

The role of the environmental impact assessment in the exploration and exploitation activities on the deep seabed

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List of abbreviations

ABNJ	Areas beyond national jurisdiction
BBNJ	Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction
CBD	The Convention on Biological Diversity
EIA	Environmental impact assessment
EU	European Union
HELCOM	The Baltic Marine Environment Protection Commission
ISA	International Seabed Authority
ICJ	International Court of Justice
ITLOS	International Tribunal for the Law of the Sea
LTC	The Legal and Technical Commission
LOSC	United Nations Convention on the Law of the Sea
MGR	Marine genetic resources
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
SEA	Strategic environmental assessment
VCLT	Vienna Convention on the Law of Treaties

1 Introduction

1.1 The objective of the thesis

Human activities impact the environment. This applies to activities on land and to the different human activities that affect the oceans, such as shipping, oil and gas extraction, fishing and deep seabed mining. International law prohibits activities that have a significant adverse effect on neighboring countries and areas beyond national jurisdiction.¹ It supplements this rule by a procedure called an environmental impact assessment (EIA) to examine the potential impacts of activities upon the environment with the aim to avoid serious harm.²

Through new technologies and intensified research, humans have acquired knowledge of the marine areas as a holder of a high quantity of non-living resources. This thesis focuses on the legal regulation of EIAs in the context of the exploration and exploitation of mineral resources of the deep seabed. This deep seabed is beyond national jurisdiction and is referred to as “the Area” in the United Nations Convention on the Law of the Sea (LOSC).³

Exploration of deep seabed minerals in the Area has already begun. It is not yet known when commercial exploitation of deep seabed minerals in the Area will begin, but the “development of an environmental management plan reflects the need to be proactive in order to promote environmentally responsible seabed mining”.⁴ The primary objective of the thesis is to assess the rules for EIAs as applicable to deep seabed mining in areas beyond national jurisdiction (ABNJ). The rules that govern activities on the seabed outside national jurisdiction are analyzed in the context of other instruments, which makes it possible to assess the legal challenges in a comparative manner. The ideal aim in international law is that EIAs work as a tool for sustainable development.⁵ The thesis examines whether the international legal framework on EIAs is sufficient to meet this ideal aim.⁶

¹ Birnie et.al, *International Law and the Environment* Third edition (2009) p.137

² Ibid, p.164-165

³ 1982 United Nations Convention on the Law of the Sea, 1834 UNTS 397

⁴ United Nations: A/66/70 para.59

⁵ Peters and Kumar, “Achieving Sustainability through Effective Mechanisms of Environmental Impact Assessment and Strategic Environmental Assessment”, *European Energy and Environmental Law Review* Volume 22 (2013) p.79

⁶ Holder and Lee, *Environmental Protection, Law and Policy* Second Edition (2007) p.560

As there is yet no specific legal framework for a conservation about biological diversity in ABNJ, this thesis gives only some indications about the process and challenges.

Deep seabed activities present potential commercial benefits. At the same time, deep seabed mining is certain to impact the ecosystem as a whole, although the exact consequences and the extent of harm are yet unknown.⁷ This raises questions about how deep seabed mining should be carried out and at the same time contribute to the sustainable development of the ecosystem as a whole.

The topic of the thesis is inspired by the increased focus on deep seabed mining exploration and potential future exploitation activities, seen in conjunction with the increased focus and emphasis of the sustainable development of marine ecosystems. The need to protect and preserve biological diversity in ABNJ are being discussed in the meetings of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction (BBNJ Working Group), which are working on a potential new implementing agreement to LOSC on biodiversity in ABNJ.

1.2 Research questions

The ideal aim in international law is that EIAs work as a tool for sustainable development.⁸ The main question is whether the international legal framework on EIAs is sufficient to meet this ideal aim.⁹ This question will focus on the marine environment. Furthermore, the author will assess whether the framework of EIAs on different activities and different maritime zones is consistent or fragmented, and the extent to which the rules on EIA in the different frameworks can be compared.

The obligation to conduct EIAs for activities in the deep seabed is procedural under international law, and does not disclose the kind of decisions that a state must make. The precautionary approach is linked to sustainable development.¹⁰ In cases of scientific uncertainties, the precautionary approach aims to provide guidance in the application of

⁷ Bastmeijer and Koivurova, *Theory and Practice of Transboundary Environmental Impact Assessment* (2008) p.385

⁸ Peters, "Achieving Sustainability through Effective Mechanisms of Environmental Impact Assessment and Strategic Environmental Assessment" p.79

⁹ Holder, *Environmental Protection, Law and Policy* p.560

¹⁰ Sands and Peel, *Principles of International Environmental Law* Third edition (2012) p.219

international environmental law.¹¹ Another research question emphasized in this thesis is whether the precautionary approach has an impact on the commencement of activities, even if the rules on EIAs do not prevent a state from proceeding with a project.

Based on the findings arising from these questions, this thesis will evaluate the adequacy of the rules on EIAs in relation to the legal challenges to meeting the uncertainties of deep seabed mining.

1.3 Legal sources and methodology

In relation to the outlined title of the thesis, the relevant legal sources are found within the law of the sea itself. The focus is to give a methodological reflection of EIAs and deep seabed mining, which represents a normative approach. EIAs are a tool that is part of international environmental law. As such, they are conceptually part of the law of the sea dealing with the marine environment, and environmental law and the law of the sea are closely related when an EIA is used to assess damages to the marine environment. Therefore, these aspects of international law are not distinguished in this paper.

An assessment of the procedural rule that applies to conducting an EIA in conjunction with the development of customary international law may provide answers to the research questions presented above. Customary international law may guide assessing the legal question on the applicability of the precautionary approach to decision-making when the outcome of an EIA is uncertain.

