

A benefit sharing mechanism appropriate for the Common Heritage of Mankind

Workshop summary

Ressortforschungsplan of the Federal Ministry for the
Environment, Nature Conservation and Nuclear Safety
Project No. (FKZ) 3717 25 227 0

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On behalf of the German Environment Agency

Imprint

Publisher

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 [umweltbundesamt](https://twitter.com/umweltbundesamt)

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Report completed in:

February 2019

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Publication as pdf:

<http://www.umweltbundesamt.de/publikationen>

ISSN 2363-832X

Dessau-Roßlau, February 2019

Photo credit cover:

Argus/Fotolia

Zitiervorschlag: Thiele, T., Ginzky, H., Christiansen, S., Damian, H-P. (2018): A benefit sharing mechanism appropriate for the Common Heritage of Mankind, UBA/IASS Workshop Summary, Potsdam.

The responsibility for the content of this publication lies with the author(s)



The participants of the UBA/IIASS workshop "Potsdam, 26-29 November 2018", Potsdam, 26-29 November 2018.

Abstract:

This report contains a summary of the international expert workshop „A benefit sharing mechanism appropriate for the Common Heritage of Mankind” which took place from 26 to 29 November 2018 in Potsdam, Germany. It was jointly organized by the German Environment Agency and the Institute for Advanced Sustainability Studies. The overall objective was to stimulate debate on the Common Heritage of Mankind and its benefit sharing element by discussing first ideas how the benefit sharing required by Article 140 paragraph 2 UNCLOS could be appropriately conceptualized in order to meet with the spirit and the requirements of the Common Heritage of Mankind principle. 50 mostly international Stakeholders from a range of disciplines considered the following aspects:

- ▶ The legal framework of the common heritage of mankind, in particular its benefit sharing provisions;
- ▶ The option of a full economic assessment of deep seabed mining operations;
- ▶ Economic considerations in light of the Agenda 2030 and its Sustainable Development Goals;
- ▶ Forward thinking of deep seabed mining with a 2030 Scenario Approach;
- ▶ The future role of the Enterprise;
- ▶ The interlinkage with the BBNJ process.

Kurzbeschreibung:

Der vorliegende Bericht reflektiert die Präsentationen und Diskussionen der Teilnehmer des internationalen Experten-Workshops „A benefit sharing mechanism appropriate for the Common Heritage of Mankind“. Das Umweltbundesamt in Kooperation mit dem Institut for Advanced Sustainability Studies führte den Workshop vom 26. bis 29. November 2018 in Potsdam durch. Übergeordnetes Ziel des Workshops war es, die Debatte darüber anzuregen wie das Gemeinsame Erbe und der im Seerechtsübereinkommen Artikel 140 Absatz 2 angelegte gerechte Vorteilsausgleich („benefit sharing“) angemessen konzeptioniert und umgesetzt werden kann. 50 meist internationale Akteure aus vielen Bereichen diskutierten u.a. über folgende Aspekte:

- ▶ Der rechtliche Rahmen für das „Gemeinsames Erbe der Menschheit“, im Besonderen die Vorgaben für den Vorteilsausgleich;
- ▶ Überlegungen zu einer ganzheitlichen ökonomischen Bewertung von bergbaulichen Vorhaben in der Tiefsee;
- ▶ Ökonomische Anforderungen im Lichte der 2030 Nachhaltigkeitsagenda und der Nachhaltigkeitsziele („Sustainable Development Goals“);
- ▶ Entwicklungsoptionen für Tiefseebergbau bei einer Szenarienbetrachtung 2030;
- ▶ Diskussion hinsichtlich der zukünftigen Rolle der „Enterprise“;
- ▶ Bezüge zu den Verhandlungen der Generalversammlung der Vereinten Nationen zur Erweiterung des Seerechtsübereinkommens zum Biodiversitätsschutz.

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List of abbreviations

BAU	Business-as-usual
BBNJ	Biodiversity beyond national jurisdiction
BIP	Biodiversity Indicator Partnership
CBA	Cost-Benefit-Analysis
CHM	Common Heritage of Mankind
CV	Contingent Valuation
CWC	Coldwater corals
DSM	Deep seabed mining
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ES	Ecosystem services
IA	Implementing Agreement 1994
ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
LOSC	Law of the Sea Convention (same as UNCLOS)
LTC	Legal and Technical Committee
MPA	Marine Protected Area
NCA	Norwegian Coastal Administration
RRP	Rules, regulations and procedures
SDG	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SNA	System of National Accounts
UN	United Nations
UNGA	United Nations General Assembly
UNCLOS	United Nations Convention on the Law of the Sea
WTP	Willingness-to-pay

Executive Summary and Points for Further Consideration

The Common Heritage of Mankind principle is a core component of Part XI of the United Nations Convention of the Law of the Sea. As the International Seabed Authority prepares a comprehensive Minerals Code ahead of the potential awarding of exploitation contracts for deep seabed mining in the international seabed area a number of workshops are taking place to help Member States and other stakeholders to develop consistent approaches for this important work.

The overall objective of the international expert workshop „A benefit sharing mechanism appropriate for the Common Heritage of Mankind” was to discuss how the benefit sharing required by Article 140 paragraph 2 UNCLOS could be appropriately conceptualized in order to meet with the spirit and the requirements of the Common Heritage of Mankind principle. The Workshop took place from 26 to 29 November 2018 in Potsdam, Germany. It was jointly organized by the German Environment Agency and the Institute for Advanced Sustainability Studies.

The workshop aimed to involve a wide variety of academic perspectives (economists, lawyers and natural scientists) and stakeholders (state representatives; private contractors and civil society organizations. Ultimately about 50 experts from these diverse backgrounds attended the workshop. Some of the experts are also members of the Legal and Technical Commission and one is member of the Finance Committee. (The full participant list is in Annex 1)

Issues presented and discussed during the meeting included:

- ▶ The legal framework of the common heritage of mankind, in particular its benefit sharing provisions;
- ▶ Considerations with regard to a full economic assessment of deep seabed mining operations;
- ▶ Economic considerations in light of the Agenda 2030 and its Sustainable Development Goals, SDGs;
- ▶ Forward thinking with a Scenario Approach;
- ▶ A discussion of the future role of the Enterprise;
- ▶ The interlinkage with the BBNJ process.
- ▶ A number of key questions were addressed by the participants.

What is the legal framework for benefit sharing?

CHM as a principle of international law includes obligations to balance exploitation and environment. The CHM principle can be considered to support a more holistic approach to developing the mineral resources of the Area in an environmentally sustainable manner employing tools such as strategic environmental assessment and marine spatial planning for different regions of the Area and EIA for specific exploration/exploitation proposals.

This could include an assessment of alternatives to deep seabed mining, such as land based minerals development and technological solutions to potential increases in minerals demand. A precautionary approach should be applied by the ISA to ensure that proposed exploitation activities are in the long term interest of humankind.

This concept of a more evolutionary implementation of the CHM was challenged by some participants who rather saw UNCLOS Part XI (together with 1994 Agreement) alone as setting the frame for interpretation, without need for addressing other international governmental commitments such as to the sustainable development goals of the Agenda 2030 or the Convention on Biodiversity strategy and targets.

Developing States view the CHM principle as central to the achievement of distributive justice whereas developed States and commercial interests envisage potential obstacles to investment and the use of market incentives such as property rights to achieve economic and environmental benefits. Transparency of the ISA and its Finance Committee in developing and implementing the benefit sharing criteria is needed to assure the international community of State and contractor compliance.

CHM - an evolutionary implementation?

This question aimed to address CHM in the light of emerging global governance approaches, such as the Sustainable Development Goals (SDGs). SDGs needs to be considered with regard to the interpretation, operationalization and implementation of the CHM-principle and the future benefit sharing system. In procedural terms, a working group should be set up within ISA to provide specific recommendations.

The attendees felt that the Common Heritage of Mankind principle needs to be seen in the light of the SDGs. Therefore, it requires us to implement CHM in a way that supports functioning ecosystems, a healthy deep ocean and marine biodiversity. Implementation requires us to provide to future generations at least the same options for well-being, including through mineral use as we inherited ourselves. We need to use the tools at our disposal, which include the ecosystem approach to management and strategic environmental assessments to make sure that we fully address potential cumulative effects of activities.

Prior to permitting exploitation, potential negative impacts have to be identified and reduced, including those from climate change and from other activities such as fishing, so that the implementation of CHM evolves in a way to promote integrity and resilience of the Area for all mankind today and in the future.

The development of mutually supportive governance approaches in the Area and the High Seas would be beneficial. The negotiations under the UN process to protect biodiversity beyond national jurisdiction should aim to establish a full flesh assessment regime taking into account the effects on the deep sea and the open ocean.

The assessment of whether deep seabed mining is in the interest of the CHM's requirement for delivering benefits to mankind could focus on the natural capital of the deep sea taking into account also all potentially negative effects activities may cause. A focus on SDG 12, responsible production and consumption, which requires an effective and efficient use of minerals, could reduce the need for DSM.

SDGs demand that each DSM project proves that there is a net benefit, taking into account the effects on natural capital. It might be technically difficult to provide such an evidence for each project. At least, it should be done on a strategic/regional level.

Some participants recommended a moratorium on deep seabed mining prior to full implementation of the Sustainable Development Goals in 2030. This would be a way to effectively support and enhance the transformation needed for implementing the 2030 sustainability agenda. CHM implementation through the Enterprise was pointed out to be a tangible and meaningful way of benefit sharing.

What are the “benefits”?

UNCLOS states that activities must be for the “benefit of mankind as a whole” (Article 140 paragraph 1 UNCLOS) and the “financial and economic benefits” must be shared equitably and “on a non-discriminatory basis”, but taking into particular consideration the interests and needs of developing states. The sharing of benefits deriving from marine scientific research, technology transfer and archeological and historical objects are regulated in Articles 143, 144 and 149 UNCLOS. Developing States in particular view CHM as central to the achievement of distributive justice.

The participants considered the benefits in the sense of Article 140 UNCLOS to include monetary as well as non-monetary benefits, including in particular ecosystem goods and services as part of the existence value of the marine environment in the Area. This broader view of non-monetary benefits thus includes ecosystem functions, services, scientific knowledge, capacity development and technology transfer. Therefore, environmental costs arising from degradation by mining and revenues resulting from marine scientific research and from a better understanding of the ocean need to be considered. In addition, participation in activities in the Area, for instance through the Enterprise, could also be considered a benefit. The Enterprise could help to bring the group of developing states together and add an important stakeholder’s voice into the process. The option to offer an equity interest in a future joint venture arrangement with the Enterprise has so far been taken up by 11 contractors.

Is the concept of “net benefit” appropriate?

Only by looking at the broad range of benefits and by deducting the social and environmental cost of the impacts of activities on the natural capital in order to calculate the net benefit can decisions be made appropriately. There was support for the notion that in general the documentation of a net benefit should be a precondition to undertake a DSM activity. It was highlighted that such a prerequisite is lacking in the present second draft of the exploitation regulations. Regulations should therefore require an adequate assessment of gains & losses on a project basis even if this raises challenges in implementation which have to be addressed through appropriate design in advance of any decision to proceed with deep seabed mining and ahead of individual licencing decisions. Uncertainties, that is the range of potential outcomes, including the likelihood of negative impacts need to be properly communicated if one wants to make the public and decision-makers fully aware of the importance of potential externalities.

Specific services such as carbon sequestration as well as the existence value of the deep sea and the seabed must be considered too. A comprehensive approach can take into account the full range of benefits and weigh carefully how society can best benefit also in the form of knowledge and marine scientific research, design appropriate technologies and environmental protection schemes. Willingness-to-pay concepts were discussed as a means to identify the economic value people put on the existence of environmental assets they are not directly exposed to such as deep sea corals or the deep seabed. This provides an additional tool available to show that the intrinsic value of ecosystems can also be reflected in economic accounts and decision making.

Biodiversity is not only intricately linked to ecosystem functions but also has a very high educational and inspirational value, will foster cooperation and community building. The integrity of the environment in the Area must be maintained to enable continued exploration and discovery and therefore benefits to mankind. It was noted that the sustainable development goals (SDGs) are human-focussed and include conservation approaches in SDG 14.2 (“By 2020, sustainably manage and protect marine and coastal ecosystems ...”), current indicators measure change as relevant for humans (Indicator 14.4.1: Proportion of fish stocks within biologically

sustainable levels). Due to knowledge gaps, there are substantial gaps also regarding the indicators for SDG 14, in particular regarding the deep sea environment.

The precautionary principle as a tool to implement the CHM principle is one way to protect this intrinsic value. A precautionary approach should be adopted by the ISA to ensure that proposed exploitation activities are in the longterm interest of humankind. This should include an assessment of alternatives to deep seabed mining, such as land based minerals development and technological solutions to potential increases in minerals demand and a focus on the transition to sustainable resource management.

What is a satisfactory payment regime?

A satisfactory payment regime according to Article 140 Paragraph 2 UNCLOS needs to deliver solid and certain financial and other economic benefits to humankind to satisfy the CHM principle. This means that the CHM must not be put at risk.

One way to reduce the risk of not receiving a sufficient payment from the contractor for exploiting the common resource is to offer the opportunity for a significant upfront payment. A mix of upfront payments ("signing bonus"), royalties on the processed metal and a profit tax may be helpful in delivering a fair share to the ISA. It was discussed whether paying up front should be at the option of the contractor given that an amount could be calculated that would be financially equivalent to an amount paid through royalties later, or whether there could be an auction element.

Participants suggested that in any case the payment regime needs to be comprehensive, including an upfront fee, royalties and a profit share, so that the funds to the ISA and the CHM provide for instance at least 50% of the net income of the project. The payment to the CHM needs to be in addition to the cost coverage required to support adequate environmental funds and the mining inspectorate. The Enterprise should be involved as a contractor in order to guarantee that all developing states will benefit from DSM activities.

It was argued that proper minoring and enforcement through the future Mining Inspectorate would provide the ISA with the needed information to fully audit activities and therefore calculate incomes and costs adequately to properly administer the profit-share component, which could for instance be in the form of a windfall tax of up to 100%.

The payment regime needs to ensure that mining only occurs if there are significant (optimal) net benefits for humankind and any loss of value in CHM is getting compensated. A broad consideration of the overall benefits should be a criterium for rejecting or approving a license, to be prescribed in the exploitation regulations. There was consensus that any payment mechanism must ensure that there is minimum/significant amount of benefits which could be shared. Member states and ISA should decide upon the return they need.

