

**Round Table Session 2,  
Life Below Water: Reframing the Oceans as Development Spaces<sup>1</sup>**

**Prepared for Conference  
The Indian Ocean: Defining Our Future,  
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## **1. Natural Resources in the Indian Ocean**

The oceans cover more than 70% of the Earth's surface. The deep seabed and the high seas alone account for two-thirds of the ocean, cover half of the planet, and are said to be home to upwards of 90% of marine life.

The living and non-living resources in the Indian Ocean represent one of the region's most significant assets. According to the UN Food and Agriculture Organization (FAO), catches from the fisheries in the Indian Ocean and western Pacific have soared from less than 20 million metric tonnes in 1970 to over 50 million tonnes in 2016.<sup>2</sup> It has additionally been reported that 'among the world's fishing nations, 14 of the 18 largest producers and all of the top 10 lie around the Indo-Pacific rim, accounting for more than two-thirds of the global haul.'<sup>3</sup>

Beyond fishing, deep seabed mining in the Indian Ocean is poised to become the next big development race. In the Indian Ocean, hydrothermal vents have been found, containing copper, cobalt, nickel, zinc, gold and other rare earth elements.<sup>4</sup> In the Indian Ocean's abyssal plains, more than a billion potato-sized nodules rich with manganese, copper, cobalt and nickel have been found.<sup>5</sup> These potential mining sites additionally support highly biologically diverse ecosystems, each with the potential for biomedical and other industrial use.

While deep seabed mining has still not reached the exploitation phase, the potential exploitation of national continental shelves is also a reality for several states bordering the Indian Ocean. The delimitation of maritime boundaries between Bangladesh and Myanmar, as well as between Bangladesh and India open the possibility for intensified activities concerning the exploration and

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<sup>1</sup> Background paper prepared by Max Planck Foundation for International Peace and the Rule of Law, Germany.

<sup>2</sup> FAO Yearbook 2016: Fishery and Aquaculture Statistics (Rome: FAO, 2016), xxii  
[http://www.fao.org/fishery/static/Yearbook/YB2016\\_USBcard/booklet/web\\_i9942t.pdf](http://www.fao.org/fishery/static/Yearbook/YB2016_USBcard/booklet/web_i9942t.pdf).

<sup>3</sup> Stimson Center, 'Sea Change: Evolving Maritime Geopolitics in the Indo-Pacific Region' (December 2014).

<sup>4</sup> The Indian Ocean has five confirmed hydrothermal vent sites with many more suspected along the Central, Southwest, and Southeast Ridges. India additionally joins China, Germany, and South Korea in contracts to explore seafloor massive sulfides.

<sup>5</sup> India has a contract to explore polymetallic nodules over 750,000 km<sup>2</sup>.

exploitation of oil, gas and minerals, which may be the target of economic activities in the deep seabed. However, such increased activities may have an ecological price.

## 2. Defining the Threats

There is a tendency in literature to generalise threats to the marine environment caused by human activities by referring to illegal, unreported and unregulated (IUU) fishing, the pollution of the sea and climate change. However, any human activity utilising the sea in whatever way may have a negative impact on the marine environment. Moreover, threats to the marine environment should not be seen in isolation, they should be weighed against the benefits for the populations of littoral states or the international community. UNCLOS has specific rules for each of the activities mentioned below, which provide some limitations on such activities to protect the marine environment in general and the interests of coastal states or the interests of other users of the marine environment.

### Fisheries

It is a well-known fact that fish resources are endangered. Many stocks are overfished and declining, and some have been or are nearly depleted. The figures provided by the FAO speak a clear message.<sup>6</sup> The reasons for that are manifold; overfishing; utilising particularly devastating fishing practices, for example shark-finning; the destruction of important habitats; over subsidising fishing activities; and a lack of respect of quotas. For instance, evidence shows that overfishing can lead to decreasing health in fish stocks, including a steady decrease in fish size for many species and a decrease in mature fish.<sup>7</sup> Further, the most commercially important fish species are considered overfished.<sup>8</sup> Deep-sea fishing, including bottom trawling, has not only exacerbated concerns of overfishing but has also raised alarm regarding the threat it poses to ecosystems and biodiversity. These concerns compound other environmental challenges, such as land-based pollution and climate change.