Article 38 (1)(d) of the statute for the International Court of Justice (ICJ Statute) considers judgments of international courts to be “subsidiary means”.¹² Yet, it provides guidance on the interpretation of rights and obligations in international treaties. This is specifically relevant for framework conventions, such as the LOSC, which often lack clear and detailed rights and obligations. One could argue that the characteristics of framework conventions are the establishment of broad and unspecified obligations and a general system of governance, while leaving the establishment of more detailed rules and the setting of specific targets to subsequent agreements between the parties.¹³

¹¹ Ibid p.218

¹² 1945 Charter of the United Nations, 1 UNTS XVI

¹³ Matz-Lück, “Framework Conventions as a Regulatory Tool”, *Goettingen Journal of International Law* 1 (2009) p.446

A methodological challenge is presented by the fact that that no international court has, to the author's knowledge, rendered a judgment regarding deep seabed mining activities. Most likely, however, cases will arise when exploitation of seabed minerals potentially begins. Consequently, the primary objective of the methodical aspect is to perform a desk research to analyze the existing law and legal literature, meaning analyzing the sources without involving a field survey. In the legal methodical aspect, an empirical analysis is illustrative of how the procedural obligation on EIAs is carried out in practice. Due to spatial considerations, an empirical analysis and field survey falls outside of the scope of this paper.

One advisory opinion exists with respect to activities in the Area. A methodical challenge in this regard is the legal status of advisory opinions and their impact and importance as a source of law. Advisory opinions are not included in the list of sources prescribed by ICJ Statute Article 38. Contrary to judgments, the advisory opinions do not have binding effect, with certain exceptions. However, they might carry legal weight in terms of contributing to the development of international law.¹⁴ Additionally, advisory opinions are significant because it clarifies the obligations of a state.¹⁵

The legal sources will be identified in accordance with Article 38 of the ICJ Statute, whereas the legal method of interpreting the treaties will be in accordance with rules of customary international law on treaty interpretation as codified in Article 31 of the Vienna Convention on the Law of Treaties (VCLT).¹⁶

1.4 Scope and outline of the thesis

The primary objective of the thesis is to assess the rules for EIAs as applicable to deep seabed mining ABNJ. The scope of the thesis focuses on relevant frameworks within the law of the sea. The LOSC provides the only legally binding framework for mining activities at the deep seabed, situated in ABNJ. The main regulations are therefore to be found within the LOSC and the Regulations promulgated through LOSC by the International Seabed Authority (ISA), also referred to as the Mining Code.

¹⁴ International Court of Justice: advisory opinions, accessed 17. August 2016 <http://www.icj-cij.org/jurisdiction/index.php?p1=5&p2=2>

¹⁵ Poisel, "Deep Seabed Mining: Implications of Seabed Disputes Chamber's Advisory Opinion" *Australian International Law Journal* 213 (2012) p.1

¹⁶ 1969 Vienna Convention on the Law of Treaties, 1155 UNTS 331

The regulations in the Mining Code are analyzed in the context of other instruments that are applicable to activities with potential adverse effects on the marine environment, such as activities on the seabed in areas under national jurisdiction. This makes it possible to assess the legal challenges of EIAs in a comparative manner. The structure of the thesis is consistent with this analysis, and a general review of the other instruments is presented at first to move from the general to the more specific.

There are many important texts, guidelines and declarations than the above-mentioned instruments that contain obligations or recommendations regarding when to conduct EIAs and detailed rules on how they should be performed. Spatial considerations do not permit an examination of all of the international legal frameworks that cover EIAs. The list of instruments presented is not intended to be exhaustive, and the frameworks that are deemed most relevant for the purposes of this thesis are selectively presented. The instruments that will be compared to the LOSC and its Mining code are the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention),¹⁷ the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)¹⁸ and the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention).¹⁹ These conventions are relevant for comparison because the two latter conventions are usually praised as “modern” from an environmental law perspective, particularly when compared to the LOSC. The Espoo Convention is considered “the only really functioning multilateral” transboundary EIA regime.²⁰ Thus, it is considered sufficient to provide an assessment of these instruments as it allows identification of the main issues that are raised by the research questions.

Detailed soft-law regulations on EIAs exist, which can be “considered to provide an authoritative elaboration of the general obligation to carry out EIAs”.²¹ Nonetheless, soft-law is not specifically included, because they express a preference that the states concerned should

¹⁷ 1991 Convention on Environmental Impact Assessment in a Transboundary Context, 1507 UNTS 167

¹⁸ 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic, UNTS 67; 32 ILM 1069 (1993)

¹⁹ 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area, 2099 UNTS 197

²⁰ Koivurova, “Could the Espoo Convention Become a Global Regime for Environmental Impact Assessment and Strategic Environmental Assessment” in *Transboundary Environmental Governance: Inland, Coastal and Marine Perspectives*, ed. Robin Warner and Simon Marsden (2012) p.336

²¹ Elferink “Environmental Impact Assessment in Areas beyond National Jurisdiction” *The International Journal of Marine and Coastal Law* 27 (2012) p.465 DOI: 10.1163/157180812X636598

act, without actually imposing the obligation upon them to act; thus they are not legally binding.²²

The thesis consists of five material chapters. The first chapter consists of this introduction, and aims to provide the reader with the context necessary to obtain an understanding of the problems related to the outlined topic of the thesis. The second chapter starts out with giving an elucidation of the scope and content of the procedural rule to undertake an EIA. In the different subchapters, customary international law and the selected legal instruments are analyzed in the context of their regulations on EIA. An assessment of these instruments will provide the information necessary to answer the part of the research question regarding whether the framework on EIAs are consistent or fragmented, and to compare the regulations with the regulations in the Mining Code.

The third chapter focuses on assessing the EIA related to deep seabed mining, and consists of discussions of the EIA rules as stipulated in the Mining Code. This is necessary in order to discuss the adequacy and the applicability of the rules on EIA in the Mining Code, and to obtain the information necessary to compare the rules in the Mining Code to the other legal instruments.

In chapter four, the rules of EIAs in the Mining Code as applicable to deep seabed mining will be discussed and will be analyzed in the context of the other selected instruments. This is done in order to answer the research question regarding whether the rules are consistent or fragmented for different activities and maritime zones, and to what extent the rules can be compared.

Chapter five explores the research question regarding whether the precautionary principle has an impact on the commencement of activities even if the rules on EIAs do not prevent a state from proceeding with a project. Furthermore, the chapter deals with the research question related to the adequacy of the EIA as a workable tool for sustainable development. The concluding chapter six highlights the remaining problems for EIAs and the desirable outcome of the future development of their legal regime.