It was suggested that the payment mechanism should comply with a number of criteria and prior conditions:

- ▶ A system that does not discriminate in favor or against particular types of contractors;
- ▶ A system that is simple to implement and minimises administrative costs;
- ▶ A system that takes into account externalities, in particular environmental impacts such as biodiversity costs;
- ▶ A system that gives priority to CHM (at least 50%), is based on overall net- benefit, is transparent and follows good-governance principles, including transparency;

- ▶ A separate liability and environmental fund is required in order to save for eventualities from environmental damage compensation:
- ▶ Consideration the interests of future generations;
- ▶ An approach that is dynamic and could involve incentives and discounts;
- ▶ A system that is not be designed in order to prevent mining operations, but commercially viable and based on market realities.

It was emphasised that only if a substantial financial return after deduction of all administrative cost is received by the ISA, can it be considered that a relevant financial benefit to mankind was achieved.

Can scenario planning provide a mechanism to help different stakeholders to develop common ground in addressing DSM and benefit sharing?

The participants engaged in a scenario planning effort that provided helpful insights into how different assumptions on overall future developments to 2030 could lead to different dynamics around payment and benefit sharing. The use of such an approach was found to be helpful to bring together experts from different fields in developing a joint approach and showed that a robust and transparent regulatory regime is required to adequately prepare for potentially widely different outcomes in the future.

The “business-as-usual” scenario discussion suggested that by 2030 there could be environmental degradation and lack of global cooperation, so it was important to develop a “good mining code” now based on marine science and with adaptive management to be ready for a “BAU” world and for use also in EEZs. The “sustainability” scenario suggested that by 2030 application of carbon pricing and lifestyle changes meant that the increased demand for metals could be met by terrestrial sources. The group suggested that therefore we should consider test mining and feasibility studies for DSM but that is was likely that there will not be a sufficient price signal for larger-scale DSM. The “transition” scenario suggested that a focus on science and innovation together with a shift in people’s attitudes, lifestyles and politics towards a circular and sharing economy could achieve the needed transition, breaking the path dependencies and staying within planetary boundaries. The group suggested that therefore the world could focus on the benefits of further exploration of the habitats and ecosystems of the deep sea rather than on DSM.

How should benefits be shared?

The participants discussed a broad range of benefit sharing mechanisms, including through the operation of the Enterprise, through capability building and technology transfer for developing nations.

Appropriate fund structures were seen to be particularly useful to deliver support, in particular focussing in Law of the Sea related efforts and obligations, and deep-sea science as well as other appropriate UN funds. The feeling was that rather than transferring cash to states, using a multilateral fund structure with appropriate, independent oversight and clear mandate to support the ambitions of UNCLOS and other public interests such as public health security would be most effective and also would align best with the interests of future generations.

To the degree that states are considered as beneficiaries, developing countries should first benefit, either directly or in the form of support from the fund, whose disbursements should be geared to issues most relevant to developing economies such as basic health provision, poverty

alleviation and restoration of negatively impacted marine environments. Should any financial benefits be up for sharing, then the most vulnerable groups should be the priority recipients - Another way of fair involvement of developing states was through the Enterprise. Legally speaking, benefits can not only be distributed to states, but also to civil society organizations directly.

Participants did not expect large amounts of money to become available for re-distribution and therefore a common fund was considered more practical than a sharing mechanism among states. Participants generally agreed that sharing the benefits of the CHM required a comprehensive approach considering a.o. benefits provided by the oceans for life on earth, inter-generational fairness/equity, and providing transformative momentum. Developing countries acting as sponsoring states must not left with the liabilities whilst developed countries receive benefits through their engagements with private contractor operating a DSM activity.

The role of the Enterprise

CHM implementation through the Enterprise was pointed out to be a tangible and meaningful way of benefit sharing. Developing countries in particular see the operationalisation of the Enterprise as a precondition for any exploitation activities. The form of this, in particular as a joint venture, is under discussion. The Enterprise should be a relevant stakeholder already in the discussions of the regulatory regime and rules on benefit sharing.

Zusammenfassung

Der vorliegende Bericht fasst die Ergebnisse des internationalen Experten-Workshops „A benefit sharing mechanism appropriate for the Common Heritage of Mankind“ zusammen. Der Workshop fand vom 26. Bis 29. November 2018 in Potsdam statt. Er wurde vom Umweltbundesamt in Kooperation mit dem Institut for Advanced Sustainability Studies (IASS) durchgeführt.

Übergeordnetes Ziel des Workshops war es, auf der Basis von wissenschaftlichen Vorschlägen die Debatte darüber anzuregen wie das Gemeinsame Erbe und der im Seerechtsübereinkommen Artikel 140 Absatz 2 angelegte gerechte Vorteilsausgleich („benefit sharing“) angemessen konzeptioniert und umgesetzt werden können. Es wurde nicht angestrebt Konsens zu erzielen, sondern 50 meist internationale Akteure sollten viele verschiedene Perspektiven einbringen. Die folgende Zusammenfassung ist daher nur eine Beschreibung der erörterten Aspekte:

- Rechtliche Vorgaben des Prinzips „Gemeinsamen Erbes der Menschheit“, im Besonderen die Vorgaben für den Vorteilsausgleich:

Das CHM Prinzip ist für die Interpretation der Vorgaben des Seerechtsübereinkommens bindend.

Viele Teilnehmer sahen die Notwendigkeit, das Prinzip im Lichte neuer internationaler Absprachen, wie etwa der 2030 Nachhaltigkeitsagenda der Vereinten Nationen zu interpretieren.

Dies koennt auch die Betrachtung von Alternativen zum Tiefseebergbau umfassen.

Die Berücksichtigung des Vorsorgegrundsatzes ist erforderlich um sicherzustellen, dass bergbauliche Tätigkeiten tatsächlich zum Vorteil der Menschheit als Ganzes durchgeführt werden.

- Überlegungen zu einer ganzheitlichen ökonomischen Bewertung von bergbaulichen Vorhaben in der Tiefsee:

Eine gesamtökonomische Betrachtung sollte ermöglichen, dass alle Auswirkungen auf die Umwelt, inklusive auf andere Nutzungsoptionen, bei einer Kosten-Nutzen-Analyse berücksichtigt werden.

Die Methode „Willingness to pay“ kann insoweit genutzt werden.

- Ökonomische Anforderungen im Lichte der 2030 Nachhaltigkeitsagenda und der Nachhaltigkeitsziele („Sustainable Development Goals“):

Die 2030 Nachhaltigkeitsagenda erfordert – ökonomisch betrachtet - , dass trotz Umweltnutzung das „natural capital“ für nachfolgende Generationen nicht gemindert, sondern gesteigert wird.

- Entwicklungsoptionen bei einer Szenarienbetrachtung;

Mit einer Szenarienbetrachtung (drei Szenarien: (1.) business as usual, (2.) Nachhaltigkeitsansatz (3.) Transformation) koennen unterschiedliche Konsequenzen des Tiefseebergbaus analysiert werden.

- Diskussion hinsichtlich der zukünftigen Rolle der „Enterprise“;

Vertreter aus Entwicklungsländern machten deutlich, dass aus ihrer Sicht eine funktionsfähige „Enterprise“ im Rahmen der Tiefseebehörde erforderlich, um das CHM Prinzip effektiv implementieren zu können.

Ferner sollte die Enterprise schon in den Verhandlungen um den Vorteilsausgleich beteiligt werden.

- Bezüge zu den Verhandlungen der VN Generalversammlung zur Erweiterung des Seerechtsübereinkommen zum Biodiversitätsschutz.

Verschiedene Teilnehmer sahen eine Notwendigkeit, die Verhandlungen der VN Generalversammlung zur Erweiterung des Seerechtsübereinkommen zum Biodiversitätsschutz stärker mit den Regelungen der Tiefseebehörde zum Tiefseebergbau zu verbinden, um insbesondere kumulative Effekte besser steuern zu können.

1 Introduction

The Common Heritage of Mankind principle is a core component of Part XI of the United Nations Convention of the Law of the Sea. As the International Seabed Authority prepares a comprehensive Minerals Code ahead of the potential awarding of exploitation contracts for deep seabed mining in the international seabed area a number of workshops are taking place to help the International Seabed Authority to develop consistent approaches for this important work. The international expert workshop „A benefit sharing mechanism appropriate for the Common Heritage of Mankind” was organised to discuss how the benefit sharing required by Article 140 paragraph 2 UNCLOS could be appropriately conceptualized in order to meet with the spirit and the requirements of the Common Heritage of Mankind principle.

The Workshop took place from 26 to 29 November 2018 in Potsdam, Germany. It was jointly organized by the German Environment Agency and the Institute for Advanced Sustainability Studies. The workshop aimed to involve a wide variety of academic perspectives (economists, lawyers and natural scientists) and stakeholders (state representatives; private contractors and civil society organizations). Ultimately about 50 experts from these diverse backgrounds attended the workshop. Some of the experts are also members of the Legal and Technical Commission and one is member of the Finance Committee. (See full participant list in Annex 1).

The following report aims to reflect the range of perspectives discussed by the participants, however it does not in any way imply that a consensus was achieved on any of the points under consideration. On the contrary, the workshop aimed at bringing together as many different perspectives as possible and to raise interest and open the debate, but with no intention for reaching consensus or recommending answers. Nonetheless, on some issues there seemed to be broader agreement than on others, which is indicated in the text.

Workshop objectives

Hosting an international expert workshop on a complex theme entitled: „A benefit sharing mechanism appropriate for the Common Heritage of Mankind” requires a clear set of objectives. The goal of this gathering was not only to present relevant research from a range of disciplines and to discuss these with a group of important stakeholders and participants in the ongoing processes at the International Seabed Authority. The aim was to have an open dialogue across partners with different outlooks, ambitions and perspectives to identify common ground and to discuss methodologies to appropriately conceptualise benefit sharing in light of the spirit and the requirements of the Common Heritage of Mankind principle. Whilst other workshops have taken place to discuss the payment regime in the past, their focus was on financial modalities in a narrower sense whereas this workshop aimed to present the theme? in a broader context.

The objective of the workshop is to present and discuss issues around the benefits arising from activities in the Area and possible payment and sharing mechanisms in the light of the implementation of the common heritage of mankind principle, taking into account a wider view of deep sea economics. Traditionally, economic discussions around resources have focussed on the commercial benefits of the use of the resulting minerals themselves. Modern resource economics starts from the premise that non-renewable resources are limited, therefore any exploitation needs to be optimised. Environmental economics looks to the broader system of capital, taking natural capital into account.

The international seabed delivers significant ecosystem services benefits to humankind. This Area is described in Art. 136 of UNCLOS as Common Heritage of Mankind. Additional economic benefits can arise from human ingenuity, deep sea science and exploration, in particular if these activities lead to new knowledge, skills, technologies and understanding and if this capacity is

shared globally, fairly and comprehensively. According to Art. 140 of UNCLOS any activities shall be carried out for the benefit of mankind as a whole. The International Seabed Authority is in charge of a fair redistribution of these benefits. In addition to the economic benefits it also needs to provide for the equitable distribution of any financial benefits. The purpose of any payment regime will be to optimise such payments from those who will exploit the mineral resources of the Area.

From an economic perspective regulations, including payment mechanisms, should be structured to provide operators with the best incentives to use processes efficiently. Relevant societal goals need to be considered, which can include keeping minerals in the ground for the future, encouraging innovation and the development of better, more effective mining processes and re-investing returns from extraction productively. The Workshop took place from 26 to 29 November 2018 in Potsdam, Germany. It was jointly organized by the German Environment Agency and the Institute for Advanced Sustainability Studies. The workshop aimed to involve a wide variety of academic perspectives (economists, lawyers and natural scientists) and stakeholders (state representatives; private contractors and civil society organizations). Ultimately about 50 experts from these diverse backgrounds attended the workshop. Some of the experts are also members of the Legal and Technical Commission and one is member of the Finance Committee. (The full participant list is in Annex 1).

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2 General framework for benefits and sharing under the Common Heritage Principle

2.1 The legal framework for benefits and benefit-sharing: realization of intra- and intergenerational equity under the principle of the Common Heritage of Mankind¹

*Professor Robin Warner, Australian National Centre for Ocean Resources and Security,
University of Wollongong Australia*

Concept of the Common Heritage of Mankind Principle (CHM)

CHM is a general principle of international law and an ethical concept. It confirms that some global commons spaces such as the deep seabed beyond national jurisdiction belong to all humanity and that their resources are available for everyone's use and benefit, taking into account current and future generations and the needs of developing countries. Its primary purpose is to achieve the sustainable development of common spaces and resources but it can apply beyond this specific scope.

Origins of CHM

CHM was conceived at an even earlier stage than Arvid Pardo's speech to the UN in 1967 but achieved prominence in the context of Law of the Sea. The 1948 draft World Constitution provided that the Earth and its resources were to be the common property of mankind managed for the good of all. The CHM concept is also found in the 1967 Outer Space Treaty relating to State exploration and use of outer space, the moon and other celestial bodies and the 1979 Moon Treaty. Elisabeth Mann Borgese explored ethical aspects of the CHM concept in her writings including the responsibility of humans to care for and protect the environment for present and future generations entailing new forms of cooperation, economic theory and philosophy. Arvid Pardo, Maltese Ambassador to the UN drew on all these antecedents when he developed his original concept of CHM and its application to ocean space and resources reflected in his draft Ocean Space Treaty of 1971. In this more holistic concept of CHM explored by Pardo, ocean space and its resources were a commons that could not be owned by States beyond a certain limit. It simplified ocean jurisdiction by establishing a single line of demarcation between national and international ocean space and recognized the ecological unity of the oceans. The oceans beyond national jurisdiction would be open to the international community of States but its use would be subject to international administration and management for the good of humanity. In his 1967 speech Pardo proposed a more limited version of CHM, that the seabed and ocean floor beyond national jurisdiction be considered the CHM. He recognized that the application of CHM to all ocean space and resources would be rejected by powerful states intent on extending their sovereign claims to more ocean space and resources. This speech and other events triggered the 1970 UNGA Declaration of Principles Governing the Seabed and the Ocean Floor and the Subsoil Thereof beyond the Limits of National Jurisdiction which helped create consensus for the negotiation of UNCLOS.

Key Elements of CHM

There is no fully agreed definition of CHM but some key elements can be discerned. No State or person can own CHM spaces or resources, but they can be used subject to international administration and rules. The use of CHM spaces and resources should be consistent with a

¹ Summary written by the presenter

cooperative system of management for the benefit of all humankind. There should be active and equitable sharing of benefits (including financial technological and scientific benefits) derived from CHM spaces and resources prioritising the interests of developing States. CHM should be used for peaceful purposes and transmitted to future generations in substantially unimpaired condition (protection of ecological integrity and inter-generational equity).

