



Incorporating transparency into the governance of deep-seabed mining in the Area beyond national jurisdiction

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ABSTRACT

In the governance of natural resources, transparency has been linked to improved accountability, as well as enforceability, compliance, sustainability, and ultimately more equitable outcomes. Here, good practices in transparency relevant to the emerging governance of deep-seabed mining in the Area beyond national jurisdiction are identified and compared with current practices of the International Seabed Authority (ISA). The analysis found six areas of good transparency practice that could improve the accountability of deep-seabed mining: i) access to information; ii) reporting; iii) quality assurance; iv) compliance information / accreditation; v) public participation; and vi) ability to review / appeal decisions. The ISA has in some instances adopted progressive practices regarding its rules, regulations, and procedures (e.g. including the precautionary approach). However, the results here show that overall the ISA will need to consider improvements in each of the six categories above, in order to reflect contemporary best transparency practices, as well as meeting historical expectations embodied in the principle of the 'common heritage of mankind'. This would involve a revision of its rules and procedures. The ongoing review and drafting of the ISA's deep-seabed mining exploitation regulations offers a once-in-a-generation opportunity to improve upon the current situation. Findings from this analysis are summarised in 18 recommendations, including publication of annual reports submitted by contractors, publication of annual financial statements, development of a transparency policy, compliance reporting, and dedicated access to Committee meetings.

1. Introduction

This paper identifies good practices in transparency that could lead to improved accountability in the emerging governance of deep-seabed mining in 'the Area' beyond national jurisdiction. To do so, recognised best practices from related marine and natural resource sectors are considered.

1.1. Transparency in the governance of natural resources

In the governance of natural resources, transparency is found to be a necessary factor for improved accountability, as well as enforceability, compliance, sustainability, and ultimately more equitable outcomes [13,22]. In the extractive resource industries in particular, transparency is emphasised with regard to improving governance ills, particularly

accountability [13], and has been hailed as an important step to resolving governance-related problems emanating from natural resources in national jurisdiction, such as fiscal responsibility, the choice of investments, and project suitability [22,45]. Well-established non-governmental organisations, including Transparency International,¹ the Natural Resources Governance Institute,² and the U4 Anti-Corruption Resource Centre³ promote transparency as a way to deter corruption [11]. Other factors, such as political stability, regulatory quality, and institutional competence, also play critical roles in the good governance of marine natural resources [11,42,50]. However, without transparency in deep-seabed mining, the details concerning allocation of international seabed mineral resources to private and state operators, ensuing environmental impacts, and regulatory compliance, will remain largely unknown. Greater transparency is necessary to allow for meaningful review or appeals, and can lead to greater public accountability and

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¹ <https://www.transparency.org/> accessed Oct. 2017.

² <https://resourcegovernance.org/> accessed Oct. 2017.

³ <http://www.u4.no/> accessed Oct. 2017.

engagement, which has been interpreted as consistent with the principle of the common heritage of humankind [40].

1.2. Deep-seabed mining

The potentially vast mineral wealth of the ocean was popularised over fifty years ago in an academic book, ‘The Mineral Resources of the Sea’, that captured the imagination of scientists, businessmen, and government representatives alike [16,51]. Spurred by record-high mineral commodity prices in 2011,⁴ the evolution of technical capabilities, and the approval of international regulations for prospecting and exploration, the prospect of deep-seabed mining (DSM) has had renewed attention. In the three years from 2011 to 2014, thirteen applications were made to the International Seabed Authority (ISA) for exploration contracts – more than any period before or since. As of August 2017, there had been a total of twenty-nine exploration applications to the ISA, including seven that were carried over from ‘pioneer’ contractors in the 1970s and 1980s. In response to this renewed industrial interest, DSM has also attracted renewed scientific, legal, and policy attention (e.g. [52,41,71]).

Combined with the pending expiration of the original 15-year contracts issued in the early 2000s, this renewed interest spurred the ISA towards development of its *exploitation* regulations. A preliminary ‘Zero Draft’ of these regulations was released for public comment in July 2016 [33]. Subsequently, a ‘tentative working draft’ discussion document concerning environmental aspects of these regulations was released in early 2017 (henceforth, ‘Discussion Document’; [34]). In August of 2017, the ISA released ‘Draft Regulations on Exploitation of Mineral Resources in the Area’ (henceforth, ‘Draft Regulations’; [35]).

The deep-seabed beyond national jurisdiction, administered through the ISA, has a unique legal status. In 1970, the United Nations (UN) General Assembly Resolution 25/2749 declared the seabed and its resources to be the ‘common heritage of mankind’ [68] – language that was later incorporated into the UN Convention on the Law of the Sea ([67]; Art. 136).⁵ In what is termed ‘the Area’ beyond national jurisdiction, UNCLOS stipulates that all rights in seabed natural resources are vested in humankind⁶ as a whole (Art. 137(2)). Financial and other economic benefits derived from activities in the Area, including DSM, are to be shared equitably (Art. 157(1)), again for the benefit of humankind (Art. 140(1); [65]). Also, DSM activities in the Area shall be carried out in such a manner as to foster healthy development of the world economy and balanced growth of international trade, and to promote international cooperation for the overall development of all countries, especially developing States (Art. 150). However, it has been questioned whether deep-seabed mining will actually achieve these lofty benefits, with some calling for a pause in developing the industry until there is a re-assessment of the legal obligations and whether these are being met [40,44,69].