²² Druel, "Environmental impact assessments in areas beyond national jurisdiction" *The Institute for Sustainable Development and International Relations*, p.33, accessed 17. August 2016 at http://www.iddri.org/Publications/Collections/Analyses/STUDY0113_ED_Environmental%20Impact%20Assessments.pdf

2 The EIA in international environmental law

2.1 Scope and content of the EIA

An environmental impact assessment may be defined as “a procedure for evaluating the likely impact of a proposed activity on the environment”.²³ The object and purpose behind EIAs is to impart information about the potential environmental impacts of activities before deciding whether the activity shall be authorized to commence.²⁴ The aim is to avoid harm and adverse implications to the ecosystem, and enable EIAs to work as a tool for sustainable development.²⁵ Sustainable development may be described as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.²⁶

Internationally, the obligation to conduct an EIA exists for activities at the terrestrial landscapes and at marine landscapes. The Espoo Convention, as one example, is applicable to both marine and terrestrial areas. Yet, the problems related to the EIA procedure are different due to the amount of knowledge about the different areas. The deep seabed, as an example, is situated far from human population and is difficult to observe because of the depths.

An EIA is considered a necessary tool in order to secure that the environmental perspectives are included in the decision making process by improving the quality of information to decision makers. Thus, EIAs are considered as mechanisms that improve the planning of activities and protection of the environment.²⁷ Thus, it is a procedural obligation intended to protect the environment. Assessing the risk of activities in advance may give the decision-makers the information necessary to mitigate the risks of adverse environmental impacts. To assess whether the EIAs have been important factors in the decision-making processes for exploration activities at the deep seabed, it is necessary to conduct an empirical analysis of the plan of works for the exploration contracts. An empirical analysis falls outside the scope of this paper.

²³ Espoo Convention Article 1(vi)

²⁴ Birnie et.al, *International Law and the Environment*, p.164-165

²⁵ Craik, *The International Law of Environmental Impact Assessment* (2008) p.77

²⁶ United Nations: A/42/427 Chapter IV para.1, accessed 29. August 2016, <http://www.un-documents.net/ocf-02.htm>

²⁷ Woodlife ”Environmental Damage and Environmental Impact Assessment” in *Environmental Damage in International and Comparative Law: Problems of Definition and Valuation*, ed. Michael Bowman et.al (2002)

As a procedural obligation, the regulations on EIAs intend to include environmental consideration into the preparatory work of plans and projects to reduce adverse impacts on the environment.²⁸ Thus, the EIA is a decision-making tool. Therefore, the result of the EIA is not binding, and if the entity that wants to continue the activity finds it economically important, the outcome of the EIA as such is not binding because of its procedural status.²⁹ One question is whether the precautionary approach, or precautionary principle, as some prefer to call it, may come into play where there are uncertainties in the assessments. The role of the precautionary approach is discussed in subchapter 5.1. The precautionary approach is defined in Rio Declaration.³⁰ In accordance with Principle 18, “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”, and a precautionary approach shall be widely applied.

In an EIA process, the relevant actors analyze the results based on scientific research. Hence, the legal assessments are closely related to science, which is linked to the marine environment in several ways.³¹ Scientific uncertainty in relation to deep seabed mining is one aspect that imposes a challenge to the EIA regime.³²

A related, but slightly different tool in the decision-making process has been developed in the recent years, namely strategic environmental assessment (SEA). The SEA is a less used tool than the EIA, but they are equally important.³³ The SEA differs from the EIA, as the SEA applies at a plan or programme level, not at a project level³⁴ to ensure that they are addressed at the earliest possible stage in the decision-making process. This system is capable of accommodating different aspects of decision making, at the deeper level of policy coordination.³⁵ By nature it covers a wider area or a wider range of activities, and often over a longer time span than the EIAs of projects. SEAs are considered as being sustainably driven in a proactive manner, whilst EIA may be seen as reactive. It is assumed that SEAs will be in

²⁸ Bastmeijer, *Theory and Practice of Transboundary Environmental Impact Assessment*” p.1

²⁹ Craik, *The International Law of Environmental Impact Assessment* p.4

³⁰ 1992 Rio Declaration on Environment and Development. UN Document. A/CONF.151/26 (vol. I)/31 ILM 874

³¹ Anderson ”Scientific Evidence in Cases under Part XV of the LOSC” in *Law, Science & Ocean Management*, ed. Myron Nordquist et.al (2007) p.508

³² Le Gurun, “Environmental impact assessment and the international Sea Bed authority” in *Theory and Practice of Transboundary Environmental Impact Assessment*, ed. Kees Bastmeijer and Timo Koivurova (2008) p.223-224

³³ Druel, ”Environmental impact assessments in areas beyond national jurisdiction” p.12

³⁴ Ibid

³⁵ Holder and Lee, *Environmental Protection, Law and Policy* p.597

a better position than EIAs to identify the cumulative effects of different activities.³⁶ This might be helpful for seabed activities in the sense that it may provide assessment of the long-term impacts on the marine ecosystem at the general plan, also considering the cumulative effects of activities conducted at the deep seabed. SEA permits a “broader assessment of policy objectives and are also applied to legislation”.³⁷ This allows for alternatives at a cross-sectoral level of choices and enables decision-making in line with the requirement of sustainable development.

2.2 Espoo Convention

The Espoo Convention applies to activities on lands and at sea, and is thus not restricted specifically to marine matters. The contracting parties are obliged to establish rules on EIAs in their national laws, c.f. Article 2(2). It can be called a “transnational EIA procedure”,³⁸ which builds on “the regular functioning of domestic legal and administrative systems, into which foreign impacts and foreign actors can be integrated”.³⁹

Thus, the way an EIA is carried out depends on the domestic law applicable to EIAs in the different states.⁴⁰ The obligation to establish EIA procedures applies only to proposed activities that are likely to “cause significant adverse transboundary impact”. The Convention requires each party to determine whether the activities are likely to cause significant adverse transboundary impacts to a territory of another state.⁴¹ Transboundary impact is defined as “any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the area under the jurisdiction of another Party”, c.f. Article 1 viii. Consequently, the Convention does not apply to activities that may impact ABNJ. Nevertheless, the Convention includes important aspects of the obligation to conduct an EIA.⁴²