CHM in UNCLOS

Part XI UNCLOS and the Part XI Implementation Agreement deal with the seabed beyond national jurisdiction (the Area). Article 136 UNCLOS declares the Area and its resources to be the CHM. Article 133 (1) of UNCLOS defines “resources” in relation to the Area as “all solid, liquid or gaseous mineral resources in situ in the Area at or beneath the seabed, including polymetallic nodules. Article 137 provides that the Area and its resources cannot be claimed appropriated or owned by any State or person. Article 140 further provides that all rights to resources belong to mankind as a whole with the International Seabed Authority (ISA) acting on mankind’s behalf. A central aim of the CHM concept is to ensure intergenerational equity and sharing of the benefits of seabed mining. A balance needs to be struck between the equitable sharing of any benefits from seabed mining as well as the preservation of the marine environment for present and future generations.

Benefit Sharing and CHM

The ISA is tasked with the equitable sharing of financial and other economic benefits derived from activities in the Area through any appropriate mechanism on a non-discriminatory basis taking into particular consideration the needs and interests of developing States and peoples who have not attained full independence or other self-governing status (Arts 140(2) and 160 (2)(f)(i)). It is to develop rules, regulations and procedures for this purpose (Art 162(2)(o)i) taking into account a number of principles set out in Section 8 of the Annex to the 1994 Implementation Agreement. It is still in the process of developing equitable benefit sharing criteria. Concerns have been raised by some commentators (Jaeckel, Ardron and Gjerde) on whether the current system for developing benefit sharing criteria will sufficiently incorporate key aspects of the CHM principle in its application to the Area and deep seabed mining: These include concerns about:

The lack of transparency of the ISA and its Finance Committee in developing and implementing the benefit sharing criteria to assure the international community of State and contractor compliance

Whether the benefit sharing criteria will take into account the loss of natural capital and related ecosystem services entailed in deep seabed mining and whether compensation needs to be paid to current and future generations

Whether the benefit sharing criteria will take into account the absence of the originally envisioned Enterprise which was designed to implement CHM

Future of CHM

Continuing degradation of the oceans beyond national jurisdiction and the integral role of CHM in Part XI of UNCLOS means that the concept will continue to resurface despite the reluctance of some States to accept it. It recognises the interdependence of ecosystems and acknowledges human use and is also relevant to the wider debate on protecting ecological systems for the benefit of current and future generations. Global civil society is now playing an increasing role in advocating maintaining and developing concepts such as CHM. This influence is likely to continue as the system of benefit sharing for resources of the Area is developed.

Discussion

- ▶ CHM as a principle of international law includes obligations to balance exploitation and environment. CHM principle should be considered to support a more holistic and regional planning approach to developing the mineral resources of the Area in an environmentally sustainable manner employing tools such as strategic environmental assessment and marine spatial planning for different regions of the Area and EIA for specific exploration/exploitation proposals.
- ▶ The concept of a more evolutionary implementation of the CHM was opposed by some participants who rather saw UNCLOS Part XI (together with 1994 Agreement) alone as setting the frame for interpretation, without need for addressing other international governmental commitments such as to the sustainable development goals of the Agenda 2030 or the Convention on Biodiversity strategy and targets.
- ▶ Developed States and commercial interests see the CHM principle and in particular an evolutionary interpretation as a potential obstacle to investment.
- ▶ A precautionary approach should be adopted by the ISA to ensure that proposed exploitation activities are in the long-term interest of humankind
- ▶ This should include an assessment of alternatives to deep seabed mining, such as land-based minerals development and technological solutions to potential increases in minerals demand
- ▶ While definition of "resources" is limited to mineral resources in Art. 133a, the understanding is that the "Area" comprises the natural environment.
- ▶ Engagement of civil society - do states represent humanity? Will states deliver the financial benefits from CHM to the most vulnerable parts of the population?
- ▶ The operationalization of the Enterprise was seen as an important mechanism for the implementation of the CHM principle.
- ▶ Solidarity and stewardship are seen at the core of the CHM principle - which institutional structures reflect this? Today, delegations come with a national mandate rather than looking out for a common vision and strategy. Transparency is key in establishing also broader perspectives.

2.2 Challenges in Monetary Valuation of Deep-Sea Resources and the Policy Use of Contingent Valuation²

Stale Navrud, School of Economics and Business, Norwegian University of Life Sciences

Introduction

Two case studies were presented to illustrate the possibilities and challenges in using the Contingent Valuation methods for providing economic estimates of the benefits provided by the marine ecosystem services (ES). Both use values and non-use values (i.e. existence and bequest

² Summary written by the presenter

values) can be negatively affected by deep sea mining; and these environmental costs need to be accounted for in Cost-Benefit analyses (CBAs) of these activities as well as in distribution of the net benefits from deep sea mining.

Case 1

The world's largest concentration of cold-water coral (CWC) is found off the Norwegian coast. Most CWC discoveries are recent, posing new challenges for Norwegian coastal and fishery authorities regarding the management of deep-sea resources. Scientific knowledge of CWC is limited, and many citizens have not even heard about them. This creates problems for the application of the stated preference methods to capture their economic value, and very few such studies have been conducted. To fill this gap, we designed a discrete choice experiment, which was implemented in a series of valuation workshops in coastal communities in order to derive estimates of people's willingness-to-pay (WTP) for increasing the protection area of CWC. Despite the fact that commercial marine activities such as oil/gas extraction and fisheries could be adversely affected by CWC protection, this did not reduce the respondents' WTP for further protection. The possibility that CWCs play an important role as habitat for fish was the single most important variable to explain respondents' WTP for CWC protection.

Case 2

The Norwegian Coastal Administration (NCA) is in charge of planning and implementing local and regional preventive measures to avoid oil spills from ships, and they regularly carry out CBAs of these measures. However, the NCA recognized that these CBAs were incomplete as the monetary assessment of benefits excluded non-market benefits in terms of avoided damages to marine and coastal ES and decided to fund an extensive research program into their economic values. The results from an extensive Contingent Valuation (CV) internet survey (with more than 2500 respondents) show that the monetary value of these ES impacts could potentially be very large, and affect the outcome of CBAs of preventive measures. Thus, incorporating regional unit values for different levels of marine and coastal ES damages from oil spills in their CBAs will have policy implications in terms of improved ranking of preventive measures to maximize public welfare of NCAs current budget, and could justify increased budgets for measures avoiding loss in these ES.

Conclusion

In addition to providing monetary estimates for policy use, these studies also address important methodological challenges in ES valuation like the temporal stability of peoples preferences for coastal and marine ES, regional differences in preferences, definition of the "affected" population" to aggregate benefits over, scope effects (i.e. are people willing to pay more to preserve more CWC/avoid larger oil spills and ES damages), linking oil spill dispersion models and scientists' expert estimates of ES damages, and how to present temporal losses in complex ES in ways people can understand in stated preference surveys. Results show that the Contingent Valuation method can provide economic estimates of impacts on ecosystem services from commercial activities for use in CBAs by government agencies.

Discussion

- The willingness-to-pay concept was discussed as a means to identify the economic value people put on the existence of environmental assets they are not directly exposed to, such as deep-sea corals or the deep seabed. It provides an additional tool available to show that the intrinsic value of ecosystems can also be reflected in economic accounts and decision making. The precautionary principle is one way to protect this intrinsic value.

- ▶ Norway uses financial support such as funding provided to Brasil for rainforest protection, paid against verified reduced deforestation rates. This is an example how economic assessments can be used to promote the protection of ecosystems.
- ▶ Uncertainties, that is the range of potential outcomes, including the likelihood of negative impacts, need to be properly communicated if one wants to make the public and decision-makers fully aware of the importance of potential externalities.

2.3 Stakeholder Panel: What kind of benefits do you expect from the Common Heritage of Mankind?

Panelists: Dr. Diva Amon (Natural History Museum London), Eden Charles (Republic of Trinidad and Tobago), Duncan Currie (Globe Law), Lowri Griffiths (United Kingdom), Graham Leung (Republic of Nauru), Kris van Nijen (Global Sea Mineral Resources)

Summary of introductory statements and panel discussion

- ▶ ISA has a dual mandate with environmental protection to be achieved as a benefit, as well as transfer of technology and capacity building. Developing states benefit also from being a sponsoring state, and through the Enterprise, once it will be established from funds raised through exploitation of minerals.
- ▶ There were different perspectives as to whether sponsoring states should be treated equally or differently from non-sponsoring states in the benefit sharing mechanism. While participants from developing countries asked that sponsoring states should not receive a lower share when the financial benefits of exploitation will be equitably shared among states, representatives of developed sponsoring states did not expect to be eligible for funds from the ISA.
- ▶ Building on the criteria set in Part XI for benefit sharing, differences among developing states should be considered in a financial re-distribution mechanism of ISA, i.e. in favour of small and poor states acc. to the UN Development Index. Given the expected low rate of returns ("2 % royalty mentioned") funding projects globally could be only a limited option, however, the meaning of benefits needs to be defined. Prior to redistribution, the needs of ISA for accomplishing its tasks (science, data, capacity building, technology) would need to be satisfied. It was questioned whether any funds would remain should ecological loss through mining-related activities be compensated.
- ▶ The financial regime should be fair to all types of companies, i.e. enable sufficient returns and not setting the environmental bars too high. However, design could also be incentives are given for keeping high environmental standards.
- ▶ Problem of balancing benefit of mining minerals from the Area for developing green energy and economies vs. environmental damage caused.
- ▶ The view was voiced that the most prominent benefit of the CHM will be to bring metals into circulation during the starting phase until circular economy can function based on enhanced minerals pool which will help initiate green energy production. This view was contested as

the minerals already belong to mankind as a whole and UNCLOS did not provide for minerals to go onto the market - rather to be used by states parties. Also, the need for mining minerals in the deep sea for enabling the transition towards sustainable production and consumption was questioned and an assessment of future mineral demand and supply potential was requested.

- ▶ The second benefit was enhanced marine research, technology development and capacity building carried out by contractors, plus financial share for ISA. All of these efforts were expected to intensify during the exploitation phase. In order to empower developing states it was proposed that each exploration/exploitation cruise should take on board a scientist from a developing country.
- ▶ The need for holistic integrated ocean assessments was pointed out, including consideration of potential conflicts between activities and effects on the seafloor and in the water column. The Sustainable Development Goals were seen as a globally agreed tool to implementing the Common Heritage Principle with the necessary transparency and public involvement.
- ▶ The conflict potential of so-called marine genetic resources of the Area and the high seas was discussed, as the potential genetic resources are tied to the Area's minerals and biota which should not be divorced from those in the water column. One solution could be to consider both as common heritage of mankind also (currently promoted by 100+ countries).
- ▶ It was emphasised that biodiversity is not only intricately linked to ecosystem functions but also has a very high educational and inspirational value, will foster cooperation and community building. Science should be independent. The integrity of the environment in the Area must be maintained to enable continued exploration and discovery and therefore benefits to mankind.
- ▶ The opposite view was taken by those who consider that the CHM was only realised if mineral exploitation would take place, and it was only a matter of implementation, i.e. the formulation of the regulations, to realise the necessary balancing of exploitation and environmental protection.
- ▶ Others considered the operationalisation of the Enterprise as a precondition for realising the CHM. However, the question was raised how the Enterprise could deliver the non-monetary benefits such as from science.

3 Income generation for ISA – optimizing financial benefits

3.1 Introduction: Approaches to Payment and Taxation Mechanisms for Mineral Resources³

Dr. Daniel Wilde, Commonwealth Secretariat

Introduction

This Report summarises a presentation on the taxation of mineral resources that was made by Dr. Wilde of the Commonwealth Secretariat during the workshop ‘a benefit sharing mechanism appropriate for the Common Heritage of Mankind’ held in November 2018 in Potsdam, Germany. The first part of this Report briefly summarises some general principles of mineral taxation. While the second part discusses the taxation of deep-sea mining in the Area.

General Principles of Mining Taxation

Mining is commonly taxed differently and more heavily than other economic activity. Reasons for this include: mineral ore being an exhaustible resource, mining involving significant upfront costs and a long production period, the possible large economic contribution of mining, and mining potentially generating significant economic rent (profits in excess of those required to motivate investment).

A national mining taxation regime should be designed in light of the government’s overall policy goal. Possible policy goals include: maximising production and economic activity, maximising overall government revenue, ensuring that mining only occurs if there is a significant contribution to government revenue, and maximising government revenue per unit of production.

Mining taxation regimes commonly consist of numerous different taxes. These taxes can be divided into the following five categories: payments for mining (e.g. area fees), taxes on revenue/value of the mineral (e.g. ad-valorem royalty), taxes on the mine’s profits (e.g. mine profit tax / corporate income tax) and taxes on the mine’s excess profits (e.g. windfall taxes, additional profits tax, resource rent tax).

A mining tax regime can be evaluated according to the following criteria:

- ▶ ensuring a minimum level of government revenue;
- ▶ simplicity, stability and predictability;
- ▶ progressivity (that the government’s share of profits increases with profits);
- ▶ avoiding tax leakage;
- ▶ economic neutrality; and
- ▶ the overall burden of taxation/ government take (the government’s overall share of profits).

Some of these criteria are, however, in conflict. For example, a taxation regime consisting of only a 3% tax on revenue would guarantee minimum revenue and would be simple to administer, but it would not be progressive as government take would not increase with higher profits driven by lower costs. In contrast, a mining taxation regime that only included an additional profits tax

³ Summary written by the presenter

would be economically neutral (as marginal projects would not have to pay the tax) and be progressive, but would not guarantee minimum revenue and would be relatively complex to administer.

In practice, most mining tax regimes consist of numerous taxes. For example, the Democratic Republic of Congo's, Ghana's and South Africa's tax regimes for mining all consist of taxes on revenue and profits and a withholding tax as well as various other minor taxes. While the Cooks Islands' tax regime for deep-sea mining in its exclusive economic zone includes taxes on revenue, profits and excess profits.

Government take – the government's overall share of the mine's profits – is also an important consideration when designing a mining taxation regime. The Commonwealth Secretariat (2009) models tax regimes with a sample mine and concludes that the governments of countries where the mine is located commonly capture between 38% and 69% of the profits from mining.

Taxation of Deep-Sea Mining in the Area

In designing a taxation/payment regime for deep-sea mining in the Area a key consideration is whether deep-sea mining should face a lower overall burden of taxation than land-based mining.

It could be argued that deep-sea mining should face a lower overall burden of taxation because it is an emerging industry and, thus, faces more risk and requires higher post-tax profits to motivate investment. Moreover, it could also be argued that deep-sea mining is required to supply important minerals, could lead to significant technological innovation and causes less environmental harm than land-based mining. There are, however, a number of counterpoints and questions that can be raised regarding this argument. These include:

- ▶ If deep-sea mining is financially riskier, less efficient and less profitable than conventional mining it is not 100% clear that it should be encouraged.
- ▶ Is it proven that deep-sea mining will be less environmentally harmful than conventional mining?
- ▶ Is it proven that deep-sea mining will lead to technological innovation greater than that resulting from the same amount of investment in new land-based mines?
- ▶ Is it proven that land-based mining cannot supply the required metals for sustainable human development?
- ▶ 17 contractors currently have exploration licenses for nodules in the Area (and there are 12 other contractors exploring for other mineral resource types in the Area). At first glance, this would appear to represent significant commercial interest.

