

Forum: Special Conference on Environment

Issue: Assessing the environmental consequences of deep-sea mining with an emphasis on renewable energy sources

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Introduction

Deep-sea mining is the process of retrieving materials from the seafloor. The process of deep-sea mining requires specialized equipment, such as remotely operated vehicles (ROVs), autonomous underwater vehicles (AUVs) or submersible crafts equipped with pipes which are designed to dig the seafloor to get the wanted materials sorted and unwanted sediment flushed back into the sea.

Deep-sea mining is not a new topic. Discussions regarding mining of seafloor started long before during the 1960s. But with the 21st century and increasing demand for clean energy and ambitious climate targets for transition have fuelled a much bigger interest in the materials found on the seabed, with the most popular ones being: copper, nickel, aluminum, manganese, zinc, lithium and cobalt. Demand for these metals increased recently with the increasing trend on renewable energy. These metals are needed during the production of the wind turbines, solar panels, batteries and smartphones.

Definition of Key Terms

Renewable Energy

The United Nations define renewable energy as "energy derived from natural sources that are replenished at a higher rate than they are consumed." Renewable energy sources are the energy sources which do not create emission when they are consumed and they can be regenerated. Examples of renewable energy are; solar, wind and geothermal energy.



Lithium

Lithium is one of the most demanded materials in deep sea mining. It is one of the essential materials used in the production of electric batteries. With the increasing demand for electric powered vehicles and devices demand for lithium increased.

Mineral deposits

Whole of a mineral in an unusually high concentration in a field is a concentration of important materials, such as metals, in a mineral deposit that is economically viable. It is typically used to a mineral deposit where the metallic component may be easily extracted.

Background Information

Existence of Mineral Deposits in Deep Sea

Since the 1860s, it has been recognized that there are mineral deposits in the deepest regions of the ocean. It was Captain Nemo who indicated that "in the depths of the ocean, there are mines of zinc, iron, silver and gold that would be quite easy to exploit" in Jules Verne's 20,000 Leagues Under the Sea. The prediction Jules Verne did about the wealth of the resources were correct, but he was undoubtedly mistaken about how simple it would be to take advantage of them. Even Though the existence of mineral deposits in deep sea is known since 19th century it didn't catch any interest until 1960s.

Mineral deposits catching interest

Mineral deposits started catching interest by mid 1960s. This interest begun when American geologist John L. Mero published a book entitled The Mineral Resources of the Sea, which proposed the deep-sea mining. After these events Ambassador of Malta delivered a speech to the First Committee of the United Nations General Assembly, in which he highlighted the importances of the resources



on deep sea floor. He suggested that the mineral deposits to be designated as the "common heritage of mankind" and urged the creation of a system of international regulation to prevent technologically advanced countries from gaining advantage from these resources against other nations.

United Nations taking action

After suggestions made in the General Assembly, the United Nations started to take actions for deep-sea mining. During the time period between 1967 and 1982 the United Nations started working on developing a Comprehensive system for ocean governance. On 17 December 1970, the General Assembly, adopted resolution 2749 (XXV) which is also known as the Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof: beyond the Limits of National Jurisdiction, which only allowed for peaceful usage of the seabed. Following these events, the Assembly also stated that the mineral resources of the seabed as the "common heritage of mankind".

Signing of United Nations Law of Sea (UNCLOS)

From 3 December 1973 to 10 December 1982 General Assembly worked on to promote new international treaty for deep-sea mining. 168 member states signed the Law of the Sea (also referred as UNCLOS) treaty. With UNCLOS three international organs were created which are; the Commission on the Limits of the Continental Shelf (CLCS), the International Tribunal for the Law of the Sea (ITLOS) and the International Seabed Authority (ISA). The goal of the International Seabed Authority (ISA) is to control the discovery and extraction of deep seabed minerals inside "the Area," which is referred to in the Convention as the seafloor and subsurface area that is outside state borders and the continental shelf. The Area makes up more than half of the Earth's total seafloor.