Article 2(3) defines precisely the scope of the obligation to conduct an EIA by accentuating the obligation to establish national EIA procedures for the activities listed in Appendix I. The list is not exclusive, as Article 2(5) states that the concerned parties shall “enter into

³⁶ Elferink, “Environmental Impact Assessment in Areas beyond National jurisdiction” p.451, 452 and 478

³⁷ Holder and Lee, *Environmental Protection, Law and Policy* p.597

³⁸ Koivurova “The Transnational EIA procedure of the Espoo Convention” *Finnish yearbook of International law* Vol. VIII (1997) p.161

³⁹ Koivurova “Could the Espoo Convention Become a Global Regime for Environmental Impact Assessment and Strategic Environmental Assessment?” p.330

⁴⁰ *Ibid* p.331

⁴¹ *Ibid* p.334

⁴² Druel, “Environmental impact assessments in areas beyond national jurisdiction” p.12

discussions on whether one or more proposed activities not listed in Appendix I is or are likely to cause a significant adverse impact and thus should be treated as if it or they were so listed". Thus, mining on the continental shelves of states could be addressed, if included in the list of activities.

Article 2(2) articulates that the EIA procedure shall permit public participation in EIA documentation. Furthermore, Article 3(1) stipulates that each state that may be affected must be notified, and, in accordance with Article 2(6), the party of origin must provide an opportunity for the public in areas likely to be affected to participate in the EIA procedure. The aspect of including public participation is a good practice for an EIA, as it has been identified as necessary for implementing the precautionary approach and enabling well-informed decision-making.⁴³ Article 3(6) requires the affected state to provide the party of origin with information on the environmental conditions on its side of the border, and Article 6(1) expects the state that wants to conduct the activity to take due account of the information made by the affected state and the public, which is important in deciding how the adverse impacts will be mitigated.⁴⁴ Nevertheless, the affected state is not vested with a right of veto,⁴⁵ and it is up to the state of origin whether it will take into consideration the information provided by the potentially affected state.

The EIA must be prepared in accordance with Appendix II, which defines the minimum components of an EIA and provides a relatively detailed list of the aspects that must be incorporated in the assessment, c.f. Article 2(2). Thus, the parties are under an obligation to "conduct an EIA as described in Appendix II to this Convention with respect to every proposed activity that is likely to cause significant adverse transboundary impact".⁴⁶ The contracting parties might have a somewhat similar procedure because of the list of components that has to be included in the EIA as reflected by Appendix II. In addition to a relatively detailed procedure for conducting an EIA, the Convention has adopted a Protocol on SEAs.⁴⁷

⁴³ Craik, *The International Law of Environmental Impact Assessment* p.147

⁴⁴ Koivurova "Could the Espoo Convention Become a Global Regime for Environmental Impact Assessment and Strategic Environmental Assessment?" p.331-332

⁴⁵ Pineschi "The duty of environmental impact assessment in the first ITLOS Chamber's advisory opinion: towards the supremacy of the general rule to protect and preserve the marine environment as a common value?" in *International Courts and the Development of International Law*, ed. Nerina Boschiero et.al. (2013) p.433

⁴⁶ Elferink "Environmental Impact Assessment in Areas beyond National Jurisdiction" p.466

⁴⁷ Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context, UN Doc. ECE/MP.EIA/2003/2 (May 21, 2003)

Appendix IV consists of rules on independent expert reviews, which is also considered as good practice for EIA procedures. These reviews are important factors for the question on whether a proposed activity listed in Appendix I is likely to have a significant adverse transboundary impact.⁴⁸ This is important to ensure the quality of environmental decisions, which should be well informed and based on sound scientific grounds.⁴⁹

Because of the procedural nature of an EIA, the Espoo Convention does not establish the consequences of the outcome of EIAs. If the state considers that the activity is economical feasible, and the implication on the activity is uncertain, it is still the state's decision whether it will commence the activity. Furthermore, the Convention does not include the precautionary approach. Article 6(1) states only that due account must be taken of the outcome of the EIA when making the final decision on the activity. "Due account" is a general notion, which does not impose a strict obligation to act by choosing the alternative that has the best environmental outcome. Nevertheless, it indicates that the party of origin has to take careful consideration of the outcome of the EIA. Additionally, the obligation to consider the public participation by both the party of origin and potential affected states lays the foundation for effective co-operation, which may be beneficial from the environmental perspective. This is because it might provide the decision-makers with more information, which will enable them to take environmental sound decisions.

The general objective is that parties must take all appropriate measures to prevent, reduce and control significant adverse transboundary impacts from proposed activities, c.f. Article 2(1). This illustrates that the Convention does not contain strong substantive guidance, because it expresses a "goal rather than a substantive standard".⁵⁰ Nevertheless, to proceed with an activity that may impose adverse impacts may breach substantive obligations in other legally binding instruments. An example in this regard is the general obligation in LOSC Part XII to protect and preserve the marine environment. As reflected in VCLT Article 31, interpretation will also consider together with the context, "any relevant rules of international law applicable in the relations between the parties".

⁴⁸ Espoo Convention Appendix IV paras.1 and 2

⁴⁹ Lallier and Maes, "Environmental impact assessment procedure for deep seabed mining in the area: Independent expert review and public participation," *Marine Policy Vol.70* (2016) p.7, accessed 30. August 2016 DOI: <http://dx.doi.org/10.1016/j.marpol.2016.03.007>

⁵⁰ Koivurova, "Could the Espoo Convention Become a Global Regime for Environmental Impact Assessment and Strategic Environmental Assessment?" p.335

2.3 Customary international law

In 2010, the ICJ explicitly stated in the Pulp Mills case that the obligation to carry out EIAs when an activity is likely to cause significant adverse impact is a part of customary international law.⁵¹ The case deals with a specific treaty between the parties to the dispute, which entered into force in September 1976.⁵² Despite the treaty, the ICJ elaborated a general rule of customary international environmental law. Consequently, all states are under an obligation to conduct an EIA when an activity is likely to cause significant adverse impact, even though they are not a contracting party to an international instrument that includes obligations regarding EIAs. The question is whether the status as customary international law provides substantive clarification of the procedural aspect of EIAs and their ability to work as a tool for sustainable development.