Concerning the common heritage of the seabed’s mineral resources, it has been suggested that the ISA’s States Parties are “...meant to act as a kind of trustee on behalf of mankind as a whole.” [71]. The principle, in being so defined, necessarily brings with it governance requirements beyond normal business-as-usual, particularly concerning fair and equitable benefit-sharing, and protection and preservation of the marine environment [39,40]. Given the as yet unknown impacts of full-scale commercial DSM on the environment and ecosystems, a

precautionary approach has been identified by the ISA in its ‘Mining Code’⁷ (e.g. [28]; reg. 33.2) to reduce risk of unintended outcomes. The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea (ITLOS) in its 2011 Advisory Opinion noted this as part of a trend towards making the precautionary approach part of customary international law ([38], para 135).

When discussing the contractual agreements between a sponsoring State and a Contractor, the Seabed Disputes Chamber linked the need for transparency with the common heritage of humankind principle. The Chamber noted that the contractual arrangement would, “... moreover, lack transparency. It will be difficult to verify, through publicly available measures, that the sponsoring State had met its obligations.” ([38], para 225). It goes on to say that “...the role of the sponsoring State is to contribute to the common interest of all States in the proper implementation of the principle of the common heritage of mankind [...] Contractual arrangements alone cannot satisfy the obligation undertaken by the sponsoring State.” (ITLOS, 2011, para 226). Thus, the lack of transparency that can arise from confidential contractual arrangements is seen by the Chamber as a hindrance to the proper implementation of the common heritage of humankind principle. Contractual agreements have to date been the basis of sponsoring State-Contractor relationships, and the relationships between the ISA and these parties.

The transparency of the ISA has been evaluated by stakeholders as insufficient, particularly concerning access to Commission meetings, data, and information to assess if a Contractor has met its obligations (ISA, [33]; [57]). When compared to the management of international fish stocks by regional fisheries management organisations, the ISA’s practices were found to be least transparent [6]. Whilst many international maritime-focussed organisations began discussing transparency in the mid-late 1990s, such discussions did not occur within the ISA, and only appear in the records of the ISA’s annual meetings very recently, after 2014 when a study on the topic was published [5]. However, over the past two years, the procedures of the ISA appear to be opening up somewhat to external participation; for example, proceedings have included internet-based consultations for the first time.

1.3. Elements of good governance

Aguilera and Cuervo-Cazurra [3] compiled a database of codes of good governance developed worldwide from 1978 until the end of 1999. According to their research, these codes of governance began in the corporate sector, mainly in the late 1980s and early 1990s. Only in the late 1990s did governments and inter-governmental bodies begin to issue their own codes of good governance. In 1997, the United Nations Development Program (UNDP) published a policy document, *Governance for Sustainable Human Development*, which set the mould for many others that would follow [66,17].

Codes and guidance concerning good governance generally include transparency, public inclusiveness & participation, accountability, and rule of law (Supplementary materials, Table s1). These four elements are inter-dependent in practice. The focus of this paper is mainly on the first two of them – transparency, which is taken to include public participation, as well as to some extent the third element, accountability, as reflected in the ability to review and appeal decisions.

The purpose here is not to further evaluate the above good governance elements beyond what has already been published by these authors and many others. However, it is worth noting that in natural resource governance, positive outcomes as a result of transparency can be difficult to demonstrate [43]. The limited mandate and power of voluntary initiatives, stakeholder resistance, and dependence on strong

⁴ World Bank Commodity Price Data (The Pink Sheet); <http://www.worldbank.org/en/research/commodity-markets#1> accessed Oct. 2017.

⁵ Reflecting the internationalist spirit of those times, similar text can be found in the Outer Space Treaty (1967; ‘common interest of mankind’) and the [54], though these have proven to be far less influential than UNCLOS. Arguably the other side of the same coin, the UN Declaration on the Establishment of a New International Economic Order (1975) emphasised regaining effective state control of natural resources from foreign interests.

⁶ Although UNCLOS uses the term ‘mankind,’ this paper shall use the more contemporary ‘humankind’ unless in direct quotation.

⁷ The ISA uses the term ‘Mining Code’ to collectively refer to all its regulations concerning mining exploration and exploitation. Currently, only exploration regulations have been finalised.

civil society (which is absent in many developing states interested in DSM [8,9,47]) can lead to the apparent failure of resource governance transparency initiatives such as the Extractive Industries Transparency Initiative (EITI)⁸ [61]. Lack of timely data and lack of concrete enforcement measures (e.g. affirmative action from investors) have also been postulated as reasons why transparency initiatives have not always ushered in anticipated change.⁹ Nevertheless, transparency is still seen to be necessary, though far from sufficient, in ensuring good resource governance [63,64]. In short, it is the tentative first step, often made haltingly, on a long road toward natural resource governance reform and greater accountability. The importance ascribed to transparency is reflected in its near-universal appearance in codes of conduct and best practices that have emerged since the 1990s, as outlined in supplementary Table s1.