Most of these risks and problems have been identified for several years. In its Code of Conduct for Responsible Fisheries,<sup>9</sup> the FAO has developed several measures to provide for a regime concerning sustainable fishing. They set out obligations of coastal states and corresponding obligations of flag states, who, as ITLOS has stated, have an international responsibility to

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<sup>6</sup> FAO (n 1).

<sup>7</sup> U Thara Srinivasan et al, 'Global fisheries losses at the exclusive economic zone level, 1950 to present' *Marine Policy* 2012 36 (544); Tony J Pitcher and William WL Cheung, 'Fisheries: Hope or despair?' *Marine Pollution Bulletin*, 2013 Vol 74(2).

<sup>8</sup> *ibid.*

<sup>9</sup> FAO Code of Conduct for Responsible Fisheries available at <http://www.fao.org/3/a-v9878e.htm>.

cooperate with the coastal State accordingly.<sup>10</sup> The Code of Conduct is considered as binding for the member states of the FAO.

The measures in the Code of Conduct include an obligation of coastal states to fully implement and enforce the existing international rules concerning fisheries in their territorial seas vis-à-vis all vessels under any flag engaging in fishing in their territorial seas. Correspondingly, flag states must respect the fishing laws of coastal states' in their territorial waters.

The Code of Conduct also recognises the sovereign rights of Coastal states in respect to the management of fisheries resources in their exclusive economic zones. This includes their obligation to provide for a regime guaranteeing sustainable fisheries activities, including its effective implementation and enforcement under Article 73 of UNCLOS. In regard to this, flag states are obliged to respect the coastal states' fishing laws applicable in the respective exclusive economic zones.

Moreover, coastal states and flag states should cooperate with the RFMOs fully in respect to highly migratory species, for example tuna, and straddling fish stocks. The protection of specific habitats, such as the coral reef as a spawning ground for many species and the basis for the food chain in the marine environment must be considered. Efforts should be made to establish marine protected areas based on reliable scientific advice, particularly regarding marine biodiversity.

Finally, the Code of Conduct also requires efficient port State control, which would ensure that illegally caught fish cannot be landed, as a meaningful tool to curtail IUU fishing.<sup>11</sup>

#### *Exploration and exploitation of the continental shelf within and beyond 200 nm*

Coastal states have sovereign rights concerning the exploration and exploitation of their continental shelves with few limitations.<sup>12</sup> However, they may not engage in exploration or even exploitation activities in disputed areas<sup>13</sup> and are obliged closely to cooperate with neighbouring or opposite states.

While there is a general obligation to protect the marine environment,<sup>14</sup> there are no efficient rules and regulations to prevent, reduce or control the pollution of the marine environment at the international level. This is an issue where regional cooperation in the Indian Ocean is called for. It is in the interest of all states concerned – coastal states, as well as states cooperating in continental

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<sup>10</sup> See, *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission (Advisory Opinion of 2 April 2015)* ITLOS Reports 2015, 4.

<sup>11</sup> An interesting example of port State control are the rules adopted by the North-East Atlantic Fisheries Commission.

<sup>12</sup> UNCLOS, Part VI.

<sup>13</sup> UNCLOS, Art 83(3).

<sup>14</sup> UNCLOS, Art 208.

shelf activities – to have the necessary standards worked out. Any transboundary pollution might result in international responsibility.

### Deep seabed Mining

Deep seabed mining remains in the exploratory phase and it is foreseen that the exploitation phase will begin in the coming years. Notably, the Indian Ocean constitutes an area where deep seabed mining will take place in the near future with a number of states engaged in one or more sites. There are concerns that deep seabed mining activities will have a negative impact upon the deep seabed as a habitat and the marine environment in general.<sup>15</sup>

On the basis of reliable scientific findings one has to distinguish between the exploration and exploitation of: polymetallic nodules, polymetallic sulphites and cobalt rich crusts. In the Indian Ocean only the two former activities are seriously under consideration. Comparing the two, the exploration and exploitation of polymetallic nodules has an effect on a larger area, the exploration and exploitation of polymetallic sulphites will affect a relatively small area. The regulations issued by the International Seabed Authority reflect this fact.<sup>16</sup>

Under UNCLOS, the organisation established to oversee deep seabed mining, the International Seabed Authority, has the legislative competence to issue rules, regulations and standards to prevent, reduce and control pollution of the marine environment from such activities in the so-called ‘Area’.<sup>17</sup> States are under obligation to implement such rules and are subject to a specialised regime concerning international responsibility in this respect under UNCLOS.