In 1996, the ICJ rendered an advisory opinion in which it stated that the general obligation of states to ensure that “activities within their jurisdiction and control respect the environment of other states or of areas beyond national control is now part of the corpus of international law relating to the environment”.⁵³ The Court in the Pulp Mills case referred to the advisory opinion, and noted that a state is “obliged to use all the means at its disposal in order to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another state”.⁵⁴ This may be referred to as the no-harm rule, and ICJ established that this obligation “is now part of the corpus of international law relating to the environment”.⁵⁵

By referring to activities that might cause significant damage to the environment of “another state”, the ICJ appears to be limiting the applicability of the customary law status of EIAs to harm caused to areas within national jurisdiction, not to activities that may have an impact in ABNJ. The Court noted that the obligation to undertake an EIA has gained so much acceptance that it may be considered a requirement under international law, and obligation to conduct EIAs occur “where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource.”⁵⁶

⁵¹ Pulp Mills on the River Uruguay I.C.J. Reports 2010 para.101

⁵² 1975 Statute of the River Uruguay, 1295 *UNTS* 340

⁵³ Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, I.C.J. Reports 1996 (I) para.29

⁵⁴ Pulp Mills para.101

⁵⁵ *Ibid*

⁵⁶ *Ibid* para.204

The word “transboundary” is often related to areas within a national jurisdiction, hence territorial seas or exclusive economical zones.⁵⁷ However, the Court’s references to “shared resources” may also apply to resources that are the common heritage of mankind.⁵⁸ However, the geographical area of application of the Pulp Mills case is unclear.⁵⁹

It is reasonable to assume that the general statement from the ICJ on the customary law status of an EIA is not limited to activities in areas under national jurisdiction, but also activities under the jurisdiction and control of a state and when these activities are undertaken in ABNJ. This assumption is supported by the fact that the Seabed Disputes Chamber of the International Tribunal for the Law of the Sea (ITLOS) referred to this judgment and by the customary law status of EIAs in the advisory opinion on the responsibilities and obligations of states sponsoring persons and entities with respect to activities in the Area (Hereinafter ITLOS advisory opinion concerning activities in the Area). The Chamber stated that although the Court aimed at a specific situation, “the language used seems broad enough to cover activities in the Area even beyond the scope of the Regulations”.⁶⁰

The Chamber seems to argue that the statement of the customary law status of EIAs in the Pulp Mills case is applicable to ABNJ.⁶¹ An aspect worth mentioning is that the no-harm rule articulated in Principle 2 of the Rio Declaration covers ABNJ, which articulate that states have the responsibility to “ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction”. Furthermore, the object and purpose of the rules on the protection and preservation of the marine environment in Part XII of the LOSC are meant to cover the whole marine area, including ABNJ. An effective way to obtain information on whether the activity may cause serious harm to the environment is to perform an EIA. With this information, the state is in a better position to make decisions in accordance with the obligation to protect and preserve the environment.

⁵⁷ Rayfuse, “Differentiating the Common? The Responsibilities and Obligations of States Sponsoring Deep Seabed Mining Activities in the Area” in *German Yearbook of International Law* Volume 54 ed. Thomas Giegerich et.al (2011) p.479

⁵⁸ Pulp Mills paras.145 and 148

⁵⁹ Koivurova, “Could the Espoo Convention Become a Global Regime for Environmental Impact Assessment and Strategic Environmental Assessment?” p.329

⁶⁰ ITLOS Advisory Opinion on responsibilities and obligations of states sponsoring persons and entities with respect to activities in the Area, Case No. 17, 1.February 2011 para.148

⁶¹ Ibid

Another question is whether the ICJ judgment in the Pulp Mills case provides substantive clarification of the scope and content of the EIA and its capability to work as a tool for sustainable development. The Court stated that the rules on EIAs are applicable to activities that may have a significant adverse impact, thus requiring a specific threshold that has to be fulfilled before EIA obligations apply.⁶² Factors that must be taken into account are “the nature and magnitude of the proposed activity and its likely adverse impact on the environment, as well as the need to exercise due diligence in conducting an EIA”.⁶³ Despite the aspects of the conditions of EIAs, the Court leaves a large margin of discretion to the states. Consequently, the implementation of this obligation by individual States will most likely not lead to a coherent and effective EIA regime for ABNJ.⁶⁴

The ICJ stated that “due diligence, and the duty of vigilance and prevention which it implies, would not be considered to have been exercised, if a party planning works liable to affect the régime of the river or the quality of its waters did not undertake an environmental impact assessment on the potential effects of such works”.⁶⁵ The ICJ thereby linked the procedural obligation to conduct an EIA to the substantive obligation to cause no-harm. This can provide a stronger substantial basis for the EIAs, even though it is considered as a procedural obligation. If a state does not conduct an EIA before commencing the activity, and harm does occur, it will be hard for the state to argue that it complied with the substantive rule of no-harm.

The customary law status of EIAs is not clear with regards to what is required in an EIA, as the ICJ observed when it noted that “neither the 1975 Statute nor general international law specify the scope and content of an [EIA]”.⁶⁶ Nevertheless, the ICJ stated that a balance between the use of the waters and the protection of the river consistent with the objective of sustainable development had to be made in the specific case.⁶⁷ Thus, these statements are not general in nature but connected to the treaty between the parties and the specific facts of the case. Accordingly, it is difficult to establish the extent to which the Pulp Mills case adds content to the procedural aspect of an EIA and its capability to work as a tool for sustainable development, but, as aforementioned, the linkage to the no-harm rule might provide a more substantial basis to the EIAs.