1.4. Analytical objectives

In order to place DSM into a broader context of international practices, a broad review was undertaken of rules, regulations and codes of conduct that are plausibly relevant to the emerging governance of deep-seabed mining in the Area beyond national jurisdiction. These were then compared with current and emerging practices of the ISA. Here, the work is summarised and we draw some general conclusions, highlighting areas that may need further consideration and improvement. We assume here that if these elements of transparency have been found to be important in the governance of other kinds of natural resources, then they are likely to be so for deep-seabed mineral resources as well.

2. Methods

To identify elements of transparency that constitute existing and emerging best practices plausibly applicable to the good governance of DSM, a review of existing codes of conduct, regulations, international agreements, and voluntary standards was undertaken (henceforth, *standards*). From these, 14 indicative standards were selected using four general criteria: 1) it should in some way be applicable or comparable to DSM; e.g. land-based mining, natural resource finance, etc.; 2) when seen to be covering similar issues, international standards are favoured over national ones for reasons of their broader applicability (13 of the 14); 3) in order to gauge current and emerging best practices, newer standards are favoured over older ones, when covering similar content (ranging from 1996 – present); and 4) better-known standards emerging from larger established institutions were favoured over more obscure or niche industry examples.

Several standards were rejected owing to a lack of specificity; i.e. being without language that can be translated into specific rules, policies, or actions. For example, the *World Economic Forum's Responsible Mineral Development Initiative* encourages “transparent processes & arrangements”, but does not elaborate on what elements would characterise such arrangements [70]. Likewise, the widely recognised *UN Global Compact* uses language that is too general to interpret specifically into best practices; for example, Principle 10 suggests that “Businesses should work against corruption in all its forms, including extortion and bribery,” but does not say how.¹⁰ Other standards that were not

included have limited universal applicability (e.g. national freedom of information legislation – which varies considerably across time and jurisdictions¹¹); inapplicability to DSM (e.g. consumer right-to-know laws); or, redundancy, as discussed below.

The 14 standards of focus in this paper are representative of three general kinds, regarding: i) operators' activities (9); ii) regulators' conduct (5); and iii) third party¹² conduct (2¹³). Each of these three focal points are (or could be) regulated by the ISA through its Mining Code and, concerning itself, through its internal rules of procedure. Transparency is a common theme throughout the 14 standards (Table 1).

International and national standards are not covered exhaustively; i.e. there are other standards, similar to those selected. For example, the ten principles of the *International Council on Mining & Metals (ICMM, no date)*, considered here, are similar to elements contained in national codes such as *Towards Sustainable Mining* of the Mining Association of Canada¹⁴ and the *Chinese Responsible Mining Guidelines*, not considered here. There is only one code of conduct explicitly aimed at DSM, the *International Marine Minerals Society Code for Environmental Management of Marine Mining*, which is included here. One national code was included, the Chinese Due Diligence Guidelines, as an example of current voluntary best practices in mineral supply chain disclosure, and also because China is the world's single largest producer, importer and exporter of minerals and metals, as well as an ISA Party sponsoring the most DSM exploration contracts. Although the Initiative for Responsible Mining Assurance code (IRMA) is still in draft, undergoing revisions (which are publicly viewable), it was decided to include it in order to provide insight on some of the latest ideas concerning good practices in the land-based mining industry. Other standards constitute either a broadly accepted standard (e.g. the Equator Principles with regard to financing), or a recognised international agreement that could conceivably be applicable to aspects of DSM operations (e.g. the London Convention and Protocol with regard to dumping waste materials at sea), or an internationally recognised voluntary certification scheme seeking to set out best practices in the natural resource sector (e.g. EITI). In addition, the *United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters* (henceforth, the Aarhus Convention [2]) is used alongside the UN Law of the Sea and the ISA's Mining Code, as another point of legal comparison as that several of the ISA State Parties are also Parties to that convention, and hence bound to its terms and conditions.

3. Results and discussion

Expectations concerning transparency and resultant improved accountability were expressed in six general ways: i) access to information; ii) reporting; iii) quality assurance; iv) compliance information / accreditation; v) public participation; and, vi) the ability to review and appeal decisions (Table 1 and supplementary Table s2). Points (i), (v), and (vi) are considered the ‘three pillars’ of the Aarhus Convention [2]. Points (ii)-(iv) reflect the emphasis on reporting seen in most of the standards, beginning with the expectation of some sort of publicly available report (ii), providing evidence / assurance of quality of information in that report (iii), and assuring compliance with the standard itself (iv). These six expressions of transparency are discussed

⁸ EITI does not currently apply to DSM in the Area beyond national jurisdiction.

⁹ Blogged news item: <http://news.trust.org/item/20130526220927-0eaiq>.

