic and less oxygenated. The ocean's regulation role and the ecosystem services it provides are threatened. The planet and populations' capacity to absorb climate impacts and their modes of adaptation to disequilibrium are affected.

The modifications it endures also contribute to sea-level rise and the increase in frequency of destructive climate phenomena, such as huge cyclonic storms or spring tides. These major modifications of the marine environment have consequences on the safety and vulnerability of human communities (floods, coastal erosion), as well as economic consequences that can cause human migration or displacement.

Why is the ocean important?

The ocean constantly exchanges gas, water and heat with the atmosphere and redistributes them around the globe. These mechanisms are decisive for global climate. The ocean is also a regulator that limits global warming. In fact, the sea absorbs over 90 per cent of excess heat generated by the greenhouse effect. The ocean also absorbs a quarter of CO₂ emissions generated by human activity. The global ocean controls climate fluctuations, which would be much more abrupt if they were only regulated by the atmosphere.

However the ocean's storage capacity is not indefinite and its ability to absorb CO₂ tends to decrease in certain oceanic regions. The "carbon pump" mechanisms provided by oceans are

biological and physical. If the distribution of marine biodiversity, including phytoplankton, or if physical parameters (temperature, salinity, pH) endure abrupt variations, this regulatory role may be affected. The global ocean is experiencing consequences of this warming, even though impacts vary from one region to another. Scientific observations show that waters are becoming warmer, more acidic and less oxygenated. Not only does this affect the ocean's ability to keep its regulation role and resilience to face climate disruptions, but this also has direct and immediate consequences on coasts and marine ecosystems.

State representatives gathered in Paris for COP21 in 2015 have thus agreed that a healthy ocean is key to the good functioning of the climate system.

COP21 and the Paris Agreement

On 12 December 2015, a historical agreement to address climate change was adopted in Paris by 195 countries. For the first time since 1992, the ocean is mentioned in an additional text of the Climate Convention. This reference in the preamble of the final text ("*Noting the importance of ensuring the integrity of all ecosystems, including oceans...*") shows global acknowledgement and awareness regarding the importance of the links between the ocean and climate. In order to reinforce the consideration of the ocean's role, the Intergovernmental Panel on Climate Change (IPCC) decided in April 2015 to produce a Special Report dedicated to interactions between climate change, the ocean and the cryosphere.

The Paris Agreement shows major progress regarding the acknowledgement of connections between human migration and climate change by referring to migrants in the preamble for the first

time,¹ and by requesting the establishment of a special task force to “develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change”.²

What are the links between ocean change, climate change and human mobility?

Climate change-related modifications that affect the global ocean have direct consequences on island and coastal populations, but their repercussions go beyond these regions; the environment, economy and livelihoods of many communities worldwide are likely to be affected.

Sea-level rise

According to the 2014 IPCC Report, the global mean sea level rose by nearly 20 cm in the 1901–2010 period. It is likely that extreme levels (during storms for instance) have risen since 1970. The most recent modelling reports a nearly 2 m sea-level rise by the end of the century. While this increase is not identical in all regions, its pace may accelerate in the years to come.

This rise of the mean sea level causes coastal erosion, which results in loss of arable land and water reserves due to salinized soil and groundwater. Coastlines have been receding and floods intensify during spring tides or severe storms; these extreme weather events tend to increase, threatening many rural and urban coastal communities and regularly causing displacement.

Coastal facilities (such as housing, infrastructures and industries) are particularly vulnerable to these weather phenomena that can cause important loss of human lives and considerable economic loss. Yet, the majority of world metropolises are located on the coast – including in South Asia and South East Asia. Lower coastal areas, such as delta great plains, are particularly attractive and the most populated

areas in the world because of the resources these provide and access to the sea. Consequently, according to the Organisation for Economic Co-operation and Development, 40 million people living in major cities are threatened by submersion; this figure can only increase with the growing world population and urbanization.

Small island States are on the front line against global warming; erosion, salinization and loss of land are already a reality for those nations with limited habitable and cultivable surface area.

Marine biodiversity and impacts on livelihoods

Warming, acidification and deoxygenation of global waters also affect marine species and disrupt the ocean food web.

While some species adapt, others migrate to cooler deeper waters or to the north, or even disappear. Displacement of marine fauna has an impact on fisheries and aquaculture. Acidification affects phytoplankton with calcium-based skeletons, fish larva growth, some mollusks’ shell-building process or even the development of coral reefs that provide shelter to millions of marine species.