⁶² Pulp Mills para.204

⁶³ Elferink, “Environmental Impact Assessment in Areas beyond National Jurisdiction” p.475

⁶⁴ Ibid

⁶⁵ Pulp Mills para.204

⁶⁶ Ibid para.205

⁶⁷ Ibid para.177

2.4 EIA in the marine environment

Conducting an EIA is particularly important in the marine context because of the lack of knowledge about the potential implications of the diverse activities on the marine environment. Moreover, many “new users” of the oceans were not anticipated by the LOSC at the time of its adoption. Yet, a comprehensive approach to marine environmental protection requires at least that their impacts should be assessed prior to commencement even if there is no specific further regulation of a new activity. The legislation of EIAs through international frameworks has been one tool used to implement several environmental principles, including the no-harm principle and the precautionary approach.⁶⁸

The deep seabed is part of an environment about which little is known. The lack of scientific knowledge and potentially seriously harmful effects of exploration and potential commercial large-scale exploitation activities necessitate that an EIA is conducted before the activities commence. While the regime on deep seabed mining exploration is specifically regulated, deep seabed commercial mining exploitation is not regulated, and is an activity that has not been done before. Due to the uncertainties related to the deep seabed environment, there is a need to analyze and compare the frameworks including rules on EIAs to assess how they deal with the specific challenges for the deep seabed. Here, the aim is to assess whether other frameworks include elements applicable to the EIA procedure that should be included in the regulation of deep seabed mining in the Mining Code.

2.4.1 LOSC Convention

The LOSC provides the only legally binding framework for mining activities at the deep seabed in ABNJ. Nevertheless, it is not as modern as other treaties, and it does not include any notion of the precautionary approach. LOSC Article 206 regulates the obligation to conduct an EIA before commencing potential harmful activities. The article is not only applicable for activities that causes pollution, but also “activities resulting in significant and harmful changes to the marine environment”.⁶⁹ Mining activities for mineral resources that are conducted on the continental shelves of states comes under Article 206, while the Mining Code contains more specific regulations for the exploration of the same resource in the Area. For mining at the continental shelves, it is up to each Contracting Parties to determine whether the threshold in Article 206 has been fulfilled.

⁶⁸ Druel, “Environmental impact assessments in areas beyond national jurisdiction” p.10

⁶⁹ Elferink, “Environmental Impact Assessment in Areas beyond National Jurisdiction” p.455

In relation to the spatial scope of Article 206, the obligation arises when the planned activity is “under their jurisdiction and control”. The word “jurisdiction” in Article 206 illustrates that the geographical extent of this obligation may be wide.⁷⁰ Accordingly, the article applies to all maritime areas that may be adversely affected by the activity, also in ABNJ.

Article 206 articulates that states are obliged to assess “activities” that may cause harm. The word “activities” in the context of Article 206 is placed in interconnection with the condition that the activity may cause “substantial pollution of or significant and harmful changes to the marine environment” before the obligation to conduct an EIA materializes. Thus, the Convention gives some direction on the circumstances under which such assessments must be carried out.⁷¹ Yet, the definition of the threshold that has to be fulfilled before EIA obligations apply is “one of the most controversial issues in States’ practice and the academic literature”.⁷² The LOSC does not provide any indications as to what is meant by “significant and harmful changes” or “substantial pollution”.⁷³ This threshold naturally excludes some activities from the article, hence those that are not capable of causing significant harm to the environment.

Furthermore, the word “reasonable” in Article 206 implies an element of discretion, which is further illustrated by the words “as far as practicable”. Consequently, the states enjoy a margin of appreciation when deciding whether an EIA must be conducted, which might lead to different standards of compliance and divergent approaches to the implementation of the article. Some argues that because Article 206 refers to the term “assess”, it does not fix the requirements for an EIA, “but rather allows states to make such a determination in accordance with their capabilities and their domestic legislation...”.⁷⁴ Elferink observes that whether this statement “reflects the current obligation of States in respect of EIA” under the LOSC, is open to question. He refers to the Pulp Mills case in this respect, and points to the customary status of the EIA procedure.⁷⁵

The rules applicable to EIAs in the LOSC are general to a large extent. Article 206 does not give any indications on which components that has to be included in the EIA, which steps a

⁷⁰ Nordquist et.al, *United Nations Convention on the Law of the Sea 1982: A commentary* Volume IV (1991) p.124

⁷¹ Elferink, ”Environmental Impact Assessment in Areas beyond National Jurisdiction” p.475

⁷² Pineschi, “The duty of environmental impact assessment in the first ITLOS Chamber’s advisory opinion” p.428

⁷³ Ibid

⁷⁴ Craik, *The International law of Environmental Impact Assessment* p.98-99

⁷⁵ Elferink, ”Environmental Impact Assessment in Areas beyond National Jurisdiction” p.456

state has to take once information from the EIA procedure are available or how to deal with uncertainties. The LOSC does not address issues related to biodiversity specifically, but it includes a general obligation to protect and preserve the environment that also apply to ABNJ.⁷⁶ Thus, in view of the “outcome of an assessment, a State will be required to take all the necessary measures to ensure that it meets its obligations under the Convention in this respect”.⁷⁷ As stated in the introduction part of this subchapter, the LOSC does not include rules covering the precautionary approach. Nevertheless, the relevance of the precautionary approach was stated by the Court in the Pulp Mills case. The Court noted that it “considers that while a precautionary approach may be relevant in the interpretation and application of the provisions of the Statute, it does not follow that it operates as a reversal of the burden of proof”.⁷⁸ This means that even though the precautionary approach is not included in the LOSC, it does not mean that it is irrelevant in the context of the Convention. This general statement of the precautionary approach reflects its status as customary international law.⁷⁹

Article 206 includes an obligation to communicate reports of the results of the EIA, which may be viewed as a mechanism for determining whether and to what extent the states are complying with their EIA obligations, and refers to competent international organizations as the recipient of this information. The outcome of this might be that information is communicated to different organizations, consequently resulting in that “information on various activities is considered in isolation and that cumulative effects are overlooked”.⁸⁰

The analysis of Article 206 above illustrates that it is reasonable to assume that Article 206 is not precise enough to meet the objective and purpose behind the obligation to conduct EIA to achieve sustainable development. This has led to the fragmented development of sector- and region-based EIA obligations, such as the Mining Code and the regulations in the Helsinki and OSPAR instruments.⁸¹

2.4.2 Helsinki Convention

The Helsinki Convention covers the entire Baltic Sea area, including inland waters, the water of the sea itself and the seabed.⁸² As a result, the Convention is not applicable to ABNJ

⁷⁶ LOSC Articles 192 and 194

⁷⁷ Elferink, “Environmental Impact Assessment in Areas beyond National Jurisdiction” p.457

⁷⁸ Pulp Mills para.164

⁷⁹ Elferink “Environmental Impact Assessment in Areas beyond National Jurisdiction” p.457-458

⁸⁰ Ibid p.458

⁸¹ Druel, “Environmental impact assessments in areas beyond national jurisdiction” p.31

⁸² Helsinki Convention Articles 1 and 4

because the Baltic Sea area fully consists of territorial seas and exclusive economical zones. It is considered as a relatively modern regional framework in comparison to the LOSC.