¹⁰ There are related UN guidance documents, but these too are rather unhelpful. For example, the latest report (forward-dated 2018) says, “Transparency is fast becoming the new paradigm for conducting business; stakeholders are calling for companies to adopt sustainable practices and integrate relevant data into reporting cycles. Through the on-going Reporting for the SDGs Action Platform, the UN Global Compact — together with the Global Reporting Initiative — will help companies align reporting on the SDGs, and advise on communicating this data in a meaningful and usable way.” https://www.unglobalcompact.org/docs/publications/2018_Toolbox.pdf accessed June 2017.

¹¹ Reflected, for example, in the incomplete but extensive Wikipedia page on this topic: https://en.wikipedia.org/wiki/Freedom_of_information_laws_by_country.

¹² Concerning third parties, the ISA's situation is unique in that it has entered into contractual arrangements with both mining entities and their State sponsors, which in turn are its members and participate in its various governance organs and decision-making.

¹³ Numbers exceed the total because two standards are directed at more than one principal audience (EITI; London convention and Protocol).

¹⁴ <http://mining.ca/towards-sustainable-mining>.

Table 1
Standards reviewed in this paper and summary of their components related to transparency. A checkmark (✓) indicates inclusion in the standard; an “O” indicates partial inclusion; an “X” indicates that the component is not included. Bolded text indicates the abbreviations used in this paper. More details can be found in supplementary Table S2.

	Transparency Components						
	Access to Information	Reporting	Quality Assurance	Compliance Reporting / Accreditation	Public Participation	Review / Appeal	
1	China Chamber of Commerce of Metals, Minerals & Chemical Importers and Exporters: Due Diligence Guidelines for Responsible Mineral Supply Chains [10]	✓ ^a	✓	✓	O	O ^b	
2	Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention; [11]), and the London Protocol (1996)	O ^c	✓	✓	X	✓ ^d	
3	Equator Principles [15] III: a financial industry benchmark for determining, assessing and managing environmental and social risk in projects	✓	✓	✓	✓	✓	
4	Extractive Industries Transparency Initiative (EITI) Standard [14]	✓	✓	✓	✓	✓	
5	Global Reporting Initiative (GRI) Reporting Standards - GRI 101: Foundation 2016, GRI 102: General Disclosures 2016; GRI 103: Management Approach 2016 [18–20]	✓	✓	✓ ^e	✓	✓	
6	Initiative for Responsible Mining Assurance (IRMA) Standard for Responsible Mining IRMA-STD–001, Draft v2.0 [27]	✓	✓	✓ ^f	O ^g	✓	
7	International Council on Mining & Metals: ICMM 10 Principles [23];	X	✓	X	✓	X	
8	International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability [24]	✓	✓	✓	✓	✓	
9	International Marine Minerals Society (IMMS) Code for Environmental Management of Marine Mining [25]	✓	✓	✓	✓	X	
10	InterRidge [26] statement of commitment to responsible research practices at deep-sea hydrothermal vents	✓ ^h	X	X	X	X	
11	Madang Guidelines: Principles for the Development of National Offshore Mineral Policies [48]	✓	X	X	X	X	
12	OSPAR Code of Conduct for Responsible Marine Research in the Deep Seas and High Seas of the OSPAR Maritime Area [55]	✓	X	X	X	X	
13	Pacific-ACP States Regional Legislative and Regulatory Framework for Deep Sea Minerals Exploration and Exploitation [62]	✓	✓	✓	✓	✓	
14	World Bank Environmental and Social Framework (ESF) [38]	✓	✓	✓	✓	✓	

^a The CCCMMC guidelines call for companies to adopt a company policy on the mineral supply chain from high-risk conflict areas. This policy should be communicated not only to suppliers but to the general public. One of the risks defined as a Type 1 risk (contributing to serious human rights abuses) is failure to disclose royalties, taxes or other payments from conflict or high risk areas in accordance with the EITI principles. Another risk defined as Type 2 (associated with serious misconduct in environmental, social and ethical issues) is failure to report impacts and disclose environmental or social performance to stakeholders in an appropriate and timely manner, and includes obtaining stakeholder feedback.

^b Stakeholders can submit complaints concerning the guidelines. The main text references a grievance mechanism as being in the appendix, but it could not be found (CCMMMC, P. 32).

^c Under Article 11 of the London Protocol, the compliance procedures and mechanisms are to allow “full and open exchange of information”. Contracting parties under Article 14 Parties are to “promote the availability of relevant information to other Contracting Parties” upon request. It is not stated that this information be publicly available. Most documents on the International Maritime Organization’s web site are password protected for use by Contracting Parties.

^d Article X, XI (Settlement of Disputes) of the London Convention and Article 16 of the London Protocol.

^e GRI accreditation and compliance is self-assessed.

^f Additionally, there is an IRMA requirement for public reporting of due diligence undertaken to ensure that mining activities in high risk conflict areas do not support armed conflict or human rights abuses.

^g The current draft allows for access to compliance information upon request (the previous draft allowed for public reporting).