The payment regime for deep-sea mining in the Area also has to be designed in conformity with UNCLOS and the 1994 Implementing Agreement. The 1994 Implementing Agreement could be read as giving quite explicit support for the overall burden of taxation being similar between deep-sea mining and land-based mining. Specifically, the Implementing Agreement states:

'The rates of payments under the [ISA] system shall be within the range of those prevailing in respect of land-based mining of the same or similar minerals'

The ISA is currently programming an economic model to assist in the design of the payment regime. There are broadly speaking two overall approaches that could be taken to this economic modelling exercise, namely the 'fine-tuning approach' and the 'borrowing from land-based

mining approach'. The fine-tuning approach attempts to build an accurate model of a contractor's profits from deep-sea mining in the Area. Tax rates (e.g. the rate of the ad-valorem royalty) are then set to the exact amount where the contractor's post-tax profits/internal economic rate of return is sufficient to motivate investment. The overarching goal of this approach is to design a payment regime that does not inhibit investment.

There are a number of problems with this approach. First, as nobody has undertaken commercial deep-sea mining in the Area before, cost data may be difficult to forecast accurately. Second, it is very difficult to forecast accurately long-term mineral prices for the next twenty plus years. Third, it is unclear whether some valuable minerals such as rare earth elements will, or will not, be extracted from nodules and sold. These points taken together suggest that the results of the economic model are unlikely to be accurate and that a situation whereby profits are underestimated and the burden of taxation is set too low cannot be ruled out.

An alternative approach would be to design a payment regime with broadly similar taxes, tax rates and government take to land-based mining. This payment regime could be modelled against a range of sample mines with pre-tax internal economic rates of return similar to that of typical land-based mines. The overarching goal would be to design a payment regime broadly similar to that of a land-based mining tax regime. Under such a payment regime, there would still be investment in deep-sea mining if it was a lower cost and more efficient way of producing metals than land-based mining. It would also allow the ISA to identify at the outset a figure that is considered an appropriate return for the loss of resources to the Common Heritage of Mankind and to permit mining only where such return will be achieved.

This approach is, however, also open to criticism. Specifically, it does not account for the environmental, technological and/or other benefits that it can be argued are associated with deep-sea mining and which arguably justify a lower burden of taxation to motivate investment.

In conclusion, the following points are worthy of more detailed discussion, consideration and analysis by all stakeholders:

- ▶ What is the overarching goal of the deep-sea mining payment regime?
- ▶ There is significant evidence concerning the overall burden of taxation faced by land-based mines. Should deep-sea mining in the Area face approximately the same overall burden of taxation?
- ▶ The argument that it is beneficial for deep-sea mining in the Area to face a lower overall burden of taxation than land-based mining can be questioned; and
- ▶ Two stylised approaches to the design and economic modelling of the deep-sea mining payment regime have been presented. It is worth considering which should be followed in practice.

References

Commonwealth Secretariat (2009), *International Benchmarking of Mining Fiscal Regimes*, Pall Mall, London.

Otto, James, et al. *Mining royalties: A global study of their impact on investors, government, and civil society*. The World Bank, 2006.

- i. This Report uses the term 'tax' to refer to any fiscal instrument which results in a transfer of money from a miner to a government. Ad-valorem royalties and fees are included in this definition.

- ii. There are different ways of calculating the value of the mineral and a non-exhaustive list includes: contained in the ore at the mine mouth, contained in first product sold, gross revenue from sales, gross revenue less certain allowable costs (e.g. insurance, transportation and handling) and net smelter returns. Please see Otto et al (2006) for a more comprehensive list.
- iii. The sample mine used in this calculation has a pre-tax real internal economic rate of return of 30%. For a marginal mine with a pre-tax real internal economic rate of return of 20% government take ranges from 40% to 79%.
- iv. UNCLOS uses the term 'payment regime'. The term payment regime is not commonly used when evaluating land-based mining, where the terms 'taxation regime' or 'fiscal regime' are more commonly used.

Discussion

- How can externalities be taken into account, if there is not upfront payment by the contractor to ISA? It has to be avoided that social and environmental cost are left with mankind.
- It was discussed how the Enterprise would fare in the payment regime of ISA: the tax regime will depend to some extent on the type of joint venture arrangement (likely not disclosed to ISA) with a commercial operator. Corporate profits will be taxed at sponsoring state level.
- It was emphasised that only if a substantial financial return after deduction of all administrative cost is received by the ISA can it be considered that a relevant financial benefit to mankind was achieved.
- A flexible payment system over the lifetime of a project was considered to be advantageous by some, but may have extra cost to administer.

3.2 A comprehensive CHM approach for the Payment Mechanism⁴

Torsten Thiele, Institute for Advanced Sustainability Studies

This presentation introduced the concept of a comprehensive payments mechanism for the Common Heritage of Mankind (CHM). Such an approach aims to optimize payments under different scenarios that reflect different timing, a range of risk and opportunity profiles and the role of incentives. It aims to minimise friction by setting relevant minimum standards and clearly separating issues that affect behaviour. The presentation argued that in order to assess the viability of a chosen financial approach implementation aspects including accounting and monitoring need to be fully considered. This includes assurance that the numbers that go into the model reflect a least-cost, competitive and transparent approach. The presentation discussed some of the key elements of the payment mechanism proposed at the ISA Council meeting in 2018. The MIT slides at that meeting suggest that it will take a long time (6 years of pre-feasibility and then a further 7 years for feasibility and investment) before operations commence, with significant cost in the interim for all parties.

⁴ Summary written by the presenter

This presentation argues that the CHM principle impacts the payment mechanism design in a whole host of ways, from including benefit sharing and full cost cover in the Plan of Work to who effectively takes the risk and covers the downside and who gets the upside.

Choosing a royalties approach has different timing and risk implication versus profit taxes or an upfront fee. A royalties approach delivers payments only once revenues from sale occur, an upfront fee would provide cash which could potentially fund the CHM as well as other ISA cost and required funds. The approach will need to reflect constraints imposed by UNCLOS and by the process to date, including existing contractual commitments and equivalence of treatment of contractors, yet a hypothetical comparison with an “optimal payments arrangement” can help us identify bidding biases, transaction cost and externalities.

For instance it is debatable whether costs that occur later in the value chain (such as shipping and then docking in national harbours) and that are not under the legal regime of the ISA should be considered in any calculation and discussion of an appropriate model. Strictly staying within the ISA regulatory framework would not only be consistent legally but would also significantly ease the purported administrative burden of implementation of a “profit-tax” regime. As the MIT demonstration slide showed achieving equivalence between an “ad valorem royalty” and an “After Tax Profit” is doable at a range of rates.

The “time value of money” is a critical financing aspect and funding should therefore be at arms-length, lowest cost and show a realistic repayment profile. Beyond legal criteria of UNCLOS substantive criteria of equity under CHM including intragenerational and future generations need to be considered, including procedural criteria, transparency, accountability, inclusiveness and fairness. A range of positions and commentary has been presented by ISA member states, such as the African Group, Germany and China and these now need to be fully integrated into the analysis. The African Group emphasised that the CHM principle is the overarching basis of the regulations and it argues that a sensible interpretation “is that the share of profits should be the same for deep sea mining in the Area as it would be for commercial onshore mining”, with emphasis on a preferential treatment for developing states and “substantial and significant compensation to mankind through the Authority”. “The Payment Regime should ideally be progressive” and that “the purpose and nature of the fixed fee warrant further examination”.

Maintaining the natural capital of the Area for future generations includes offering future generations the opportunity to use the resources of the Area in the way they want and allowing them to harness innovation to develop better, cheaper, more sustainable processes, with less impact on climate and biodiversity. Financial returns can be reinvested for future generations and all financing arrangements need to be sustainable such as in line with Sustainable Blue Economy Finance Principles.

Potential suggested benefits to sponsoring states in terms of economic opportunities, technology sales and corporate tax income need to be balanced against the requirements under CHM. Potential criteria to assess whether the approach chosen is truly comprehensive could include confirmation that CHM receives a significant minimum amount and a majority share of the total net benefits is paid timely and securely before equity returns are paid to contractors.

Calculating the Net Present Value of a proposed royalties regime offers a way to identify an equivalent value of an upfront licence fee or of a profit tax regime, providing ways to assess alternatives and hybrid models from a financial perspective. If an amount paid upfront at signing of an exploitation contract would deliver the same financial value without exposing the CHM to a range of other risks such as the possibility that no payments ever arrive from either a royalty or a profit-sharing model should such an alternative be considered?

This presentation argued that the payment regime model considered thus far is based on a “narrow” approach which may deliver a range of potential outcomes. The alternative “comprehensive” approach to the payment mechanism suggested here aims to address some of the additional challenges that result from the need to fully integrate the “Common Heritage of Humankind” principle enshrined in regime for the Area in the payment mechanism and benefit-sharing rules. This could include guaranteed and secure minimum amounts, priority over payments to contractors and financial rules that encourage precaution, risk-mitigation and sustainability with a payment mechanism that is based on transparent and robust accounting. This will require further discussion and analysis.

Discussion

- ▶ In order to avoid that uneven access to knowledge may have an impact on developing a fair mechanism for the assessment of net-benefits from exploitation of minerals resources from the Area, the mechanism needs to be inclusive, open and comprehensive and address distributive justice. Important is to include the value of the Area as it is (in situ), which addresses conservation and future generation aspects.
- ▶ The proof of a net-benefit to mankind should be made compulsory for individual projects, but also prior to exploitation overall. Therefore, the ISA organs are a suitable place for developing the concept. In addition, also the UN/SDG fora could stimulate implementation of the common heritage of mankind concept in the framework of the broader roadmap towards meeting the objectives of the 2030 Agenda for Sustainable Development.
- ▶ The draft exploitation regulations under development will need to be supplemented by a provision requesting that a proof of a net-benefit to mankind from exploitation of the Area will be a precondition for starting any mining.

3.3 Group work: What could a satisfactory payment mechanism look like?

Participants split up into random groups selected at random to discuss the criteria for a satisfactory payment mechanism. As not all participants were fully acquainted with the details of the currently proposed models this involved also some questions and clarifications. The notes below summarise the ideas expressed by the groups in the following feedback session.

- ▶ Must be consistent with UNCLOS.
- ▶ Preconditions: All administration cost has to be covered, including monitoring, inspection, and auditing from the start. To enable this up front payment was needed. An agreed minimum amount to be left for redistribution by the ISA should be derived from any operation.
- ▶ The goal of the payment mechanism: The overarching goal of the payment mechanism needs to be determined, as well as the scope: When will the valuation take place? Will the mineral (in situ) or the ore (after excavation) or the processed mineral be valued? The value of the mineral reserves in situ should be determined and compared with an eventual gain or loss of value when recovered. What is the maximum benefit for mankind?
- ▶ Operationalisation of a payment mechanism: A formula on the distribution of eventual funds was seen as a first step towards developing a comprehensive mechanism for benefit sharing.

All externalities, in particular environmental cost need to be internalised as cost. A simple mechanism would reduce concurrent costs. The mechanism should not be static but up for revision periodically.

- ▶ The mechanism should be fair to the contractor, the ISA and the CHM, and not discriminate between contractors. A minimum share of 40-60% of contractor profits to the ISA, comparable to the average taxes raised in land mining, was discussed, but the profit share taxes were considered problematic because they are overall uncertain and late in the process.
- ▶ An extra liability and environmental fund is required in order to save for eventualities from environmental damage compensation.
- ▶ The payment regime must provide for an intergenerational mechanism, such as a sovereign wealth fund.
- ▶ It was asked whether benefit sharing could include also non-monetary payments (provision of services, transfer of technology, or only cash payments?).
- ▶ Enterprise can play its role in operationalising/evolving the participation of developing countries in seabed mining. Foster solidarity.
- ▶ The beneficiaries: it was discussed whether the beneficiaries should be states/governments or mankind, i.e. through civil societies. All states, no matter whether they are a party to UNCLOS will be beneficiaries of the CHM and it would be important to get currently non-contracting parties into the agreement.

The group discussions pointed to several main deficiencies in the current debate on a payment regime for exploitation contractors: First, the Enterprise was so far neglected and needs much more substantial thought; second, it has to be made sure that the payment mechanism does not discriminate against certain types of contractors; third, addressing the debate about possible incentives for first movers. In addition, the understanding of the flow of money (what will accrue, and when, who will take the risks) needs to be improved to enable informed discussions and ensure the necessary accountability.

4 What are the benefits and how can they be determined?

4.1 The relevance of the Sustainable Development Goals⁵

Wilfried Rickels, Head of Environment and Natural Resources at the Kiel Institute for the World Economy

The application of the Inclusive Wealth (IW) framework could inform the implementation of the SDGs. Based on a broad concept of human-made and natural capital stocks, the IW framework (sometimes also termed genuine or comprehensive wealth framework) permits a coherent operationalization of SDG targets by assessing how the (aggregated) capital stocks evolve (Arrow et al. 2003, Dasgupta 2014), providing clear policy guidance for achieving sustainable development. In an ideal economy with complete markets the gross domestic product (GDP) would be an adequate indicator of national wealth (Weitzman 1976). In reality it is not, because of overuse and mismanagement of natural assets that are not adequately reflected in GDP (e.g. Dasgupta 2009). Market prices are misleading about the wealth of a region or nation if overuse or mismanagement of natural capital prevails. Such cases—which are the rule rather than an exception—require a comprehensive non-market valuation of the contribution of natural capital stocks to wealth by estimating the corresponding shadow (accounting) prices. Shadow prices reflect (i) the absolute scarcity of capital stocks, (ii) normative sustainability objectives, and (iii) the expectations about future management of human-made and natural capital stocks.

The IW of a group of people (e.g., a community or nation) is determined by the value of their capital endowment. The term inclusive emphasizes that human, social and especially natural capital are accounted for in addition to the formation of (economic) capital. Achieving sustainable development means ensuring that the value of aggregated capital endowment does not decline. A non-declining capital base is the assurance that future generations will be able to produce and consume as much as present-day generations (e.g., Arrow et al. 2003). Consequently, IW enables decision-makers to identify how development paths will impact human well-being (Dasgupta 2009), always provided that the influence of the corresponding (natural) capital dynamics is properly reflected in the IW calculation by the corresponding shadow prices. The analysis of the shadow prices provides various insights regarding synergies and trade-offs in different policy scenarios from the individual wealth contribution of a specific capital stock and the overall change in IW. Policies change shadow prices for the capital stocks because they have different effects not only on the size and dynamics of the capital stocks but also on the economic benefits obtained from changes in the capital stocks and the stakeholders' behavioral responses to them (e.g., Arrow et al. 2003).

