Ocean Minerals Response to Caritas Oceana Report – 11 December 2017

Thank you for providing us the opportunity to offer feedback on the recent Caritas Oceana Report. There are a few important points we would like to make, specifically in response to Section 3 *"Mounting opposition to mining the sea floor".* In summary:

- The seafloor minerals industry can contribute to several of the 2030 Sustainable Development Goals.

- Regulations pertaining to seafloor mineral development are now at an advanced stage in a number of jurisdictions, in the South Pacific and globally.

- The technology required for seafloor mineral development is well understood based on previous work dating back to the 1970s.

- The seafloor minerals industry offers development opportunities for countries that are land-resource poor, including many Pacific Island Countries that have been blessed with minerals on their seafloor.

- Ocean Minerals, together with the Cook Islands, is committed to mineral recovery in a responsible and sustainable manner.

We discuss these points in more detail below:

The seafloor minerals industry can contribute to several of the 2030 Sustainable Development Goals[1]

In 2015, UN countries agreed to adopt 17 Sustainable Development Goals (SDGs), with the aim of reaching them by 2030. For projects within national jurisdictions, the seafloor minerals industry has the potential to significantly contribute to SDGs 1, 6, 7, 8, 12, 13, 14, 15 and 17. Here's how:

SDG 1: No Poverty

Land resource-poor and developing nations can benefit from seafloor minerals, within international waters and - where present - within their own Exclusive Economic Zones (EEZs), helping them reach their development

[1] The information provided in this section on how seafloor minerals can contribute to the 2030 Sustainable Development Goals is based on a presentation by Dr Samantha Smith at the World Ocean Council's Sustainable Ocean Summit, Halifax, Nova Scotia, 29 November – 1 December 2017.

goals including increasing new national revenue leading to a reduction of poverty. With a contract in international waters and mineral riches within its own EEZ, the Cook Islands' involvement in the seafloor minerals industry can significantly benefit the economic and social needs of the country and its people for generations to come.

SDG 6: Clean water and sanitation

There are a number of ways the seafloor minerals industry can help meet SDG 6, including initiatives such as:

- Using desalination as a primary operational water source;
- Not competing with local water users;
- Focusing on high grade, highly recoverable minerals – reducing water consumption;
- Minimizing the use of hazardous chemicals and materials; and
- Capacity building with respect to onshore processing including water management, increased water-use efficiency and monitoring.

Importantly, the seafloor minerals industry also has the ability to provide the metals needed for clean water distribution systems. For example, copper and other metals are commonly used in pipes to hinder the growth of bacteria that can be harmful to human health.

SDG 7: Affordable and clean energy

"Energy is central to nearly every major challenge and opportunity the world faces today"[2]. A Goal 7 target is to: *"increase substantially the share of renewable energy in the global energy mix"*.

It is important to note that clean energy solutions are, generally speaking, more metal intensive than traditional sources. For example, wind power typically requires significantly more metal than conventional power generation (e.g. an order of magnitude more copper, and large quantities of other metals commonly found in seafloor mineral deposits).

In addition, with the aim of a low carbon future and decreased dependency on fossil fuels, society is moving towards Li-ion battery technologies to efficiently power electric vehicles, smart phones and even our homes. Many of the metals found in these batteries, such as nickel, manganese and cobalt can be supplied through seafloor mineral development. For example, the supply of cobalt on land is projected to be insufficient to meet the demand for Li-ion batteries by 2025[3] and the United States Geological Survey (USGS) estimates about 83% of the world's cobalt resource is located in the deep sea.

The proposed Ocean Minerals project in the Cook Islands, in particular, may be capable of providing a sizeable proportion of cobalt supplies needed for Li-

[2] un.org

[3] Morgan Stanley Research, Commodity Matters, June 28, 2017

ion batteries, given it is primarily a cobalt project. See SDG 8 below for further discussion around cobalt mining.