^h One of the Responsible Research Practices is to ensure research is well known and this includes utilisation of public domain databases to share information. A public InterRidge database has been in development.

below, and compared with the ISA's current practices.

3.1. Access to information

Reasonable access to information is recognised as a central transparency expectation in all but one of the standards examined (ICMM).¹⁵ Access to environmental information in particular is associated with the right of every person “to live in an environment adequate to his or her health and well-being,” for present and future generations (Aarhus Convention, Art. 1). Likewise, UNCLOS specifies that data necessary for the formulation by the ISA of rules, regulations and procedures concerning protection of the marine environment and safety shall not be deemed proprietary (UNCLOS, Annex III, 14(2)).

The ISA's current rules and regulations, however, have very little language about transparency or access to information. Regarding non-confidentiality of information, the aforementioned requirement in the Law of the Sea (UNCLOS, Annex III, 14(2)) is repeated in the Mining Code, but not elaborated. In contrast, the ISA's operational rules and regulations elaborate considerably upon *confidentiality* (e.g. clauses 12.1–12.3 concerning information presented to the Legal and Technical Commission [29]). Indeed, the ISA's focus on confidential information continues through to present, with new confidentiality protocols under consideration [35,37]. In Draft Regulations, transparency is only mentioned twice, in both cases without elaboration or specific requirements ([35]; reg. 17(e), 81(b)). Confidentiality, on the other hand, appears in 37 places.

Critically, the proposed and existing rules do not specify how confidentiality is to be determined. The draft documents to date broadly describe the nature of what could be confidential and what should constitute publicly available information, but currently leave the decision of confidentiality to be the prerogative of the Contractor and the Secretary General, based on designations provided by the Contractor ([33], Art. 46, esp. 46(6); [35]; reg. 75). If the Secretary-General disagrees with the Contractor, the Draft Regulations specify that there are just 30 days to register that disagreement ([35], reg. 75(3)). Otherwise, the applicant's / Contractor's designation of confidentiality will presumably stand for the duration of the application or contract (proposed to be 30 years). The opinions of external experts will only be sought if the matter is taken by the Contractor to a formal dispute panel ([35], reg. 75(3) & 92). Third parties, such as ISA members and observers, other experts, or the general public, are not able to dispute confidentiality.

The existing Mining Code specifies that “...data and information relating to the protection and preservation of the marine environment, in particular those from environmental monitoring programmes, shall not be considered confidential” ([31], reg. 7(1)). Nevertheless, no such data have yet been released. Madureira et al. [49] suggest that the lack of environmental data sharing is not intentional but rather a result of a failure to implement modern data reporting standards, which the authors (some of whom are members of the ISA's Legal and Technical Commission (LTC)) claim will be solved by the use of a new reporting template recently developed by the LTC.

The 14 standards examined do not generally specify the format / form of the information or data to be made available, though this can greatly affect the utility of the information. Up-to-date data (and meta-data) standards that reflect commonly adopted technologies help ensure that the data are usable. The Aarhus Convention simply specifies ‘in the form requested’ unless another format is already publicly available or otherwise more practical ([2], 4.1(b)¹⁶). The ISA has recently created reporting forms [32], but has not yet agreed to digital

data standards. Given the oceanographic setting for seabed mining, adherence to standards adopted by the UN International Oceanographic Commission and the Global Ocean Observing System could provide valuable guidance for the environmental observing data and reporting standards.

Only about one third of the standards (5/14) explicitly recognise that some information may be held as confidential, usually characterised as being commercially sensitive or proprietary. Only one of the 14 standards we examined outlines a procedure to determine confidentiality ([20], Section 3.2). In all cases, however, there is an assumption that once confidential / exempted information is separated out, the remainder of the information will be made available.

Consideration for embargoing information, whereby there is a possibility that proprietary information can be released after a certain time, is not mentioned in the standards (0/14). However, this is now a common feature of publicly funded research grants, where data and publications must be released “within a reasonable time” (e.g. [4]; Art. 9¹⁷), which typically ranges from 6 to 24 months ([56]; Section 3.6¹⁸). Likewise, it is a consideration in the ISA's Mining Code, whereby information associated with exploration contracts more than 10 years old may be released.¹⁹ To our knowledge, however, no data have yet been released by the ISA under this provision.

In contrast to the exploration contracts, the Draft Regulations do specify that exploitation contracts, redacted of confidential information, should be made publicly available ([35]; draft reg. 12(3)).

3.2. Reporting

Reporting is related to, but distinct from, access to information, in that it involves disclosure –either voluntary or mandatory. Reporting typically summarises activities and data for the benefit of the regulator and/or the public. Whilst reporting alone has been criticised as sometimes being conflated with sustainability [53] and that companies' reported claims under voluntary initiatives need to be treated with caution, reporting can bring to light good practices as well as areas of possible concern that might otherwise go undetected [21]. However, there is also a need to critically engage the mining industry towards more accurate reporting [21].