However, the few existing empirical application consider only a restricted set of non-interacting natural resources and applied shadow prices do not properly reflect natural resource dynamics. Furthermore, generally accepted definitions for capital stocks and objective functions do not yet exist, making comparison between different approaches difficult and preventing a straightforward application to the assessment of deep-sea mining. One needs to acknowledge, that none of the existing approaches can be considered in fact as fully inclusive and the information and insights provided, in particular regarding cross-country comparison is still limited.

A way forward in using the IW approach is to follow the recommendations of the Stiglitz-Sen-Fitoussi Commission and to aim for a semi-inclusive wealth assessment. This implies that you not aim at all costs to come up with only one metric but to augment monetary assessments with

⁵ Summary written by the presenter

biophysical metrics where appropriate. Consequently, the idea is to aim for a semi-inclusive wealth assessment of the natural resource base against different objectives in the SDGs.

With a set of (non-monetary) indicators, it still remains an open question how sustainable development should be assessed when certain indicators increase while others decrease. Obviously, situations in which all indicators increase can easily be identified as sustainable development. Likewise, unsustainable development is easily identified as such when all indicators decrease. However, the typical situation is that while some indicators increase, others decrease. In such a situation, sustainable development assessment is not straightforward. With an indicator set of the kind found in the current outline for the SDGs, qualitative assessment and discussion are required for an assessment of the overall development. Such a qualitative assessment includes an implicit weighting of indicators. It also includes implicit assumptions on the substitution possibilities between the targets measured by the different indicators. These substitution possibilities determine how an increase in one indicator can compensate for a decrease in another. Consequently, the assessment based on indicator sets involves various normative judgments and decisions that are seldom made transparent or set out as such.

Using composite indicators comprising indicators for several targets demands an explicit treatment of these trade-offs, some kind of weighting scheme and an explicit specification of substitution possibilities. The explicit specification of potential substitution then paves the way for a clear distinction between weak and strong sustainability. In theory, the concept of weak sustainability allows for unlimited substitution and requires that the (weighted) aggregate of the various indicators does not decline (e.g., Pearce et al., 1989). By contrast, the concept of strong sustainability does not allow for any substitution between the various targets at all. We propose a nested composite indicator, assuming for rather large substitution elasticities at the indicator level (reflecting a concept of weak sustainability) but rather small substitution elasticities at the target level (reflecting a concept of strong sustainability).

We apply our composite indicator to measure the state and progress against SDG14 for EU coastal state. The former assessment has been carried out for data in 2012 (Rickels et al. 2016), the latter is has been carried out for the comparison between 2012 and 2016 (Rickels et al. 2018). For the assessment of the state, we have shown that in general the EU coastal states make a relatively balanced showing at the SDG 14 level, while certain countries like Slovenia and Portugal are consistent/inconsistent in performance and are hence allotted very differently rankings under the two concepts of sustainability. For the assessment of the development, we have shown that the majority of countries in our assessment fail to achieve comprehensive blue growth. Sweden, Spain, Ireland, and in particular Portugal experienced a considerable reduction in scores since 2012. The unsustainable development at the EU level is mainly driven by deteriorations in indicators related to fisheries.

References

- Arrow, K. J., P. Dasgupta, K. G. Mäler (2003): Evaluating projects and assessing sustainable development in imperfect economics, *Environ. Resour. Econ.*, 26, 647–685, doi:10.1023/b:eare.0000007353.78828.98.
- Dasgupta, P. (2009): The welfare economic theory of green national accounts, *Environ. Resour. Econ.*, 42, 3–38, doi:10.1007/s10640-008-9223-y.
- Pearce, D.W., A. Markandya, E. B. Barbier (1989): *Blueprint for a Green Economy*, Earthscan, Abingdon, U. K.
- Rickels W, Dovern J, Hoffmann J, Quaas MF, Schmidt JO, Visbeck M (2016): Indicators for monitoring sustainable development goals: An application to oceanic development in the European Union. *Earth's Future* 4:252–267. doi: 10.1002/2016EF000353

Rickels, W., Weigand, C., Grasse, P., Schmidt, J., Voss, R. (2018): Does the European Union Achieve Comprehensive Blue Growth? Progress of EU Coastal States in the Baltic and North Sea, and the Atlantic Ocean against Sustainable Development Goal 14, Kiel Working Paper 2112, Kiel Institute for the World Economy.

Discussion

- ▶ It was discussed how a shadow pricing approach would deal with variations in seabed mineral pricing under different scenarios, including reduced demand as a result of a circular economy or of asteroid mining. Shadow price information starts with present market price as best estimate and then takes potential biases from imperfect competition into account.
- ▶ Given the limitations of the indicators under SDG 14.2, with their focus on MPA area coverage we need take measure of biodiversity change such as fisheries biomass into account and work with other indicator assessments such as Ocean health index. The SDG approach is human wealth centric. Information available differs across regions and indicators are correlated to others. Indicator related to biodiversity would be most helpful to assure sustainability if mining were to proceed.

4.2 Economics of the Common Heritage of Humankind: A comprehensive approach⁶

Torsten Thiele, Institute for Advanced Sustainability Studies

This presentation focused on a comprehensive economic approach to benefits under UNCLOS in light of the CHM principle. Such approaches of Inclusive Wealth, Natural Capital, and Ecosystem Services are part and parcel of modern economics and require application to the Area and the deep ocean. The concept of net positive benefit helps to take potential external costs of activities into account and needs to be applied to deep sea mining concessions both during the exploration phase where the role of science and access to knowledge and its sharing is already considered and during the exploitation phase prior to which all impacts need to be fully assessed in the EIA. As is stated in the preamble to the law of the sea “Bearing in mind that the achievement of these goals will contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular, the special interests and needs of developing countries” and in Art. 136: “The Area and its resources are the common heritage of mankind”, thus expressly including the integrity and the in situ ecosystem services of the Area.

As “Wealth” is equivalent to productive capital expressed in monetary terms, it is the sum of finance capital, productive capital, natural capital, human capital and knowledge and thus using limited resources can lead to reduction in wealth and welfare, so externalities are critical when deciding on the use of limited resources. Generational equity, substitutability and development of knowledge are key considerations. To maintain a constant stock of total capital, rents from resource extraction should be re-invested into other forms of capital (Hartwick-Solow rule). Future innovation in technology, business practices and social behaviour may deliver significant progress and more sustainable paths. This requires applying an appropriate discount rate which is an economic, political and philosophical challenge in a major systemic risks and tipping points need to be considered. Climate change and development challenges pose both physical and transition risks.

⁶ Summary written by the presenter

Natural Capital and Natural Wealth of the Deep Sea needs to be maintained so that the stock of deep-sea natural capital can continue to support the ecosystem services of the deep that we rely upon. Decision-making in the light of CHM can be enhanced by valuation of the global public good of the deep ocean such as through measuring in situ ecosystem services of the deep sea, which include nutrient cycling, food chain dynamics, carbon cycling, habitat conservation and cultural services. Whilst calculating use, option and non-use values has its own challenges the natural capital approach allows for a broader engagement with nature and moves us away from ignoring its contributions when considering human activities. It is therefore increasingly used by business through the application of the Natural Capital Protocol and through extending the production boundary of the System of National Accounts (SNA) to classify and account for ecosystem services. Likewise investors look increasingly to a “just transition” which manages both the positive and negative social and employment implications, connects climate change with the Sustainable Development Goals. The Convention of Biological Diversity acknowledged that economic valuation of biodiversity is an important tool for well-targeted and calibrated economic incentive measures. It includes physical oceanography and the role of the deep-sea floor and its features in the cycling of nutrients and carbon, chemical oceanography and the role of the deep sea floor for sequestration and natural mineral fertilisation, biogeochemical processes in the ocean and biodiversity and deep sea habitats.

Including microorganisms in these biodiversity and ecosystem measurements is critical for effective monitoring of mining impacts. Whilst limited scientific data and temporal disconnects between changes in anthropogenic impacts and ecosystem services responses make assessments challenging but values could be large. Payment for ecosystem services requires monitoring compliance and sanctioning non-compliance. Omitting cultural ecosystem services underestimates social and economic value to people. Contingent valuation can be used to elicit non-use, including existing and bequest, and option values for protecting marine sites.

Integrated ocean natural resource management of cross-sector interactions will need to draft in market and non-market valuation techniques, in order for appropriate cost-benefit analysis and marine spatial planning to be effective. The effect of impacts on the blue natural capital need to be assessed and quantified in the EIA. EIAs need to be reviewed and found acceptable in light of the precautionary principle and CHM. For the Area, stakeholders include “non-state actors” such as environmental groups, proponents of other human activities (e.g., fishing, tourism, shipping or cables), and the “public” as well as scientists and other experts (Durden et al. 2018, p 198).

As activities have impacts in terms of products, employment, knowledge, resource use, externalities and transaction cost; a comprehensive cost-benefit analysis including institutions and timing is required to assess the net benefits for mankind as a whole. A comprehensive regulatory regime for DSM needs to reflect the polluter-pays and the precautionary principle, to ensure a “level playing field” for contractors and deliver ocean justice to all. Given the limitations of valuation methods in the deep ocean we need to look beyond purely economic approaches to include concepts of societal values, justice and fairness to deliver robust outcomes that are based on science and are equitable.

4.3 The Scenario Analysis

Scenario Analysis is a well-established methodology to engage a diverse group of participants to discuss a complex theme. By focussing of the consistencies of the scenario under discussion flaws in the thought process can be identified and addressed. Following use in the business world for decades scenario thinking is increasingly used in public policy discussions and has been recommended as a risk-awareness method by major international regulators. Participants were randomly allocated to the three groups and provided with the following text:

We are in 2030. Your group has been given specific scenario. Please focus in a first step on your common understanding as to what assumptions are consistent with this scenario. What political, legal, economic and societal reality is likely to be reflected in this scenario? What are the key drivers in the world you found? What are its strengths and weaknesses?

In a second step discuss how you see deep seabed mining in the context of this scenario?

Knowing what you now know about the world think back to 2018 and discuss the decisions on DSM you would have wanted to have made then to create the optimal framework for DSM in the Area. What regulatory decisions made then would have contributed to delivering most effective benefit-sharing in line with the CHM principle?

In the final ten minutes try to summarise your thoughts. Identify a spokesperson and decide what key outcomes you want to share with the larger group.

Scenarios are an effective way to discuss complex change. They allow you to go beyond the consensus view and address wider dynamics. They have been widely used in business and are increasingly used in science-policy to communicate socio-economic pathways and engage multiple disciplines in a cohesive process.

Business-as-usual scenario 2030

- ▶ The “business-as-usual” scenario group assumed that until 2030 a continued growth of the world population, and increasing inequality would stimulate migration, further enhanced by continued pressure on ocean biodiversity and the effects of climate change which will result in significant sea level rise. Overall, it was expected that faith in legal and multi-lateral institutions could decrease to be replaced by new nationalism, a trend opposite to the ongoing globalisation of corporations and their influence. Metal demand was seen as likely growing despite new technologies and recycling being developed. The driver could be those new technologies, and innovation in the field of renewable energies.
- ▶ In conclusion, the development of an adaptive and precautionary ISA Mining code was considered to be the most important task at the present time. Collaborative marine scientific research in the deep-sea should be instrumental to a stepwise learning process “learning by doing”. In this vein, ISA should take an active role by offering training programs and capacity building opportunities. A good outcome of the BBNJ Agreement negotiations was considered important as was the sustainability of other maritime industries.

Sustainability Scenario 2030

- ▶ The “sustainability” scenario group suggested that by 2030 ambitious climate change mitigation measures could be in place, with more marine protected area and sustainable fisheries and aquaculture, yet oceans warmer and more acid than today. The growth of the renewable energy sector might result in minerals scarcities (for instance cobalt) resulting in price increases. Also nuclear power might see a revival to curb carbon emissions. A system of carbon pricing could be in place, yet not perfectly implemented. In addition, carbon capture and storage, CCS, was an important tool to reduce carbon emission from coal-based energy provision, used e.g. by China. Also transport emissions would still occur and needed to be compensated, in particular as the change of mobility patterns had not taken place yet. The BBNJ Agreement was supposed to be concluded and enforced, in particular for area-based

management tools. As regards deep seabed mining, no commercial scale operations were expected to exist in the Area by 2030, but rather testing, research and eventually operations in national waters. While a moratorium on deep seabed mining was considered unlikely, it was suggested that it was a matter of metal price not technical feasibility that operations had not started.

Transition scenario 2030

- ▶ The “transition” scenario group suggested that by 2030 political action and public behaviour was following scientific advice, resulting in widespread environmental awareness, reduced consumption and a phasing out of fossil fuels. While ideally this should be an inclusive process, there was a risk to leave some groups of people behind. This political shift could mean more direct democracy, more democratic power including through social media but also the risk of new eco-totalitarianism. The important point was to move away from path dependencies to leave more opportunities for future generations, e.g. via the energy transition, a successful transformation to a circular economy, including a sharing economy. Other important aspects to mainstreaming environmental considerations would be radically transform sectors such as agriculture. A better quality of life in all countries might reduce migration caused by poverty.
- ▶ In this scenario, the transition to circular economy is mastered. Need for minerals which cannot be supplied from land-based resources may be supplied from the deep-sea or from asteroids. To understand the oceans better from an earth system point of view, a continued focus on publicly funded deep-sea research was required. Along this line, the benefit of CHM may not stem from minerals mining but rather from scientific discoveries made in the deep ocean. There could be different path on deep seabed mining, including a moratorium, for instance following an unanticipated event such as a result of impacts of DSM activities.
- ▶ The focus on science and innovation together with a shift in people’s attitudes, lifestyles and politics towards a circular and sharing economy could achieve the needed transition, breaking the path dependencies and staying within planetary boundaries, => The group suggested that therefore the world could focus on the benefits of further exploration of the habitats and ecosystems of the deep sea rather than on DSM.

In the discussions following the presentation of the groups’ ideas about the 2030 scenarios, the comment was made that overall the groups focussed more on the description of the economic paths than on the overall wealth as suggested by the Agenda 2030 SDGs. This might also be due to the short timeframe (only 12 years from now) considered, which may be too short for progress in governance to be fully turned into progress on the ground.

A question was raised as to which decisions today would support a no-mining scenario as suggested in the “Sustainability” scenario. Circular economies may also need some additional supply of new raw materia. One participant suggested that overall mineral demand could be covered from land-based resources.