Increasing demand for deep-sea mining with th 21st century

With the beginning of 21st century the interest for deep-sea minerals begun again because of the technological advancements and attributable to globalization and industrialization in the developing world. Growth of population and increasing urbanization the need for mineral deposits are increasing. Mining minerals from deep-sea flour will requiere large amounts of energy and have significant social results on people and environmental consequences both on the sea and land. Deep-sea mining can play a key role in sustainable development and they can provide resources for island and developing states.

Major Countries and Organizations Involved

The United Nations

United Nations, take essential role to build mechanisim to solve legal disputes on the sea. United Nations declared the "Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof" and also signed the UNCLOS treaty which is the basis of the international law of sea. Also United Nations established sub-organs such as Commission on the Limits of the Continental Shelf (CLCS), the International Tribunal for the Law of the Sea (ITLOS) and the International Seabed Authority (ISA) to counter the disputes on the sea.

International Seabed Authority

Established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS). ISA's mission is to mineral resources in the Area for the benefit of all people. By doing this, ISA is carrying out its responsibility to guarantee the maritime environment's adequate protection against any negative consequences that may result from operations associated to the deep-sea.



Commission on the Limits of the Continental Shelf

Commission on the Limits of the Continental Shelf is an another sub UN organ created by the UNCLOS. CLCS's mission is to control the implementation of the UNCLOS in the grounds of the establishment of the continental shelf beyond 200 nautical miles (M) from the main land.

International Tribunal for the Law of the Sea

ITLOS is judicial body established by The 1982 United Nations Convention on the Law of the Sea, as an independent court to solve any disagreement over how the UNCLOS should be interpreted or applied.

Timeline of Events

Date	Description of event
1868	First ever deep-sea mining happened when a dredging ship pulled a chunk of iron ore from the seabed north of Russia.
June 1870	Jules Verne's "20,000 Leagues Under the Sea" book was published.
January 1, 1965	John L. Mero published "The Mineral Resources of the Sea".
17 December 1970	General Assembly, adopted resolution 2749
1970s	Collapse in world metal prices
2000s	Growing increase for deep-sea deposits with new technology



Relevant UN Resolutions and Other Documents

- General Assembly Resolution 2749 (Declaration of Principles Governing the Sea-bed and the Ocean Floor, and the Subsoil thereof, beyond the Limits of National Jurisdiction)
https://legal.un.org/diplomaticconferences/1973_los/docs/english/res/a_res_2749_xxv.pdf
- United Nations Convention on the Law of the Sea (UNCLOS)
https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=en#:~:text=The%20Convention%20was%20adopted%20by,Jamaica%2C%20on%2010%20December%201982.

Previous Attempts to Solve the Issue

Since 1970s United Nations took various measures to solve the dispute on deep-sea mining and establish frameworks and legal background. On 17 December 1970 United Nations took first action by the Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof which was international document established by the United Nations regarding the deep-sea mining. After the declaration, General Assembly worked through 3 December 1973 to 10 December 1982 to establish the UNCLOS which is the main legal ground on the seas. UNCLOS, highlighted the main basis of deep-sea mining.

Possible Solutions

To establish a sustainable usage of Deep-Sea Mining certain measures should be taken. First of all environmental impacts of deep-sea mining should not be forgotten. If the necessary measures are not there to be taken into account deep-sea mining can cause habitat destruction, biodiversity loss, sediment plumes, destruction of coral reefs and chemical pollution. While thinking of new solutions it



should be taken account that new legal mechanisms, international frameworks etc. should include measures to protect deep-sea life.

Secondly it should not be forgotten that for sustainable development deep-sea minerals play a key role. With the increasing population deep-sea minerals could be essential for the urbanization and development of nations. Deep-sea mining can help developing nations and island nations to grow economically. If new legal mechanisms or frameworks were there to be established it should emphasize on the equal usage of these resources between member states.

Also while the deep-sea mining member states should benefit from the latest technological innovations and best practices. Member states should create joint technological advancement collaborations to use best practices which should aim to minimize environmental disturbance.

Thirdly, for the peaceful and equal usage of deep-sea deposits international cooperation and regulation is needed. Under the United Nations new international treaties should be discussed between member states and new organs should be established for deep-sea mining field. These frameworks should aim to promote sustainable deep-sea mining but also provide a equal and transparent division of these resources.



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