In one standard examined (Global Reporting Initiative; GRI), reporting is the central theme. Most of the standards have some sort of reporting requirement, outline what needs to be reported upon and the level of detail (11/14). Most of these also specify the reporting frequency (9/14). In the standards reviewed, which party makes the reports available varies, sometimes being the proponent (e.g. businesses adhering to the GRI) and sometimes the regulator (e.g. International Maritime Organization; IMO) as regards the London Convention and Protocol, or in the case of third party accreditation, the third party (e.g. Extractive Industries Transparency Initiative; EITI) and often the proponent as well (e.g. World Bank). There does not appear to be a best practice in this regard, and this question is still under discussion in the one draft standard we examined (IRMA). Reporting can also apply to State Parties, such as under the Aarhus Convention, or in the case of the ISA, contracting States.

Although the ISA has longstanding reporting requirements, now using a reporting template effective as of 2016, none of the Contractor's annual reports submitted to the ISA have been made publicly available.

¹⁷ Applicable to granting by US National Science Foundation.

¹⁸ Applicable to granting by the UK Natural Environment Research Council.

¹⁹ E.g. ISA Nodule regulations, ISBA/19/C/17, 36(4): “Ten years after the date of submission of confidential data and information to the Authority or the expiration of the contract for exploration, whichever is the later, and every five years thereafter, the Secretary-General and the contractor shall review such data and information to determine whether they should remain confidential. Such data and information shall remain confidential if the contractor establishes that there would be a substantial risk of serious and unfair economic prejudice if the data and information were to be released [...]”.

¹⁵ In another, however, access to documents is limited to signatories (London Convention and Protocol –note iii, Table 1.

¹⁶ The Aarhus Convention also specifies that data shall progressively be made available in publicly accessible electronic databases (Art. 5.3).

Neither has the LTC explained the rationale behind its recommendations to accept these reports (none have been rejected). Likewise, Finance Committee reports do not include audited statements or similar explanatory details. Therefore, it is difficult to assess whether ISA reporting requirements have been met, and whether the reporting (and the forthcoming data) templates are being adhered to.

The ISA's Draft Regulations are currently silent on the question of releasing Contractors' annual reports ([35]; draft reg. 37).

3.3. Quality assurance

Quality assurance mechanisms instil confidence in the information being provided. Quality assurance can extend from the collection of raw data, their analyses, through to reporting. Regulators will typically set minimum standards for baseline data. It may be up to the regulator to monitor for quality assurance, or in the case of third party certification, the third party (or an assessor certified by it). Voluntary codes of conduct often rely upon the respondent to self-monitor. While quality assurance is a broadly accepted best practice (10/14), most of the standards examined did not explicitly require public reporting of quality assurance (just 2/14, with limited requirements –Table 1), though in some instances it may be inferred as part of the general reporting requirement.

Public access to scientific information (i.e. to raw data and meta-data) could allow for further independent verification of reported results and also provide another avenue of quality assurance through public scrutiny. In the standards examined, however, the possibility of public verification does not appear as a rationale for access to information.

In the ISA, quality assurance of applications and annual reporting is carried out by its Legal and Technical Commission; however, the details of these assessments are not made public, and it is unclear whether data contained within annual reports have been independently verified.

3.4. Compliance information / accreditation

Although the standards range from voluntary to mandatory, there is the expectation in all of them that signatories / parties will seek to abide by them. However, a means by which to assess how well parties are actually adhering to the standard (i.e. a compliance information mechanism and/or an accreditation process) is not always a component of the standards, particularly the 'softer' principle-based ones, and appears in half of the standards here (7/14). Clearly there is some disincentive on the part of the parties to self-report non-compliance. Nevertheless, the value of compliance reporting in voluntary standards should not be under-estimated, as that in the absence of more formal legal structures, this is one of the few ways by which volunteer parties can point out problems in the standard, request technical assistance, and ultimately demonstrate their adherence. Determining compliance can be difficult, and has been a key driver of revisions to some of the standards here, particularly those that provide accreditation (e.g., EITI, GRI). In the absence of compliance reporting, it has proven difficult for responsible secretariats to determine whether well-intended voluntary standards are indeed being followed (pers. comms. with the OSPAR Secretariat and the IMMS).

The ISA currently does not publish compliance information (nor does it accredit activities). It is therefore unknown the degree to which compliance is being evaluated. Likewise, the degree to which Contractors accurately report their activities is also unknown.

3.5. Public participation

Public notification and participation in environmental decision-making is now broadly accepted to be international best practice. Principle 10 of the Rio Declaration on Environment and Development [58] and the Aarhus Convention [2] both recognise the need for public

participation and the importance of public access to information in facilitating participation. The standards examined likewise broadly reflect this principle (11/14 to an extent; 10/14 more specifically –Table 1). However, application of this principle varies widely. The Aarhus Convention specifies a clear procedure (Art. 6.1(d).) It continues: "Procedures for public participation shall allow the public to submit, in writing or, as appropriate, at a public hearing or inquiry with the applicant, any comments, information, analyses or opinions that it considers relevant to the proposed activity" (Art. 6.7). Such an approach is now common in national environmental impact assessment procedures [46] and could be implemented at multiple points throughout the life of a deep-sea mining project [12].