Crucially, seafloor mineral development can help meet the demand in a way that has less impact to the environment and communities than the industry's land-based counterparts. For example:

- High grade, multi-metal deposits and minimal overburden result in less waste;
- No communities will be displaced;
- No impact to food production, surface or groundwater fresh water supplies;
- No deforestation;
- No blasting;
- No hazardous chemicals used in the extraction of minerals;
- No hazardous chemicals discharged to the sea.

SDG 8: Decent work and economic growth

Linked to SDG 1, the seafloor minerals industry can provide new development opportunities for developing countries and/or to nations which are otherwise land-resource poor.

A specific target of Goal 8 is to *"Take immediate and effective measures to eradicate forced labour .... and by 2025 end child labour in all its forms"*[4].

As mentioned above, cobalt is a key metal used in Li-ion battery technologies. Projections by Bloomberg indicate that the metals required to meet Li-ion battery demands will significantly increase by 2030, with cobalt production needing to double by that time to meet the demand. Yet, around half the world's current cobalt supplies are found in the Democratic Republic of the Congo, a war-torn nation with failing infrastructure and where a number of the individuals carrying out the mining activities are children[5]. Cobalt is a key metal found in some seafloor mineral deposits (specifically polymetallic nodules, with the Cook Islands' nodules containing particularly high concentrations) and again seafloor minerals development offers more responsible alternatives to the current choices we, as society, are making when extracting minerals.

SDG 12: Responsible consumption and production

There are a number of ways the seafloor minerals industry can help meet SDG 12, including:

- Focusing on high grade resources that minimize waste production;
- Using non-hazardous materials (e.g. biodegradable hydraulic fluids);
- Minimizing the use of water, land, chemicals; and
- Providing an alternative to mining low-grade deposits in sensitive areas.

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[4] un.org

[5] Global Energy Metals Corp, 2017

SDG 13: Climate Action

Seafloor minerals can play an important role in providing the metals required for renewable energies and a range of other measures that will help the world move towards a low-carbon economy.

SDG 14: Life below water

SDG 14 aims to conserve and sustainably use the oceans, seas and marine resources. The seafloor minerals industry and its responsible bodies (e.g. the Cook Islands) can help to meet this goal through:

- Responsible, transparent impact assessment and management;
- Effective regulations, implementing international law as reflected in the Law of the Sea (UNCLOS), which provides the legal framework for the conservation and sustainable use of the oceans and their resources;
- Increasing economic benefits to small island developing States from the sustainable use of marine resources;
- Scientific cooperation
- Within sector and cross-sector collaborations for data-gathering and spatial planning;
- Science-based management plans, including strategies to minimize the extent and duration of impacts, such as ensuring impacts do not migrate to the upper ocean through engineering design;
- Responsible, transparent monitoring and data sharing;
- Increasing scientific knowledge of ocean processes; and
- Developing research capacity.

SDG 15: Life on Land

Going to the sea for minerals reduces pressure on increasingly stretched land resources and project risk related to land-use conflicts. Importantly, and unlike many of its land-based counterparts, seafloor mineral production does not involve any land-clearing or other related environmental concerns such as deforestation and erosion.

No minerals processing is expected to take place in the Cook Islands, with the raw product being exported for processing at existing facilities overseas.

SDG Goal 17: Partnerships for the goals

There are a number of ways the seafloor minerals industry can help meet SDG 17, including:

- Employment and training opportunities for Cook Islanders;
- Data sharing;
- Collaboration and communication between governments, scientific institutions, community groups, NGOs/civil society;
- With respect to project planning, transparent inclusion of:
    - Stakeholders including scientific experts
    - Other ocean industries (e.g. fisheries, shipping, etc.)

    - Government departments;
- Within sector and cross-sector collaborations for data-gathering and spatial planning;
- Responsible, transparent monitoring and data sharing;
- Developing research capacity; and
- Working together with a 'one team' approach to find solutions, including with respect to regional environmental management.

Regulations pertaining to seafloor mineral development are now at an advanced stage in a number of jurisdictions, in the South Pacific and globally.