In accordance with Article 7, contracting parties are obliged to notify contracting parties that may be affected by transboundary impacts. This obligation occurs whenever an EIA “of a proposed activity...” is required by “...international law or supra-national regulation applicable to the Contracting Party of origin”.⁸³ Review of its wording demonstrates that the Convention itself does not impose an obligation on the parties to conduct an EIA. This obligation has to be incorporated at a national or supra-national level. In the latter case, the European Union (EU) is one level on which EIA obligations are implemented. A natural consequence of this system of incorporating rules on EIAs is that the Helsinki Convention as such does not provide any requirements regarding how a potential EIA must be conducted.

With regards to what kind of activities that falls under the scope of the Convention, it deals specifically with the exploration and exploitation activities of the seabed and its subsoil in Article 12. Article 12(2) states that the contracting parties are under an obligation to undertake to implement the procedures and measures set out in Annex VI, which includes a direct obligation to conduct an EIA. In accordance with Annex VI Regulation 3(1), an EIA “shall be made before an offshore activity is permitted to start”. This excludes mining activities from the substantive area of Annex VI and its subsequent regulations, as mining is not included in the definition of offshore activities in Annex VI Regulation 1.

In accordance with Article 20(1)(b), the Baltic Marine Environment Protection Commission (HELCOM), is obliged to recommend measures relating to the purposes of the Convention. As far as the author knows, HELCOM has not generally recommended how the obligation to conduct an EIA must be performed. Nevertheless, HELCOM has issued a recommendation on marine sediment extraction,⁸⁴ which requires that an EIA be part of the extraction permission procedure, c.f. Guideline A(1), and includes a somewhat detailed list on what the contracting party should consider when extracting sediment. Nevertheless, it is not directly applicable to seabed mining as such, only to the part on sediment extraction in the mining process. Thus, the Helsinki instrument is fragmented in terms of which activities that require EIAs.

⁸³ Ibid Article 7(1).

⁸⁴ HELCOM Recommendation 19/1 on Marine Sediment extraction in the Baltic Sea Area (1998) HELCOM 19/98, 15/1 Annex 3

In accordance with Article 3(2), the parties must apply “the precautionary principle” when there is reason to assume that substances or energy introduced may cause harm to humans, living resources or marine ecosystems. This applies “even when there is no conclusive evidence of a causal relationship between inputs and their alleged effects”. It is reasonable to assume that this will be applicable where the party is obliged to conduct an EIA either through their national laws or the Annexes of the Helsinki Convention, and when it is uncertain in the EIAs. One argument in favor of this is that Article 3 reasonably applies to all activities, hence also in fulfilling the EIA obligations. Thus, the Convention includes a strong emphasis on the use of the precautionary principle by referring to “even when there is not conclusive evidence of a causal relationship between inputs and their alleged effects”.

Analysis of the Helsinki Convention indicates that, although usually praised as a modern agreement, the Convention makes it difficult to conclude whether the obligation related to EIA are meeting the aim of sustainable development. The strong emphasis of the precautionary principle is an indication that the decision-makers have to refrain from conducting the activity if the EIA procedure is uncertain with regard to the potential harmful effects of the activity. This, however, is not applicable to mining as such because it is not directly regulated in the Convention, but e.g. sediment extraction is. The Convention is an example of a fragmented approach to EIAs in the marine context. The general reference to EIAs in Article 7(1) does not provide a direct obligation to conduct EIAs, but comes into play only if the states have already adopted rules on EIAs in their national laws, or if rules on EIA are covered by some of the Annexes of the Convention.

Additionally, the Convention covers specific marine areas, which makes it fragmented in terms of maritime zones. Thus, the Convention does not viably fill the frame of the LOSC and the Mining Code in general, as it is fragmented and inapplicable to ABNJ. The Convention is more viable for the activities that are directly regulated, such as oil and gas activities and seabed extractions. Yet, the scope of the Convention is too limited to consider it a useful reference for comparison to the rules in the Mining Code.

2.4.3 OSPAR Convention

The OSPAR Convention is a relatively modern regional instrument that includes ABNJ within a specific area in its geographical scope of application.⁸⁵ It includes a general

⁸⁵ OSPAR Convention Article 1(a)

obligation to take all possible steps to prevent and eliminate pollution and take the necessary measures to protect the marine area against the adverse effects of human activity so as to safeguard human health and to conserve marine ecosystems.⁸⁶ The Convention does not, however, refer to an obligation to conduct EIAs prior to the commencement of activities.

The Convention has adopted several Annexes, and the OSPAR Commission has adopted several recommendations and strategies⁸⁷ that have resulted in a relatively detailed and comprehensive legal regime for the OSPAR Maritime Areas that cover different activities, species, situations and areas. This all together provides a detailed, but fragmented, set of rules including EIA obligations. However, the recommendations have no binding force, c.f. Article 13(5). Spatial considerations do not allow for a comprehensive assessment of all of the documents that have relevance to the continental shelves and the deep seabed.