With regard to assessing possible environmental impacts of DSM exploration applications and the awarding of said contracts, the ISA has not to date consulted the public, relying exclusively on the recommendations of its Legal and Technical Commission (LTC), which deliberates behind closed doors. (To date, all exploration applications have been approved.) However, concerning exploitation and the ongoing development of these regulations, the process has been more inclusive. The ISA has since 2015 used the internet to solicit public comments.

The ISA Discussion Document [34] uses the term 'transparency' frequently, mainly with regard to public participation and access to decisions. However, the 'public' is differentiated from 'Interested Persons' and 'Appropriately Qualified Experts.' The former is used mainly with regard to public awareness and public concerns; but with regard to consultations, the latter two terms are employed. Much of the public consultation discussed in the January 2017 Discussion Document is not reflected in the August 2017 Draft Regulations; however, the term Interested Person(s) is retained, and defined as: "a natural or juristic person or an association of persons that, in the opinion of the Authority, is directly affected by the carrying out of Exploitation Activities in the Area or who has relevant information or expertise" ([35]; schedule 1). Note that neither ISA State Parties nor Observers are necessarily included in this draft definition, relying upon the opinion of the ISA.

3.6. Ability to review and appeal decisions

In addition to a public consultation procedure, most of the standards (such as those of the World Bank and IFC) also recognise the need for a public appeal / grievance mechanism; i.e. the 'third pillar' of the Aarhus Convention (9/14 broadly, 8/14 more specifically –note ii, Table 1). The purpose of such a mechanism is to allow reasonable public concern to be heard, with the possibility of revising or reversing a decision.

The ISA currently has no analogous review and appeal procedure in place. All contracts are ultimately to be approved by the State Parties of its largest body, the Assembly, after having been recommended by the LTC and approved by its executive body, the Council. In practice, this has occurred within the two-week period of its annual meeting. Legally, it is possible that Assembly may delay a vote pending an advisory opinion of the Seabed Disputes Chamber of the International Tribunal for the law of the Sea ([38]; UNCLOS, Art. 159.10), though this has never occurred. State Parties and other related parties (e.g. Contractors) may raise certain issues with ITLOS, for example concerning interpretation of the terms of their contract, and such hearings would be public unless the Tribunal decides otherwise, or unless the parties demand that the public not be admitted (UNCLOS, Annex VI, 3.26.2).²⁰ However, with regard to reviewing ISA decisions, ITLOS's powers are strictly limited by UNCLOS Article 189, which effectively removes ITLOS as a possible avenue for grievance or appeal:

The Seabed Disputes Chamber shall have no jurisdiction with regard to the exercise by the Authority of its discretionary powers in

²⁰ To date, no such hearings have ever been held.

accordance with this Part; in no case shall it substitute its discretion for that of the Authority [...] the Seabed Disputes Chamber shall not pronounce itself on the question of whether any rules, regulations and procedures of the Authority are in conformity with this Convention, nor declare invalid any such rules, regulations and procedures [...].

The Zero Draft [33] allows for only the Contractor to appeal decisions regarding the awarding, prolongation, or termination of their contract, and confidentiality of their information. Third party requests (e.g. from civil society) for appeal or review are not considered. The Draft Regulations [35] contains no specified appeal procedures.

3.6.1. ISA’s internal review process with regard to transparency

UNCLOS article 154 requires the ISA to undergo an internal review every five years. The ISA began operating in 1996 and commenced its first review in 2015. An independent consultancy released its interim report in 2016 [59], which was subsequently revised based on comments at the ISA’s 2016 session and afterwards [60]. In these two reports by the consultants, there were many instances where transparency was raised, and four (of 34) final recommendations have transparency as the central focus ([60]; rec. 31–34).

In early 2017, the ISA’s internal review committee published its own report in response. The differences in opinion between the external consultancy and the internal ISA committee are striking. Variants of some of the consultants’ recommendations can be found; e.g. opening up portions of LTC meetings ([36]; rec. 16). However, concerning data sharing, there is only provisional recognition that there might be an issue (“...the sharing and accessing of environmental data collected by contractors seems to require improvement” ([36]; rec. 6)). The consultants, suggest that the ISA should develop a policy on transparency and conflicts of interest and revise its regulations to set standards for confidentiality ([60]; rec. 31). However, no such recommendation appears in the ISA’s review committee report. The general rationale

provided for not including some of the consultants’ recommendations is:

[...] The Committee decided not to pursue some of the recommendations as it became evident during its deliberations that they were quite far removed from the practices that the Authority had developed over the past 20 years and were currently unlikely to be accepted by consensus. [...] ([36].; para. 7).

It is worth recalling that in the ISA’s rules of procedure, voting is permitted in both Council and Assembly when consensus cannot be found ([29,30]; rules 56 and 61, reflecting the annex to the Part XI Agreement, [70] Section 3.5). However, the core of the Committee’s explanation risks giving the impression that because the ISA has not yet developed policies on data transparency, conflicts of interest, or standards for confidentiality, it is unlikely to do so. The Article 154 Review Committee report was subsequently accepted at the ISA’s 2017 annual session in August.