There has been a phenomenal amount of guidance, legislation, review and assessment gone into an industry that doesn't even yet exist. The world's approach towards developing the seafloor minerals industry is arguably more responsible than any approach taken for any other development activity that has gone before it.

Environmental concerns and challenges are a key focus and being addressed at the international, regional and national levels, on an informed, science-based and consultative approach, with input from all relevant stakeholders;

The Cook Islands is an active and progressive contributor to the steady and informed progress of the international and national seafloor minerals sectors, both as a national seafloor minerals resource owner and an International Seabed Authority contract holder.

Since the 1970s, the Cook Islands has supported research to examine the mineral potential of its seafloor. Recognizing the environmental, economic and social benefits of seafloor mineral production, the Cook Islands government has played an important role in encouraging the industry within its EEZ. In 2009, the Cook Islands became the first country to pass national legislation dedicated to regulating seafloor minerals activities, demonstrating their proactive and responsible approach towards the industry.

In addition, the International Seabed Authority, the organization established under the United Nations Convention on the Law of the Sea (UNCLOS) to manage seafloor mineral resources in the international seabed area, has developed exploration regulations and the regulations for exploitation are nearing completion and are expected to represent a world-class standard.

The technology required for seafloor mineral development is well understood based on previous work dating back to the 1970s.

Polymetallic nodules were first discovered on the deep seabed by a British science expedition in 1874. Several entities were involved in polymetallic nodule feasibility trials in the Pacific Ocean in the 1970s, with approximately US$1 Billion[6] invested at that time. The trials involved testing harvesting tools in over 4000 m water depth, resulting in the successful recovery of over 1000 tonnes of polymetallic nodules in total by four different industry groups.

The reason the industry did not move ahead in the 1970s was not due to a lack of technology, but rather a lack of ability to obtain clear rights to the minerals and to meet economic goals. Since the 1970s, the United Nations Convention on the Law of the Sea (UNCLOS) has entered into force, establishing the International Seabed Authority (ISA) as the body accountable for ensuring the responsible management of mineral resources in the area beyond national jurisdiction (the Area). As mentioned earlier, the regulations for governing the industry are now in place or nearing completion in a number of jurisdictions, including for the international seabed area.

Whilst the trials of the 1970s proved polymetallic nodule recovery from the deep seabed was feasible, since then a number of technological advances have occurred, including those pertaining to:

- Deep-water risers (lift systems);
- Deep-water electric power and robotics;
- Deep-water intervention, dredging and trenching vehicles.

The industry can also draw from the technological innovations of the dredging and offshore diamond mining industry.

The Ocean Minerals team includes engineering experts involved with the nodule harvesting trials in the 1970s, as well as offshore diamond mining, deep water oil & gas drilling and production, and other relevant industries. The team has intimate knowledge of the technology required for successful mineral recovery from the deep seafloor.

[6] in today's money terms

The seafloor minerals industry offers development opportunities for countries that are land-resource poor, including many Pacific Island Countries that have been blessed with minerals on their seafloor.

Land resource-poor and developing nations can benefit from seafloor minerals, within international waters and - where present - within their own Exclusive Economic Zones (EEZs), helping them reach their development goals including the reduction of poverty. With a contract in international waters and mineral riches within its own EEZ, the Cook Islands' involvement in the seafloor minerals industry can significantly benefit the country and its people for generations to come.

Ocean Minerals, together with the Cook Islands, is committed to mineral recovery in a responsible and sustainable manner.

Ocean Minerals is taking and will continue to take a precautionary approach and we will partner with world-class scientists and experts, along with Cook Islanders, to ensure we develop our projects responsibly and in a way that will align with the development and sustainability needs of the Cook Islands and the South Pacific.

We commit to ensuring stakeholders, in particular local communities, are properly consulted about the project. Training of Cook Islanders is essential and training will be an important part of the activities conducted by Ocean Minerals.