There is, however, one issue worth considering further. Coastal states may engage or license other states or entities to explore or exploit polymetallic nodules or sulphites on their outer continental shelves. Such activities would only be subject to the general obligation to protect the marine environment,<sup>18</sup> but not the regulations and standards of International Seabed Authority. It would be important step for Indian Ocean coastal states to agree not to undercut the regulations, rules and standards, if undertaking similar activities on their outer continental shelves.

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<sup>15</sup> Luc Cuyvers et al, ‘Deep Seabed Mining: A Rising Environmental Challenge’ (IUCN, 2018); ISA ‘Environmental Assessment and Management for Exploitation of Minerals in the Area’ (ISA Technical Study No 16, 2016); ISA, ‘Discussion Paper: Enforcement and Liability Challenges for Environmental Regulation of Deep Seabed Mining’ (June 2016).

<sup>16</sup> See Regulations on Prospecting and Exploration for Cobalt-rich Ferromanganese Crusts in the Area (ISBA/18/A/11); Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area (ISBA/16/A/12/Rev.1); Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (ISBA/19/C/17).

<sup>17</sup> UNCLOS, Art 209.

<sup>18</sup> UNCLOS, Art 208.

### *Land based pollution (plastic debris, chemicals etc.)*

The Indian Ocean has been found to be gravely polluted by plastic debris and chemical run-off. The Indian Ocean garbage patch, in as far back as 2010, is estimated to be at least five million square kilometers in size.<sup>19</sup> Further cooperation to deal with this issue is required.

### **3. Opportunities for further Policy Cooperation**

For example, it has been found that policies to prevent and reduce pollution must include both land-based, as well as sea-based approaches, and will need to cover a wide range of industries; from fishing, mining, oil-and-gas and the dismantling of vessels to agriculture. Regional coordination to the extent possible on these policies will be beneficial to each country in the region, as even the land-based pollution by one country will necessarily affect the others by way of run-off into the shared ocean space. Areas for regional agreement can include: agreement to implement and enforce land and sea cleaning programmes, to spread public awareness of the effects of pollution domestically, to set stringent standards on the use of pesticides within domestic agricultural production, and to strictly enforce the polluter pays principle.

While much attention has already been paid to the issue of overfishing, once RMFOs are strengthened and appropriately coordinated, new collective policy approaches may be explored. One policy approach, which has been found to serve as a useful framework in the prevention of overfishing, is spatial planning and management of the marine areas.<sup>20</sup> Marine spatial planning allocates marine space, geographically, and temporally for different purpose on the basis of the best scientific information regarding sustainable practice for each zone. It is considered ‘a future-oriented planning process that takes into account all of the sectors related to governance of maritime issues.’<sup>21</sup> Through the spatial management of fisheries, fish stock levels can be managed in each designated area. Further, biological processes should govern the limitations placed on fishing during certain timeframes, like during spawning season.

Marine Protected Areas (MPAs) are one aspect of spatial management of fisheries. While there are more than two dozen MPAs in the Indian Ocean, they each exist within the exclusive economic zones of countries and do not cover the sea beyond national jurisdiction. Existing MPAs are managed in isolation by individual countries.<sup>22</sup> Beneficial effects of individual MPAs will vary, as restrictions imposed within MPAs vary. At one end of the spectrum, MPAs where no fishing or other exploitative activities are allowed have shown to rapidly increase fish population after two

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<sup>19</sup> Lori Bongiorno, ‘New garbage patch discovered in Indian Ocean’ (Yahoo news, 28 July 2010). <https://www.sott.net/article/212814-New-garbage-patch-discovered-in-Indian-Ocean> accessed 20 September 2018.

<sup>20</sup> Loris Larik, ‘Blue Growth and Sustainable Development in Indian Ocean Governance’ (The Hague Institute for Global Justice, March 2017).