Deoxygenation (warmer waters contain less oxygen, and increasing stratification due to warming surface waters reduces ventilation) affects both coastal areas and the high seas. It could also have a major impact on shellfish farming, aquaculture and fisheries.

In addition, marine ecosystems, already threatened by pollution and a non-sustainable management of resources and human activities, are overexploited, which accelerates their degradation.

Economic activities, such as fishery or tourism, experience productivity loss in many regions. The least developed countries are generally the most impacted; their coastal infrastructures are more fragile (many are located in areas affected by tropical storms), and populations’ subsistence is usually highly linked to fishery. For some countries, such as the small island developing States (SIDS), the entire economy is threatened. Other countries face increasing migration of coastal populations looking for safety and alternative livelihoods inland. As a result, traditional communities may be confronted to radical change to adapt to major disruptions in their living conditions. This phenomenon can cause a loss of cultural and identity landmarks, a feeling of insecurity, and erosion of traditions and indigenous knowledge. Yet, for some communities, migration is the only solution to climate change.

¹ United Nations Framework Convention on Climate Change (UNFCCC) Decision 1/CP.21, preamble p. 2: “Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights [...] (and) migrants [...]”

² UNFCCC Decision 1/CP.21, Loss and Damage – articles 49 and 50, p. 7.

Displacement of vulnerable populations

Since 1990, the IPCC had noted that climate change could increase population displacement, in particular in developing countries and the poorest communities, and especially in coastal areas and low islands. In fact, migration and displacement linked to the impacts of climate change on the ocean and the degradation of marine ecosystems are already a reality in many regions throughout the world.

Forced displacement due to floods or coastal erosion has already occurred in many countries. Some governments (for instance in Viet Nam, Vanuatu and Papua New Guinea) have started relocating vulnerable populations.

Migration can also be a collective strategy for communities whose livelihoods mainly depend on threatened marine resources. For instance, in Senegal, the loss of halieutic productivity pushes coastal populations to migrate to cities to find new sources of income.

The *IPCC Fifth Assessment Report* (2015) highlighted that populations with insufficient means to plan their migration are more exposed to extreme weather events, in particular in low-income developing countries. In this context, it is important to insist on the fact that migration can be an effective strategy of regeneration of living conditions and livelihoods.

How can these challenges be addressed?

Marine ecosystem deterioration and forced population displacement scenarios can be anticipated. A more sustainable management of natural marine resources, implementation of ecosystem protection and restoration projects, disaster risk reduction initiatives, climate change adaptation policies, creation of alternative jobs, or even planned and facilitated migration, could contribute to reducing the vulnerability of natural habitats and communities that depend upon them.

Sustainable management of ecosystem services and resources

The importance of marine ecosystems for human populations is measured in terms of services and resources. They are crucial for mitigation policies (actions to reduce greenhouse effect) as they absorb CO₂, and for climate change adaptation

policies. Conservation, restoration and sustainable management of these ecosystems, including relying on indigenous know-how, can contribute to protecting the communities who depend upon them, reinforce their livelihoods and prevent forced migration.

Conservation, restoration and ecosystem services

Seagrass beds, coastal wetlands, mangroves and coral reefs act as carbon sinks. They also play a role in coastal conservation by forming a buffer zone with the sea; they absorb approximately 75 to 90 per cent of waves and swell and reduce considerably their erosion power. Finally, these ecosystems are a source of food and materials, and generate economic activity. In December 2015, during the COP21, Secretary General for the Indian Ocean Commission (IOC), Jean Claude de l'Estrac, co-signed with the European Union a joint declaration acknowledging "the importance of threats and challenges created by climate change, in particular the sea-level rise, natural risks increase, loss of biodiversity and their economic and financial impacts".³ Conservation, sustainable management and restoration of these ecosystems participate in combating climate threats and poverty.

The development of marine protected areas could allow biodiversity conservation while preserving traditional livelihood activities by relying on local populations' know-how and governance systems. Many restoration projects have been initiated, including those by SIDS and along coastlines, as well as particularly fragile estuaries around the world. Reef rehabilitation by developing artificial reefs (coral transplantation onto a structure), mangrove restoration and wetlands conservation have an immediate impact. In fact, these activities contribute to the protection of land and populations and strengthening of livelihoods by providing valuable resources to coastal communities.

Providing support to vulnerable populations

Evidently, when facing the risk of extreme events, risk management policies and programmes must be reinforced. They must also consider the needs of the most vulnerable populations, in order to better plan and manage forced population displacement (for instance, displacement following floods or extreme storms).