It was also discussed what sort of unexpected event could realistically trigger a public shift against deep sea mining.

5 Sharing of benefits in the light of UNCLOS and the Sustainable Development Goals

5.1 The Legal Framework for Benefit-Sharing under Art. 140:2 of the United Nations Law of the Sea Convention (LOSC)⁷

Prof. Dr. Isabel Feichtner, LL.M., University of Würzburg

Material Rules and Principles on Benefit Sharing

The LOSC gives some guidance as to which benefits are to be distributed, to whom and how, while requiring implementation in order to concretize and operationalize benefit sharing as provided for in Art. 140:2 LOSC.

I. Which benefits are to be distributed?

According to Art. 140:2 LOSC the “Authority shall provide for the equitable sharing of financial and other economic benefits.” In contemporary debates on the mining code and in particular on the payments mechanism one can observe attempts to stress non-financial benefits such as mineral supply, lower prices for consumer goods, technological and scientific advances and capacity building of developing countries. Yet, an interpretation of Art. 140:2 LOSC that neglects the call for a distribution also of financial benefits would not only ignore the wording of the relevant legal provisions, but also historic and systematic context. Art. 150 (d) LOSC mandates the ISA to ensure that it participates in the revenues from mining activities and according to LOSC, Annex III, Art. 13:1 when “adopting rules, regulations and procedures concerning the financial terms of a contract” the ISA shall be guided by the objective “to ensure optimum revenues for the Authority from the proceeds of commercial production.” Not only is there a clear mandate for the ISA to generate revenue from deep seabed mining; moreover, the dissemination of research results (Art. 143 LOSC) and transfer of technology/technical assistance (Art. 144; IA sec. 5; Art. 273; 274 LOSC) are treated in specific treaty provisions so that it becomes implausible to interpret the term benefits in Art. 140:2 LOSC as mainly referring to scientific and technology benefits or capacity building. During the negotiations of the LOSC the promise of significant financial redistribution figured prominently. Ronald Katz, former Deputy Director of the Office of Law of the Sea Negotiations at the United States State Department, for example, writing in 1979 mentioned the estimate that “each of the 100 or so developing countries could expect to receive approximately \$10m per year.”

Whilst Art. 140:2 LOSC mandates the distribution of financial benefits, the LOSC also clarifies that not all revenue accruing to the ISA from mining activities will be available for redistributive purposes. Whereas currently ISA funds mainly stem from assessed contributions from state parties, such contributions eventually shall be replaced with income from other sources, including royalties from deep seabed mining or funds from the Enterprise (should it be operationalized and generate revenues) (Art. 160:2 (e) LOSC). Only once the administrative expenses of the ISA are covered, benefits may be distributed. Yet, it must be noted that there are two further ways to spend revenues that compete with benefit sharing under Art. 140:2 LOSC: one is the use of funds to finance the Enterprise and the other is the use of funds to provide financial assistance to developing producer states negatively affected by deep seabed mining (Art. 173:2 LOSC). The latter compensation objective (Art. 150:10 LOSC) has taken on a particular significance since the deep seabed mining regime no longer provides for production limits in order to safeguard the interests of producer states. The Implementation Agreement

⁷ Summary written by the presenter.

mandates the ISA to establish an economic assistance fund from a portion of the ISA's funds, including payments received from contractors, with which to assist -- on a case by case basis -- developing land-based producer states that are seriously affected by a decrease in price of export volume (IA, sec. 7, para 1). Given the inoperability of the Enterprise and the demise of production controls, commentators have observed that the „focus of economic distributive justice consequentially shifted from the equal distribution of earnings to the compensation of losses caused by activities in the Area, envisaged in Art. 151 (10).”

II. Who are the recipients

Art. 140:1 LOSC designates as the beneficiaries of activities in the Area (defined in Art. 1:3 LOSC as “all activities of exploration for, and exploitation of, the resources of the Area”) “mankind as a whole, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States and of peoples who have not attained full independence...”. Art. 160:2(f)(i)LOSC -- to which Art. 140:2 LOSC refers -- also names “developing States and peoples who have not attained full independence” as the entities whose interests and needs should be given particular consideration in benefit sharing. During the negotiations of the LOSC some delegation strongly opposed the inclusion of states not party to the convention. They did not prevail, however, which is why the wording only refers to states and not to state parties.

III. Principles guiding distribution

The LOSC does not give much guidance on how benefit-sharing is to proceed. Apart from „taking into particular consideration the interests and needs of developing States and peoples who have not attained full independence” (Art. 160:2(f)(i) LOSC); benefit sharing shall also take place „on a non-discriminatory basis” (Art. 140:2 LOSC). Mandating special consideration of one group of states and at the same time calling for non-discrimination is no contradiction if non-discrimination is interpreted as prohibiting unjustified differentiation between similarly situated states. Under such a standard differentiations on the basis of economic development do not constitute discrimination.

Benefit sharing is to be conducted “through any appropriate mechanism” (Art. 140:2 LOSC). Components of a benefit sharing mechanism would include the payments mechanism of the mining code; rules, regulations and procedures (RRPs) setting our criteria and method of distribution and possibly a fund that could be established by the Secretary General under Financial Regulation 5.5 if distribution is not to be done through an existing mechanism, e.g. within the framework of the United Nations Development Programme.

Decision-making

Benefit-sharing requires implementation through secondary law of the ISA. Decisions will need to be taken on the RRP governing benefit sharing and eventually -- if sufficient funds accrue to the ISA -- decisions might be taken on the basis of these RRP to disburse and distribute funds.

IV. Legal Bases

The legal basis for the adoption of RRP by the Assembly upon recommendation of the Council on the equitable sharing of financial and other economic benefits derived from activities in the Area is found in Art. 160 (f)(i) LOSC. And Art. 160 (g) LOSC provides for decision-making on the equitable sharing of financial and other economic benefits derived from activities in the Area, consistent with the LOSC and the RRP.

V. The Finance Committee

The Finance Committee plays a significant role as regards benefit sharing. It is a subsidiary organ of the ISA (Art 162:2 (y) LOSC) and has 15 members, elected by the Assembly, that should have qualifications relevant to financial matters. While the different groups of states are to be represented, the Finance Committee is to include representatives of the five largest financial contributors to the ISA's administrative budget until the ISA will have sufficient funds other than assessed contributions to meet its administrative expenses (IA section 9, para. 3). The Finance Committee is to make recommendations on the RRP on equitable benefit sharing (IA section 9, para. 7). Moreover, all decisions by the Assembly and the Council that have financial or budgetary implications shall be based on recommendations by the Finance Committee (IA section 3, para. 7).

VI. The Council

The RRP adopted by the Assembly as well as any other decision on financial matters must further be based on recommendations of the Council (Art. 162:2 (o)(i) LOSC; IA Section 3, para 4). The Council's recommendations for RRP are formulated by the LTC (Art. 165:2 (f) LOSC). Decision making in the Council is generally by consensus (IA, sec. 3 para. 2); if voting takes place decisions require a two thirds majority of members present and voting; individual chambers have veto rights.

VII. The Assembly

As mentioned above, RRP on equitable benefit sharing (Art. 160 (f)(i) LOSC) and decisions on equitable benefit sharing on the basis of these RRP (Art. 160 (g) LOSC) are ultimately adopted by the Assembly. The Assembly, too, generally adopts decisions by consensus (IA, sec. 3 para. 2); if voting takes place, a two thirds majority is required of members present and voting.

Even though the LOSC provides that RRP and decisions on benefit sharing are to be adopted by the Assembly, the power of the Council was significantly strengthened by the Implementation Agreement. The Assembly cannot deviate from a Council recommendation. If it does not accept the Council's recommendation, it needs to return the matter to the Council for further consideration (IA, sec. 3 para. 4).

Legal Remedies

RRP on benefit sharing cannot be reviewed by the International Tribunal for the Law of the Sea (ITLOS) as to their compliance with the LOSC/the IA (Art. 189 LOSC). The jurisdiction of the Seabed Disputes Chamber of ITLOS does encompass, however, disputes between a State Party and the Authority concerning acts or omissions of the Authority alleged to be in violation of Part XI or RRP (Art. 187 (b) (i) LOSC). Thus, a State Party may challenge the legality of a distribution decision (or decision not to distribute) of the Assembly under Art. 160 (g) LOSC.

Discussion

- It was stated that the inoperability of the Enterprise and developing country sponsorship may threaten international solidarity because the Enterprise would compete with the interests of potential sponsoring states from developing countries. On the other hand, the Enterprise could help to bring the group of developing states together and add an important stakeholder's voice into the process. It is not as yet clear whether the Enterprise will mine by itself, or whether it will only become a financial partner to a commercial mining operator. The set up might also change over time.

- ▶ The 1994 Implementing Agreement determines that the value of the minerals will be determined per metal contained. Therefore, no separate mechanism is needed for the different resource types.
- ▶ The tension between mining interests and the mandate of ISA to protect the marine environment was addressed. Rather than following the strict cost-benefit approach a focus on ensuring actual effective protection of the environment from harmful effects of mining related activities could be more successful.

5.2 Panel: What are the expectations how monetary and non- monetary benefits should be shared?

Participants: Marie-Luise Abshagen (Forum E&D), Rose Lesley Kautoke (Kingdom of Tonga), Martín Mainero (Argentine Republic), Thembile Joyini (Republic of South Africa), Corey McLachlan (DeepGreen), Dr. Christian Reichert (BGR)

Summary of Introductory Statements and Panel Discussion

- ▶ It was emphasised that benefit sharing is a key element of the common heritage of mankind, which shall ensure distributive justice intra- and intergenerationally, calling for support for the most disadvantaged and marginalised states and people. However, states parties and non-parties were seen as the beneficiaries of any financial benefits.
- ▶ Attention was drawn to other international negotiations aiming to develop equitable and non-discriminatory benefit distribution mechanisms in parallel to ISA: in the context of discussions about marine genetic resources in areas beyond the limits of national jurisdiction, the burden sharing as fixed in the Kyoto Protocol, the benefit sharing as agreed in the CBD Nagoya Protocol, and upcoming negotiations on a new BIP system????
- ▶ The future of the Enterprise and its role in benefit sharing need further development. Some see the Enterprise as the crucial brick to deliver the common heritage principle, as a communitarian feature, which can help to ensure equitability and non-discrimination.
- ▶ The sharing of financial benefits could either be a sharing of funds among states according to an appropriate key, or through establishing a trust fund for financing research and cooperation, exchange and training projects. Applications would likely be supervised by an appropriate commission and project acceptance might work in favour of least developed countries.
- ▶ The perspectives on what constitutes a financial or other economic benefit depends to some extent on the population size and economic state of a national economy. For small island states already a limited external contribution may represent a significant help, i.e. to develop capacity in research and education.
- ▶ Non-monetary benefit and capacity development remain important parts of the overall benefit from the common heritage. The question was raised, whether technology sharing and capacity development might compensate for unavoidable loss of biodiversity, and if so how much value could be allocated to the three major training schemes of ISA which primarily

address young professionals. The value cannot be quantified, and the current extent of non-monetary benefit sharing is limited.

- ▶ A sharing mechanism would have to address the needs of developing states but also recognise the concerns in Pacific states on environmental impacts of deep seabed mining. A strong and robust ISA was considered beneficial for delivering the CHM mandate on environmental protection.
- ▶ Investors and shareholders are excited to invest in deep seabed mining because of the benefit sharing component of the CHM, its international organisation, the value of research to societies, the outreach effects of technology development and the future potential for recycling in a circular economy. Transparency was considered crucial.
- ▶ Some civil society organisations promote a moratorium on deep seabed minerals exploitation and question the need and efficacy of these minerals for the transformation towards sustainable development, including poverty reduction, climate protection and long term well-being. Other instruments and available options for sharing under the common heritage principle have not been used until today, so what should improve in the future? Time should be taken to reconsider whether the gain from deep seabed mining is worth the multiple risks taken, and who will have to shoulder these.

5.3 Arvid Pardo and CHM – A historical perspective

Dr. Luc Cuyvers, Gallifrey Foundation, who was working with Arvid Pardo in the 1960's presented a couple of original statements from Arvid Pardo in relation to what was to become the common heritage of mankind in UNCLOS.

In 1967, in his famous speech, outlining the original thoughts on the Common Heritage of Mankind, on the occasion of the UN General Assembly, first Committee, 1515th meeting, Pardo said:

My delegation and all others, I think, have not so much compromised as we have listened to others, learned from others and weighed the consequences of the inexorable advance of science and technology, which is making the elaboration of an international institutional regime for the seabed beyond precisely defined national jurisdiction, objectively necessary and historically inevitable.

At the time, new limits of national jurisdiction had been decided up to the limits of a continental shelf down to the depth of possible exploitation. However, this favoured technically advanced coastal states, such as the US, whereas all others would not be able to benefit of the ocean resources. As regards to the global management of resources he said:

There should be a new principle at the basis of international law of the sea to replace the freedom and in part also sovereignty, so that ocean resources can be administered globally.

We must ensure that the deep seas and the ocean bottom are, and remain, the legacy of all human beings.

Just as we believe that the assets which may accrue to man from the exploration of outer space should be shared universally, so we believe that what he finds beneath the sea may be used for international benefit – without infringing on the sovereignty rights of nations ...

15 years of negotiations brought the Common Heritage of Mankind concept into the UN Convention on the Law of the Sea, adopted in 1982, yet in a watered-down version which did not meet the high ambitions of Pardo's plea for solidarity and equity.

5.4 Film: Prospecting Ocean, 2018

Marcus Reymann of TBA21-Academy and Armin Linke presented the film *Prospecting Ocean*, 2018, conceived and realized over three years by the artist and fellow of The Current, Armin Linke.

Working through photography and filmmaking, Armin Linke looks at the institutional infrastructures, decision processes, and sites of power hierarchies, in many cases through an investigation of the archive and of the conditions and possibilities of the media itself. *Prospecting Ocean* attempts to create a new visualization to frame the complex kaleidoscopic images that are connected with the Anthropocene into a linear narrative essay. The work aims at understanding and possibly creating new solutions to design the future. Exemplary issues are the acidification of the ocean, the implication of the usage of fertilizers, the practice of ice drilling to get information on the history of climate, ocean current measurement and modeling, negotiations on new legislations that relate to the ocean boundaries and regulations, and eventually economical practices like oil and mineral drilling, fisheries, issues related to vessel transport, and ice melting in the Arctic region.

Armin Linke investigates international regulations and laws related to the seabed and the rising sea levels. By combining film, photography, documentation, and interviews, he has selected various institutions, scientists and local agents, observing the different procedures, negotiations, interconnections that their activities implicate. Focusing on a selection of seminal conferences, Linke uses a combination of filmic material gathered, amongst other, from the 22nd Session of the International Seabed Authority in Kingston, Jamaica, as well as Committee on International Law and Sea Level Rise, Johannesburg/Sandton, South Africa. The documentation of the conferences will be combined with footage gathered in the field on various research trips investigating similar themes, which feed back into these conferences.