4. Conclusions

The six components of good practice that emerged from this analysis are: i) access to information; ii) reporting; iii) quality assurance; iv) compliance information / accreditation; v) public participation; and vi) ability to review / appeal. It is posited here that these six expressions of best practices in transparency, which appear consistently across natural resource governance, should also be applicable to DSM.

The rules and regulations of the ISA have been forward thinking in some respects, such as allowing for the release of information after a given time period, and calling upon a precautionary approach (though more needs to be done to operationalise it [40]). Furthermore, the Draft Regulations do indicate that transparency may be improving in some regards (e.g. making exploitation contracts publicly available). In many other ways, however, the ISA’s rules, regulations, and procedures do

Table 2
Recommendations arising from this analysis.

Component	Recommendations ^a
i Access to information	<ol style="list-style-type: none"> 1. Develop ISA policies on a) transparency, b) criteria and a process for determining when information is confidential. 2. Strengthen Draft Regulations to <i>require</i> publicly accessible data and information relating to the protection and preservation of the Marine Environment, as well as health and safety. 3. Develop an electronic database(s) compatible with existing international standards, capable of housing all data collected by contractors.
ii Reporting	<ol style="list-style-type: none"> 4. Require publication of exploration and exploitation^b contracts. 5. Publish annual reports submitted by Contractors. 6. Publish annual (audited) financial statements. 7. Require Committees to explain in their reporting to Council the rationale behind recommendations, including alternatives that were considered, and any dissenting opinions.
iii Quality assurance	<ol style="list-style-type: none"> 8. Publish environmental scoping reports, environmental impact assessments, environmental monitoring and closure plans.^c 9. Develop quality assurance / quality control (QA / QC) standards that the LTC and Finance Committee will follow when assessing data and reports.
iv Compliance information / accreditation	<ol style="list-style-type: none"> 10. Require ISA Committees to report annually on QA / QC results for each active Contract, as well as compliance with reporting requirements. 11. Allow for independent third-party verification of scientific data and financial information.
v Public participation	<ol style="list-style-type: none"> 12. Establish a publicly visible process for addressing non-compliance. 13. Continue to solicit public comments on the development of regulations. 14. Report back on comments received and how they were addressed. 15. Expand public participation as discussed in the 2017 Discussion Document, including dedicated access to Committee meetings. 16. Broaden the definition of ‘Interested Persons’ to include, inter alia, ISA State Parties and Observers, and a process to determine eligibility.
vi Ability to review / appeal decisions	<ol style="list-style-type: none"> 17. Establish a mechanism to allow for review and appeal of ISA decisions, including requests from third parties, concerning, inter alia, awarding and terms of contracts; approval of plans of work, environmental assessments and closure plans. 18. Re-consider the next Article 154 review committee structure such that a balance of external experts are included in its membership.^d

^a Recommendations concerning the release of information assume that any confidential information will be identified and redacted (see recommendation 1b).

^b The Draft Regulations require publication of exploitation contracts but existing exploration regulations do not.

^c The Draft Regulations are silent on the question of final reports, but do require publication of the drafts.

^d Equal balance of internal – external membership in review committees is commonly accepted practice in regional fisheries management organisations.

not reflect modern best practices. Applying to the ISA the six expressions of best practices in transparency found here, several deficiencies were revealed: environmental and safety information have not been made available; annual reports are treated as confidential; quality assurance is unclear and not reported upon; compliance of States and contractors to ISA and related obligations is not reported upon; public participation is limited, with observers unable to participate in, or observe, key committee meetings; and, there are very limited avenues for civil society (or States Parties) to seek review or appeal of ISA decisions.

By not providing access to critical information, the ISA is at the mercy of its detractors. DSM is contentious, and spurious accusations are very difficult to evaluate or to defuse.²¹ Improved transparency, while not sufficient on its own, is nonetheless a key element of natural resource governance that is accountable, and thus more likely to yield desired trust from, and enduring benefits for, civil society, consistent with the common heritage of humankind principle. The ongoing drafting of ISA's DSM exploitation regulations offers a once-in-a-generation opportunity to build greater accountability and trust through greater transparency and public cooperation, for current and future generations.

The results of our analysis clearly suggest that the International Seabed Authority will need to develop additional rules, regulations, and procedures if it wants to align with the international standards evaluated here. Contemporary transparency practices that have arisen from experiences in analogous industries could improve the long-term stability of the ISA. The rationale of the ISA's Article 154 Review Committee to not pursue several of the recommendations of the independent consultancy, including the development a transparency policy, remains obscure ([60]; rec. 31). This recommendation and other possible areas of improvement as a result of our analysis are summarised below (Table 2).

Because current ISA practices do not generally reflect international best practices in transparency, ensuring accountability from either the institution or its contractual parties engaged in mining will be difficult. Adding transparency to the ISA's rules, regulations, and procedures would further enable critical scrutiny, open debate, and informed decision making concerning the common heritage resources of the Area beyond national jurisdiction.

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Appendix A. Supporting information

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