³ Source: IOC press review provided by IOC library.

Preparing populations to coastal risks by developing training programmes and awareness campaigns appears to be a priority to help these populations to better address these disasters, better adapt to climate change and better manage resources (such as water and food).

In order to reduce the vulnerability of communities exposed to risks related to sudden disasters or slow degradation (soil and freshwater salinization for example), population relocation can be considered as a solution if it is well planned, participatory and guided by policies and long-term plans that take into consideration the specific needs of affected populations. Such plans can designate rehousing areas, or consider other solutions when the surface area is limited. For example, in the Maldives, artificial islands have been built by filling the lagoon to set up an airport, a hospital, housing and schools. Due to partial submersion and salinization, Kiribati has already purchased some land in Fiji (28 km²) to grow food crops and support part of its population exposed to poor soil fertility and extreme risks.

Other countries, such as Tuvalu, Papua New Guinea, Tonga and the Cook Islands have considered, in the more or less long term, relocating their communities. These countries mention planned migration and relocation in their national climate change adaptation plans.

Some States are starting to acknowledge the benefits of migration and migrants' potential in disaster risk management and adaptation, including through the transfer of competencies or targeted investments. By removing transfer fees or even by creating special funds, Samoa and Indonesia have facilitated fund transfers from their diaspora. Some of these funds are intended to help rebuild after natural disasters. Other countries innovate in investment mechanisms in order to attract their diaspora's capital towards climate change adaptation projects (for instance, projects that could include marine ecosystems restoration or the development of sustainable fishing techniques).

Others, including some SIDS, develop bilateral or regional migration agreements, which could allow populations affected by the negative effects of climate change to diversify their resources by working abroad.

Global partnerships and cooperation

In April 2016, during the signature of the Climate Agreement at the United Nations, many heads

of States and heads of governments shared their hopes and expectations. Mr Ahmed Ali Silay, Minister Delegate in charge of International Cooperation of Djibouti declared: "Desertification, soil depletion, droughts, wells drying up, floods and sea-level rise are recurring risks that our populations are combating as best as they can with their limited resources. We must place mitigation and adaptation to climate change at the center of our actions to combat poverty in all of our countries." Representatives from many developing countries also highlighted the fact that their greenhouse gas emissions are very low, but their populations are nevertheless the most exposed to climate disasters, and called for international solidarity. International mobilization, partnerships and cooperation for development, technology transfers and greater access to international funding to support mitigation and adaptation policies are indeed essential to limit climate change impacts and population displacement.

Why and how are IOM and OCP working together?

The increasing acknowledgment of the links between ocean and marine ecosystems, climate change and human mobility encouraged the IOM and the Ocean and Climate Platform (OCP) to combine their efforts in order to address this growing challenge.

This innovative partnership focuses on three key areas of collaboration: (a) improving the understanding and awareness of the interactions between these three phenomena; (b) undertaking joint advocacy in key policy processes at the international, regional and national levels; and (c) developing new solutions, building capacity and supporting the implementation of projects and programmes at the regional, national and local levels, in order to address key issues around ocean and marine ecosystem change, climate change and migration and provide solutions for vulnerable communities.

About IOM and OCP

IOM is an intergovernmental organization with 165 Member States. Established in 1951, IOM is the leading intergovernmental organization in the field of migration, which joined the United Nations system in September 2016. IOM works to help ensure the orderly and humane management of

migration to promote international cooperation on migration issues, assist in the search for practical solutions to migration problems and provide humanitarian assistance to migrants in need. For over 25 years, IOM has been exploring the links between migration, environment and climate change through research, advocacy, policy dialogue, capacity-building and operational activities in the field.

OCP was established from an alliance of non-governmental organizations and research institutes, with support from the UNESCO Intergovernmental Oceanographic Commission on 10 June 2014 during the World Oceans Day. It gathers over 70 organizations for the purpose of highlighting scientific expertise and supporting ocean and climate issues advocacy towards politicians, decision-makers and the general public. The platform includes scientific organizations, universities, research institutions, non-profit associations, foundations, science centres, public institutions and business organizations, all acting to bring the ocean to the forefront in climate negotiations.

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For more information on IOM's activities in the area of migration, environment and climate change, please visit the Environmental Migration Portal www.environmentalmigration.iom.int/, IOM's website www.iom.int/migration-and-climate-change or contact:

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