Camera: Armin Linke, Giulia Bruno; Sound and sound postproduction: Giuseppe Ielasi, Renato Rinaldi; Editing: Giulia Bruno, Giuseppe Ielasi.

6 The broader context

6.1 Towards a new UN treaty for marine biodiversity beyond national jurisdiction: status and relevance for ISA regime⁸

Kristina Maria Gjerde, Senior High Seas Advisor, IUCN Global Marine and Polar Programme, co-lead, Deep Ocean Stewardship Initiative, Adjunct Professor, Middlebury Institute of International Studies at Monterey, California (views are personal to the author).

Introduction

There are many challenges to conserving and ensuring the sustainable use of marine biological diversity in the high seas and deep sea beyond national jurisdiction (ABNJ). Decades of overfishing, bycatch and destructive fishing practices, accumulating marine debris, noise and chemical pollution, as well as warming waters, declining oxygen and increasing ocean acidification are eroding global ocean health and resilience. As confirmed in the First United Nations (UN) World Ocean Assessment, the cumulative impacts on marine biodiversity threaten essential ecosystem functions and services upon which all nations depend. The First UN World Ocean Assessment called for urgent and integrated action to address the full range of ocean threats and impacts. Deep seabed mining impacts have the potential to further degrade biodiversity and ecosystems, as well as to compound existing stressors.

In 2017 the UN agreed to launch negotiations for a new treaty on marine biodiversity in ABNJ to provide a more coherent approach to safeguarding marine life in our shared ocean commons. Here we explore the relevance of the UN treaty negotiations to the emerging regulations for deep seabed mining on the international seabed Area and the principle of the Common Heritage of Mankind. First a bit of history.

Science Advances

The fact that the seafloor hosts unique, rare and fragile ecosystems with rates of recovery far slower than in shallow waters was unknown or poorly understood at the time the UN Convention on the Law of the Sea (UNCLOS) as negotiated in the 1970s. Indeed, when Ambassador Arvid Pardo delivered his historic speech introducing the concept of the “Common Heritage of Mankind” in November 1967, he believed the deep sea floor was a vast and featureless plain containing easily extractable manganese nodules “forming at a rate faster than 1960 consumption of magnesium, manganese, cobalt, zirconium and other metals” (Speech to UNGA 1 November 1967, (A/C.1/P.V, 1515, para 27). Hence, Amb Pardo hoped that monies earned from extracting nodules in the Area could lift all peoples out of poverty with few environmental effects. The Third UN Conference on the Law of the Sea and its ultimate provisions for deep seabed mining and benefit-sharing in Part XI of UNCLOS are in many ways based on these assumptions. However, recent research has revealed that the deep-sea hosts high levels of habitat, species and microbial diversity, as well as ecosystems that thrive not on sunlight but on energy derived from chemical processes. Many deep-sea species are also extremely long lived: Greenland sharks can live for 400 years, tubeworms growing at seeps may be over 300 years old, and deep-sea corals 4000 years. And many species live on, in or are dependent upon habitats such as hydrothermal vents, seamounts and even nodules on the abyssal plain that are now the target of deep-sea mining activities.

⁸ Summary written by the presenter.

Why a New Treaty for Marine Biodiversity beyond National Jurisdiction?

While UNCLOS sets forth the basic rights, duties and principles for human activities in the high seas and deep seabed below, activities in these areas are largely regulated by a mix of global and regional sector-specific bodies (for shipping, mining and fisheries) and implemented and enforced primarily by individual flag States. Though UNCLOS sets forth clear obligations for States to protect and preserve the marine environment, to protect rare and fragile ecosystem and the habitats of vulnerable species, the lack of a global body charged with promoting implementation means that each institution approaches this obligation in a very different way, and often economic priorities overtake environmental caution.

Thus the new treaty under UNCLOS is envisaged as addressing this fragmentation by enabling a more coherent and coordinated global perspective and approach. For example, the new treaty could provide:

- ▶ Overarching governance principles for ocean activities, including precaution, ecosystem approaches and transparency;
- ▶ Clear and elaborated obligations for marine environmental protection;
- ▶ Mechanisms and procedures to enhance cooperation within and across regions and sectors;
- ▶ A global framework for establishing and managing a system of marine protected areas (MPAs) and requirements for adopting other area-based conservation measures;
- ▶ Global rules and standards and recommended practices and procedures for the conduct of environmental impact assessments and other forms of assessment to ensure a sufficient knowledge basis exists to enable informed decision-making;
- ▶ Globally agreed requirements, thresholds and criteria to prevent and avoid significant harm;
- ▶ Institutional mechanisms to actively implement UNCLOS obligations for capacity building and development and transfer of marine technology, and for facilitating access to and the sharing of benefits stemming from the study, use and development of marine genetic resources derived from ABNJ.

While no one intends the new treaty to undermine or do away with existing bodies and agreements, it is hoped that the new treaty can serve to improve the capacity and accountability of such bodies to the global community. This can be done, for example, through strengthening the performance standards for States Parties to the new treaty, and requiring States Parties to act through existing organizations to actively push for reforms. An annual Conference of Parties and scientific advisory body to the new treaty can also serve as a mechanism to exchange information, to assess progress, and to decide on what additional measures may be needed. And the Parties can agree to collectively protect biodiversity in key areas while seeking support from other nations.

Relevance of BBNJ agreement to the Common Heritage of Mankind

By giving rise to new initiatives to foster benefit sharing, capacity building and transfer of marine technology, the new treaty could help realize much of Pardo's vision for the Common Heritage of Mankind without the harmful effects of deep sea mining. Moreover, the new treaty could facilitate enhanced access to 1) marine genetic samples, data and information for inclusive innovation based on renewable marine resources, and 2) modern scientific and environmental

technologies to better understand environmental change and manage human activities. Such initiatives could enable all nations to study, protect and sustainably benefit from marine biodiversity and resources in ABNJ as well as within their own national waters. An associated funding mechanism could build legal, scientific and management capacities at the individual, national, regional and global levels. Globally coordinated marine scientific research initiatives could build the knowledge needed to underpin informed decision-making for truly sustainable development. In short, by acting collectively, both present and future generations could benefit from an improved ability to wisely manage activities and proactively protect the resilience of marine biodiversity and associated ecosystem services in a rapidly changing ocean.

Discussion

- ▶ It was observed that the development of environmental standards is currently taking place in different international fora, however a coordinating platform for operationalising such standards was missing. The need for additional coordination on the implementation level (MPAs, EIAs, SEAs etc) was expressed. The question was left open as to how such a platform could be organised.
- ▶ The development of mutually supportive systems in the Area and the high seas would be highly beneficial. In practice, the ISA mandate can be considered as being limited by what will be agreed under the BBNJ negotiations for activities covered by the freedom of the high seas such as cable laying, fishing and area-based conservation measures as well as the broader perspective on science and ecosystems. The current ISA position is that ISA is independent and has exclusive competence.
- ▶ There is discussion about whether the ISA will need to implement the future BBNJ Implementing Agreement based on the provisions of Article 136 declaring the Area and its resources to be the common heritage of mankind. Resources are here understood to include natural resources. this calls for a fundamental reform of the overall ocean governance system.

6.2 Update on LTC discussions on the implementation of the Common Heritage Principle⁹

Thembile Joyini, Member of the Legal & Technical Commission

The Common Heritage of Mankind

In connection with the structure, content and flow of the draft regulations, the Council requests the Commission to: *reinforce the principle of the common heritage of mankind (CHM) in operative provisions under the draft regulations, and in accordance with the Convention and the 1994 Agreement. The principle of the common heritage of mankind, and its development for the benefit of mankind as a whole is to be prioritized in the development of the draft regulations, including, during the application process, and how a plan of work will contribute to the delivery of the common heritage of mankind principle.*

⁹ Summary written by the presenter.

The economic model

The Council invites the Commission to further develop the financial payment regime, considering the written report that the Massachusetts Institute of Technology (MIT) will deliver ahead of the meetings of the Council and the Commission in 2019. The written report will be based on the following:

- (i) The economic model submitted by the African Group on 9 July 2018 relating to the payment regime and other financial matters;
- (ii) The economic model of the China Ocean Mineral Resources Research and Development Association, presented on 17 July 2018 during a side event;
- (iii) The economic study by Germany on the economic benefits of commercial deep sea mining operations, of 30 September 2016; and
- (iv) The economic model developed by the Massachusetts Institute of Technology, as presented to the Council in its revised version on 16 July 2018.

The Enterprise

Assembly request (ISBA/23/A/13, 18 08 17): Decision of the Assembly of the International Seabed Authority relating to the final report on the first periodic review of the international regime of the Area pursuant to article 154 of the United Nations Convention on the Law of the Sea, the Legal and Technical Commission is requested *to continue to address the question of the operationalization of the Enterprise as an important matter in the light of developments with respect to deep-seabed mining.*

The Council requested the Secretary-General *to carry out a study of the issues relating to the operationalization of the Enterprise, in particular on the legal, technical and financial implications for the Authority and for States parties to the United Nations Convention on the Law of the Sea, taking into account the provisions of the Convention, the 1994 Agreement relating to the Implementation of Part XI of the Convention and the regulations on prospecting and exploration for cobalt-rich ferromanganese crusts and polymetallic sulphides and nodules in the Area.*

ISA appointed Mr Edwin Egede to carry out the study. Mr. Eden Charles was appointed special envoy on the Enterprise. Factors prompting the need for the Operationalisation of the Enterprise are as follows:

Proposal from the Government of Poland (ISBA/24/C/12) to “to enter into negotiations to form a joint venture with the Enterprise.”

Comment: We must welcome the proposal, and any moves towards the realisation of the Enterprise, as envisioned in UNCLOS, as the key mechanism by which developing countries can directly participate in and maximise benefits from activities in the Area.

Draft exploitation regulations: Comment: We must ensure that the Exploitation Regulations takes into account the important role that will be played by the Enterprise in giving effect to the CHM during the exploitation phase that will initially be by way of joint ventures, and sometime in the future as a sole contractor. As such, the Enterprise, as a future ISA contractor operating on behalf of all States and humankind, is a crucial stakeholder in the development of the draft Regulations/Mining Code. Unless and until the Enterprise exists as an independent entity, it is not possible for the Enterprise to provide inputs into the consultation process about the drafting of the Regulations.

Payment Regime for the Area: Comment: We believe that bringing the Enterprise into existence would bring an important stakeholder’s voice into this process. The Enterprise, if operational,

could provide inputs to enable economic modelling of different types of contractor arrangements. This would assist the ISA better to predict the types of financial benefits that may be derived from the activities in the Area, and inform the development of a payment regime for the Area, and contract terms for exploitation, that are designed to maximise benefits to humankind.

Future Equity Interest Option taken by Exploration Contractors: Applicants for plans of work for exploration for polymetallic sulphides and cobalt-rich ferromanganese crusts are required to choose between either providing a reserved area, or offering an equity interest in a future joint venture arrangement with the Enterprise (see regulations 16 and 19 of the applicable regulations - ISBA/16/A/12/Rev.1 and ISBA/18/A/11, respectively).

The option to offer an equity interest in a future joint venture arrangement with the Enterprise has been taken up by 11 contractors, entering into contracts for exploration of polymetallic sulphides or ferromanganese cobalt-rich crusts between 2011 and 2018. Polymetallic sulphides: COMRA in 2011, the Russian Federation in 2012, IFREMER in 2014, the Republic of Korea in 2014, the Federal Republic of Germany in 2015, India in 2016 and the Republic of Poland in 2018. Cobalt-rich ferromanganese crusts: COMRA in 2014, JOGMEC in 2014, Companhia De Pesquisa de Recursos Minerais in 2015 and the Republic of Korea in 2018.

Comment: We are of the view that the Enterprise itself is best-placed to provide suggested inputs in this regard, and will be the best-placed organ within the ISA to undertake the negotiations and analysis of the proposed arrangements, within parameters set by the Council and the Regulations, in accordance with sound commercial principles.

The Council requests LTC to consider (ISBA/23/C/8) the submissions received since the twenty-third session in the context of its work, including on the draft regulations from Algeria, on behalf of the African Group, entitled “Request for consideration by the Council on the African Group’s proposal for the operationalization of the Enterprise” and “Request for consideration by the Council of the African Group’s proposal on the economic model/payment regime and other financial matters in the draft exploitation regulations under review”; from Belgium “Strengthening the environmental scientific capacity of the International Seabed Authority”; and from Germany, entitled “Suggestions for facilitating the work of the International Seabed Authority”; as well as the report of the Secretary-General on considerations relating to a proposal by the Government of Poland for a possible joint-venture operation with the Enterprise.

Adverse effects resulting from exploitation activities in the Area: the Council requests the Commission to examine the requirements under the Convention and the Implementing Agreement as to the protection of developing countries from adverse effects resulting from exploitation activities in the Area, and to make the necessary recommendations to the Council on how to address this issue.

The Commission is further requested, in conjunction with the secretariat, to initiate a study of the potential impact of mineral production from the Area, in accordance with Annex, Section 1, paragraph 5(e) of the Implementing Agreement, and to provide the Council with an update on the timing of such study.

Discussion

- Clarification was sought on the future role of the Enterprise: upon operationalisation the Enterprise would act as an additional contractor and stakeholder, aiming to ensure that the

exploitation regulations and any other economic decisions are taken to favour of the Enterprise also.

- ▶ Some debate addressed the differences of the joint venture proposal by Poland to the one of Nautilus in 2012/13, the latter being less transparent and ready-made rather than being a process which can be taken forward cooperatively. The proposal of Poland is under development and is planned to be considered by the Council in 2019. Discussion points are the practical feasibility of the Enterprise, and the form of contract, all of which needs multi-group acceptance.
- ▶ There is no direct link between the studies on the operationalisation of the Enterprise (legal, financial and technology issues, implications of the 1994 Agreement) and the proposal made by Poland. Yet it may show some options for joint ventures which may be useful.
- ▶ The question was posed whether the Legal and Technical Commission had already accomplished its task to develop procedures to determine if hydrothermal vents and seamounts need special protection as vulnerable marine ecosystems. The background for these provisions was the LTC's discussion in 2005, captured in this excerpt from ISBA/11/C/5, 12 August 2005, para. 15: "15. In particular, the Commission recalls the way in which polymetallic sulphide and cobalt-rich ferromanganese crusts occur in parts of the marine environment that are now known to host complex — and, in many ways, unique — marine ecosystems, and of a type that may be susceptible to major trauma. There is some potential for serious and permanent harm in these areas during the process of seabed mining."
- ▶ It was said that no such work had been on the agenda or undertaken by the LTC in recent years. Having these procedures would arguably be important before any exploitation regulations are adopted. The general understanding would be that no mining would occur at active vent sites, however there is currently no such recommendation from LTC.