<sup>21</sup> *ibid.*

<sup>22</sup> *ibid.*

to three years and eventually restored.<sup>23</sup> Restored fish stocks tend to additionally benefit fishable areas outside of the no-fish zone as the population spreads.<sup>24</sup>

Beyond the necessity to cooperate on pollution and fishing, there needs to be coordination on deep seabed management, which will also be vital to the sustainable development of the Indian Ocean. This will be necessary regarding deep sea activities within national jurisdiction, as well as in the Area beyond national jurisdiction. As a result of the scale and significance of expected impacts, a number of environmental mitigation strategies to protect the marine environment have been proposed in draft regulations and are currently being debated within the context of the International Seabed Authority.<sup>25</sup> As a result, the ongoing development of the draft Exploitation Regulations provide a critical opportunity for State engagement to ensure that seabed mining is regulated in a way that provides effective protection of marine environments in the Indian Ocean.<sup>26</sup>

With all the concerns noted one should bear in mind several facts. First, deep seabed mining is meant to produce subsidies to developing countries and therefore it is necessary to properly weigh the risks of deep seabed mining against the expected advantages. Second, the whole area which might be used for deep seabed mining consists only of 2% of this area in general. Third, the effect of deep seabed mining on the environment might be less than the one of land-based mining. Fourth, according to UNCLOS deep seabed mining is under the legislative jurisdiction of the International Seabed Authority alone. That means the coastal states should coordinate their efforts in the Assembly of International Seabed Authority to make their particular regional concerns heard.

#### **4. Conclusions**

The need for states to take urgent action arises from the multitude of issues canvassed above. Current bilateral and multilateral efforts to cooperate in the management of resources on the basis of existing treaties, as well as efforts to negotiate and conclude new legal instruments, offers opportunities to better enforce the existing international legal framework. It should be reiterated that under UNCLOS and its Implementation Agreements, the sovereign right to exploit natural resources is balanced with a duty to protect and preserve the marine environment.<sup>27</sup> The sustainable usage of natural resources will be a key to securing the region's future welfare. Thus, to effectively

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<sup>23</sup> World Conservation Congress of the International Union for Conservation of Nature (IUCN, 2008); "Marine protected areas – Why do we need them?" (IUCN, 9 February 2010); Keith Sainsbury and Ussid Rashid Sumaila, "Incorporating ecosystem objectives into management of sustainable marine fisheries, including 'best practice' reference points and use of marine protected areas" in Michael Sinclair and Grimur Valdimarsson (eds.), *Responsible Fisheries in the Marine Ecosystem* (FAO, 2003).

<sup>24</sup> A. Hastings and L. W. Bostford, 'Equivalence in yield from marine reserves and traditional fisheries management' *Science* 284 (1999), 1537-1538.

<sup>25</sup> See draft Exploitation Regulations by the International Seabed Authority.

<sup>26</sup> Luc Cuyvers et al, 'Deep Seabed Mining: A Rising Environmental Challenge' (IUCN, 2018).

<sup>27</sup> UNCLOS, Art 193.

and efficiently use the ocean as a development space these principles will need to be implemented both in the seas within national jurisdiction, as well as on the high seas and the deep seabed.

Note should be taken though that only in respect of maritime spaces under the sovereignty of coastal states or where coastal states exercise sovereign rights are open for some unilateral action. In the other ocean spaces there is, according to UNCLOS, no room for national legislative action for coastal states but enforcement of international rules and standards can and should be strengthened.

### **Questions for Discussion**

1. What are the best options for regional cooperation to address pollution in the ocean including plastics, land based and atmospheric pollution?
2. Are additional legal frameworks needed to ensure the sustainable exploitation of ocean resources? For example, how should the legal framework for deep seabed mining be developed in conformity with Part XI of the UNCLOS, and in relation to the continental shelf (within and beyond 200 nm)?
3. How can the legal framework be better implemented and enforced to address overfishing in the Indian Ocean? How can port jurisdiction of states be strengthened to address IUU fishing?
4. What technical and other assistance could be provided to developing countries to help them address ocean pollution and sustainably exploit maritime resources?