6.3 Closing discussion: How to implement equitable benefit sharing mechanism at the ISA?

Participants split in three moderated groups to reflect and discuss their main learning experiences, and most important views on the four thematic topics of the workshop:

- ▶ What are the "benefits"? Is the concept of "net benefit" appropriate?
- ▶ What is a satisfactory payment regime?
- ▶ How should benefits be shared?
- ▶ CHM - an evolutionary implementation?

The output was presented to the plenary afterwards and form the basis for the conclusions below.

What are the “benefits”? Is the concept of “net benefit” appropriate?

UNCLOS states that activities must be for the “benefit of mankind as a whole” (Article 140 paragraph 1) and the “financial and economic benefits” must be shared equitably and “on a non-discriminatory basis”. The sharing of benefits deriving from marine scientific research, technology transfer and archeological and historical objects are regulated in Articles 143, 144 and 149 UNCLOS.

Benefits in the sense of Article 140 paragraph 1 UNCLOS were considered to include monetary as well as non-monetary benefits, including in particular ecosystem goods and services.

It was agreed that only by looking at the broad range of benefits and deducting the social and environmental cost of the impacts of activities in the natural capital to calculate the net benefit can decisions be made appropriately. The group therefore endorsed the net benefit approach presented in the workshop. There was consensus that in general the documentation of a net benefit should be a precondition to run a DSM activity. It was highlighted that such a prerequisite is lacking in the present second draft of the exploitation regulations.

This broader view of non-monetary benefits includes ecosystem functions, services, scientific knowledge, capacity development and technology transfer. This includes specific functions such as carbon sequestration as well as the existence value of the deep sea and the seabed. Therefore optimized revenues resulting from marine scientific research and a better understanding of the ocean need to be considered. In addition, participation in activities in the Area for instance through the Enterprise could be considered a benefit.

Regulations should require a comprehensive approach which takes into account the full range of benefits and weighs carefully how society can best benefit also in the form of knowledge and marine scientific research, design appropriate technologies and environmental protection schemes. It has to make sure that mining takes place only if there are significant returns to mankind. A comprehensive net benefit approach is required to take decisions even though, as was acknowledged, this raises challenges in implementation which have to be addressed through appropriate design in advance of any licencing decisions.

What is a satisfactory payment regime?

A satisfactory payment regime according to Article 140 Paragraph 2 UNCLOS needs to deliver solid and certain financial and other economic benefits to humankind to satisfy the CHM principle. This means that the CHM can't be at risk from the uncertainties of the future. The meaning of „fair” to the Authority needs to be defined.

The groups believed that one way to reduce this risk is to offer the opportunity for a significant upfront payment. A mix of upfront payments (“signing bonus”), royalties on the processed metal and a profit tax may be helpful in determining a fair share for ISA. We discussed whether paying up front should be at the option of the contractor given that the amount could be calculated to be financially equivalent to an amount paid through royalties later or whether there could be an auction element.

The groups agreed that in any case the payment regime needs to be comprehensive, including an upfront fee, royalties and a profit share, so that the funds to the ISA and the CHM provide at least 50% of the net income. The payment to the CHM needs to be in addition to the cost coverage required to support adequate environmental funds and the mining inspectorate. The Enterprise should be involved as a contractor in order to guarantee that all developing states will benefit from DSM activities.

It was argued that proper minoring and enforcement through the Mining Inspectorate would provide the ISA with the needed information to fully audit activities and therefore calculate incomes and costs adequately to properly administer the profit-share component, which could for instance be in the form of a windfall tax of up to 100%.

The payment regime needs to ensure that mining only occurs if there are significant (optimal) net benefits for humankind and any loss of value in CHM is getting compensated. A broad consideration of the overall benefits should be a criterium for rejecting or approving a license, to be prescribed in the exploitation regulations. There was consensus that any payment mechanism must ensure that there is minimum/significant amount of benefits which could be shared. Member states and ISA should decide upon the return they need.

It was suggested that the payment mechanism should comply with a number of criteria and prior conditions:

- ▶ A system that does not discriminate in favor / against particular types of contractors
- ▶ A system that is simple to implement and minimises administrative costs
- ▶ A system that takes into account externalities, in particular environmental impacts such as biodiversity costs
- ▶ A system that gives priority to CHM (at least 50%), is based on overall net- benefit, is transparent and follows good-governance principles, including transparency.
- ▶ A consideration the interests of future generations
- ▶ An approach that is dynamic and could involve incentives and discounts
- ▶ It was also argued that the payment mechanism must not be designed in order to prevent mining operation. In that sense the payment mechanism should also be commercially viable and based on market realities.

How should benefits be shared?

The groups discussed a broad range of benefit sharing mechanisms, including through the operation of the Enterprise, through capability building and technology transfer for developing nations.

Appropriate fund structures were seen to be particularly useful to deliver support, in particular focussing in Law of the Sea related efforts and obligations, and deep-sea science as well as other appropriate UN funds. The feeling was that rather than transferring cash to states, using a multilateral fund structure with appropriate, independent oversight and clear mandate to support the ambitions of UNCLOS or other public interests (health security) would be most effective and also would align best with the interests of future generations.

To the degree that states are considered as beneficiaries, developing countries should first benefit, either directly or in the form of support from the fund, whose disbursements should be geared to issues most relevant to developing economies such as basic health provision, poverty alleviation and restoration of negatively impacted marine environments. Should any financial benefits be up for sharing, then the most vulnerable groups should be the priority recipients - Another way of fair involvement of developing states was through the Enterprise.

Legally speaking, benefits could not only be distributed to states, but also to civil society organizations directly.

Participants did not expect large amounts of money to become available for re-distribution and therefore a common fund was considered more practical than a sharing mechanism among states. Participants generally agreed that sharing the benefits of the CHM required a comprehensive approach considering a.o. benefits provided by the oceans for life on earth, inter-generational fairness/equity, and providing transformative momentum.

It needs to be avoided that developing countries acting as sponsoring states are not left with the liabilities whereas the spin offs are received by developed countries which in fact effectively control the private contractor operating a DSM activity.

CHM - an evolutionary implementation?

This question aimed to address CHM in the light of emerging global governance approaches, such as the Sustainable Development Goals, SDGs. SDGs needs to be considered with regard to the interpretation, operationalization and implementation of the CHM-principle and the future benefit sharing system. In procedural terms, a working group should be set up within ISA to provide specific recommendations.

The attendees felt that the Common Heritage of Humankind principle needs to be seen in the light of the SDGs and the BBNJ. Therefore, it requires us to implement the CHM in a way that supports functioning ecosystems, a healthy deep ocean and marine biodiversity. Implementation requires us to provide to future generations at least the same options for well-being, here mineral use, that we inherited ourselves. The development of mutually supportive systems in the Area and the high seas would be highly beneficial. Inconsistencies and undermining of the Agenda 2030 and the Sustainable Development Goals, CBD and the UN Fish Stocks Agreement were to be avoided.

We need to use the tools at our disposal, which include the ecosystem approach to management and strategic environmental assessments to make sure that we fully address potential cumulative effects of activities. Prior to permitting exploitation, potential negative impacts have to be identified and reduced, including those from climate change and from other activities such as fishing, so that the implementation of CHM evolves in a way to promote integrity and resilience of the Area and deep ocean for all mankind today and in the future.

Four instrumental approaches were proposed with regard to the CHM principle and the future benefit-sharing system:

- ▶ A moratorium on deep seabed mining prior to full implementation of the Sustainable Development Goals in 2030. This would be a way to effectively support and enhance the transformation needed for implementing the 2030 sustainability agenda.
- ▶ The assessment of whether deep seabed mining is in the interest of the CHMs requirement for delivering benefits to mankind could focus on the natural capital of the deep sea taking into account all negative effects activities may cause.
- ▶ A focus on SDG 12, responsible production and consumption, requires an effective and efficient use of minerals, could reduce the need for DSM.

- SDGs demand that each DSM project proves that there is a net benefit taking into account the effects on the natural capital. It might be technically difficult to provide such an evidence for each project. At least, it should be done on a strategic/regional level.

CHM implementation through the enterprise was pointed out to be a tangible and meaningful way of benefit sharing.

7 Acknowledgements

We would like to thank all participants for their willingness to spend time and share views in what turned out to be a very frank and friendly atmosphere of the workshop. A special thanks to the speakers for providing excellent presentations and a summary for this workshop report. Many thanks also to the panelists who stimulated the discussion among participants from their personal angles. We'd like to welcome all of you again next time, should the opportunity arise.

Last not least a great thanks to Luise von Pogrell for technical support and the IASS Event Team for excellent organisation of the facilities.

A Appendix

A.1 Participants List and Agenda



International Expert Workshop: PARTICIPANTS

A Benefit sharing mechanism appropriate for the Common Heritage of Mankind

26-29 November 2018

IASS Potsdam, Berliner Strasse 130, 14467 Potsdam, Germany

First Name	Name	Institution
Marie-Luise	Abshagen	German NGO Forum on Environment and Development
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Ingo	Bräuer	Potsdam Institute for Climate Impact Research
Lilian	Busse	German Environment Agency
Eden	Charles	Independent Consultant
Sabine	Christiansen	IASS
Duncan	Currie	Deep Sea Conservation Coalition
Luc	Cuyvers	Gallifrey Foundation
Hans-Peter	Damian	German Environment Agency
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First Name	Name	Institution
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Daniel	Wilde	Commonwealth Secretariat

	
International Expert Workshop: A Benefit sharing mechanism appropriate for the Common Heritage of Mankind 26-29 November 2018 IASS Potsdam, Berliner Strasse 130, 14467 Potsdam, Germany	
Monday 26 November 2018	
19.00	Ice breaker: Get-together at Cappuccino (https://www.ristorante-cappuccino.de/restaurants/potsdam.html); at own expense
Tuesday 27 November 2018	
08.30 – 09.00	Arrival coffee and registration
09.00 – 09.30	Welcome on behalf of the IASS (S. Unger, IASS) and the Federal Environment Agency (Dr. L. Busse, UBA)
09.30 – 10.00	Introduction to the workshop: concept and objectives. (T. Thiele, IASS)
Thematic focus	General framework for benefits and sharing under the Common Heritage Principle Moderator: Sebastian Unger, IASS
10.00 – 10.30	The legal framework for benefits and benefit-sharing: Realization of intra- and intergenerational equity under the principle of the common heritage of mankind. (Prof. R. Warner, ANCORS) Questions
10.30 – 11.00	Challenges in monetary valuation of deep sea resources and the policy use of contingent valuation studies. (Prof. S. Navrud, NMBU - Norwegian University of Life Sciences) Questions
11.00 – 11.30	Coffee break

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Tuesday 27 November 2018	
11.30 – 13.00	Stakeholder Panel: What kind of benefits do you expect from the Common Heritage of Mankind? ▪ Dr. D. Amon, Natural History Museum London ▪ E. Charles, Trinidad and Tobago ▪ D. Currie, Globe Law ▪ L. Griffiths, UK ▪ G. Leung, Nauru ▪ K. van Nijen, GSR
13.00 – 14.00	Lunch
Thematic Focus	Income generation for ISA - optimizing financial benefits Moderator: Sebastian Unger, IASS
14.00 – 14.30	Introduction: Approaches to payment and taxation mechanisms for mineral resources. (Dr. D. Wilde, Commonwealth Secretariat)
14.30 – 15.15	The payment mechanism model presented by the MIT in the light of CHM. (T. Thiele, IASS) Questions
15.15 – 15.45	Q&A with the speakers
15.45 – 16.15	Coffee break
16.15 – 17.00	Table discussion: What could a satisfactory payment mechanism look like?
17.00 – 17.30	Feedback from the table groups

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A Benefit sharing mechanism appropriate for the Common Heritage of Mankind



Wednesday 28 November 2018	
Thematic focus	What are the benefits and how can they be determined? Moderator: Prof. Dr. Aletta Mondré
09.00 – 09.30	The relevance of the Sustainable Development Goals. (Dr. W. Rickels, Head of Environment and Natural Resources at the Kiel Institute for the World Economy) Questions
09.30 – 10.00	A comprehensive economic approach to benefits in the context of the Common Heritage of Mankind. (T. Thiele, IASS) Questions
10.00 – 10.30	Coffee break
10.30 – 12.00	Introduction (T. Thiele, IASS) Discussion in 3 groups - Scenarios for 2030: "Business as Usual, BAU" vs "Sustainability" vs "Transition" Team moderators: Dr. D. Wilde, Dr. W. Rickels, T. Thiele
12.00 – 13.00	Presentation and discussion of scenario exercise outcomes
13.00 – 14.00	Lunch
Thematic focus	Sharing of benefits in the light of UNCLOS and the Sustainable Development Goals Moderator: Prof. Dr. Aletta Mondré
14.00 – 14.30	Legal regime for Benefit-Sharing under UNCLOS and Obligations of the ISA (including functions of the ISA organs) in the operation of the benefit-sharing mechanism. (Prof. Dr. I. Feichtner, University of Würzburg)
14.30 – 16.00	Stakeholder Panel: What are the expectations how monetary and non-monetary benefits should be shared? ▪ M.L. Abshagen, Forum E&D ▪ R. L. Kautoke, Tonga ▪ M. Mainero, Argentina ▪ T. Joyini, South Africa ▪ C. McLachlan, DeepGreen ▪ C. Reichert, BGR
16:00 – 16:15	Arvid Pardo and CHM – A historical perspective. (Dr. L. Cuyvers, Gallifrey Foundation)

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A Benefit sharing mechanism appropriate for the Common Heritage of Mankind



Wednesday 28 November 2018

16.15 – 17.15	Film: Prospecting Ocean (Armin Linke & Markus Reymann, TBA21-Academy)
17.15 / 18.00	Bonfire in IASS backyard and subsequent dinner at the IASS

Thursday 29 November 2018

Thematic focus	The broader context
	Moderator: Dr. Harald Ginzky, UBA
09.00 – 09.30	BBNJ: status and relevance for ISA regime. (K. Gjerde, IUCN)
09.30 – 10.00	Update on LTC discussions on the implementation of the Common Heritage Principle (T. Joyini, Member of Legal & Technical Commission)
10.00 – 11.30	How to implement equitable benefit sharing mechanism at the ISA? Key messages & group discussion
11.30 – 12.00	Coffee break
12.00 – 13.15	Closing discussion
13.15 – 13.30	Thank yous and Farewell
13.30 – 14.30	Lunch