Some of the recommendations and strategies are general in nature, while others are specifically drafted with regard to certain activities or species, and many include an obligation to conduct EIAs. One example is the North-East Atlantic Environment Strategy, which includes the obligation to conduct EIAs and to consider the cumulative impacts of human activities.⁸⁸ For the continental shelf areas and the deep seabed, the Commission has adopted recommendations on the protection and conservation of hydrothermal fields occurring on ocean ridges. This will impact mining activities, more directly mining on the continental shelves of contracting parties.⁸⁹ These recommendations are general in nature, and encourage the assessment of impacts to broaden the knowledge about them in Paragraph 3.1(d). For the deep seabed in the ABNJ within the OSPAR maritime area, the regime of the Area in the LOSC Part XI applies, and the OSPAR and the International Seabed Authority have established a Memorandum of Understanding governing the Area including aspects of cooperation and appropriate coordination of measures between the two organizations.⁹⁰

The OSPAR Convention as such is general in nature, but it includes an obligation to apply the precautionary principle, by virtue of which preventive measures are to be taken when there are reasonable grounds for concern that substances or energy introduced may bring about

⁸⁶ Ibid Article 2(1)(a)

⁸⁷ Ibid Article 10

⁸⁸ The North-East Atlantic Environment Strategy, Strategy of the OSPAR Commission for the Protection of the Marine Environment of the North-East Atlantic 2010–2020 (OSPAR Agreement 2010-3) para.4.4 (b) and (d)

⁸⁹ OSPAR Recommendation 2014/11 on furthering the protection and conservation of hydrothermal vents/fields occurring on oceanic ridges in Region V of the OSPAR maritime area (OSPAR 14/21/1, Annex 16)

⁹⁰ 2010 Memorandum of understanding between the OSPAR Commission and the International Seabed Authority

hazards to, *inter alia*, marine ecosystems, even when there is no conclusive evidence of a causal relationship between the inputs and the effects.⁹¹ Similar to the Helsinki Convention, the OSPAR Convention includes a strong emphasis on the use of the precautionary principle by referring to “even when there is not conclusive evidence of a causal relationship between inputs and their alleged effects” and the word “concern”, which implies a lower threshold before the precautionary principle is applicable.

As aforementioned, the OSPAR Convention as such does not include a direct obligation to conduct prior EIAs. However, to be able to know whether to apply a precautionary approach to specific activities, the potential impacts on the environment must be assessed in order to get the adequate information about potentials scientific uncertainties. An effective mean in this regard is the EIA procedures. It is reasonable to assume that an EIA is needed to give effect to the precautionary principle, and thus EIAs are indirectly a part of the OSPAR Convention.⁹² This argument is also applicable for the Helsinki Convention.

Even though the rules on EIA are not directly included in the OSPAR Convention, the EIA has a strong legal basis in the Convention through Annex V Articles 1 and 2, in which the reference is made to the Convention on Biological Diversity (CBD).⁹³ The CBD includes relatively detailed rules on EIAs in Article 14 that oblige states only to enact national legislation on EIAs and not directly to undertake EIAs as an obligation under the Convention. This demonstrates the somewhat “indirect” nature of the CBD, in contrast to the LOSC.

It would have served a good purpose to include the obligation to conduct EIAs in the OSPAR Convention, because it would have indicated the importance of the assessment and it would have provided the mechanism with a strong legal basis. Because obligations to conduct EIAs are included in some of the recommendations, the rules on EIA are subject to a fragmented system. Consequently, it is difficult to conclude whether the obligations on EIAs established through OSPAR instruments are better suited to meet the aim for sustainable development for the, and whether it is viable to fill the frame of the LOSC and the Mining Code. The Convention is more viable for the activities that are directly regulated, such as oil and gas activities and seabed extractions. Compared to the Helsinki Convention, which is another

⁹¹ OSPAR Convention Article 2(2)(a)

⁹² Gullett, “Environmental impact assessment and the precautionary principle: legislating caution in environmental protection”, *Australian Journal of Environmental Management*, 5(3), (1998) p.155, accessed 18. August 2016 at <http://ro.uow.edu.au/lawpapers/125>

⁹³ 1992 Convention on Biological Diversity, 1760 UNTS 79

“modern” agreement, the OSPAR Convention is applicable to parts of ABNJ, and therefore applicable to certain seabed activities within the ABNJ that are situated within the spatial scope of the OSPAR Convention Article 1(a). Yet, the scope of the Convention is too limited to consider it a useful reference for comparison to the rules in the Mining Code.

3 EIA related to deep seabed mining

3.1 Deep seabed mining and the different minerals

There are two different areas in which seafloor mining is concerned. The first area is mining at the continental shelves of states; the second is mining in the deep sea, the mineral resources of which are the common heritage of mankind.⁹⁴ The minerals found within the deep sea are resources to be shared among all nations, and should thus serve the good of all people. The ISA, established by LOSC Part XV, is responsible for ensuring that the benefits of mining in international waters beyond the outer limit of the legal continental shelf are equitably shared.⁹⁵

The interest in deep seabed mining for mineral deposits developed in the early 1970s “as a result of rising metal prices, and out of concern for securing supplies of strategic and critical minerals”.⁹⁶ Metal shortage has not yet become critical, and metal prices have remained at relatively low levels.⁹⁷ Consequently, exploitation of minerals in the deep seabed has not been commercially viable.

A variety of mineral resources are found at the ocean floor, but current activities are focused on the prospecting, exploration and eventual exploitation of polymetallic massive sulphides, cobalt-rich ferromanganese crusts and polymetallic nodules, also known as manganese nodules.⁹⁸ Cobalt-rich ferromanganese crusts occur onto nearly all rock surfaces in the deep oceans that, due to currents, are free of sediment. They form pavements of manganese and iron oxides on the flanks of, *inter alia*, volcanic seamounts and ridges. The potential for commercial mining of these minerals are most likely to occur at depths of about 800–2.500m.⁹⁹ Massive sulphides deposits form on and below the seabed from high-temperature hydrothermal fluids emitted by volcanoes along, *inter alia*, ridges.¹⁰⁰

⁹⁴ LOSC Article 136

⁹⁵ Halfar and Fujita “Precautionary management of deep-sea mining” *Marine Policy* (Volume 26, Issue 2, March 2002) p.103

⁹⁶ *Ibid*

⁹⁷ *Ibid*

⁹⁸ Rayfuse “Differentiating the Common?” p.462

⁹⁹ Petersen et.al “News from the Seabed – Geological characteristics and resource potential of deep-sea mineral resources” *Marine Policy* Vol.70 (2016) p.4, accessed 30. August 2016 DOI:

<http://dx.doi.org/10.1016/j.marpol.2016.03.012>

¹⁰⁰ *Ibid* p.6

The focus of the thesis will be on polymetallic nodules as these seem to be the mineral that is most developed in terms of technology and research.¹⁰¹ The ISA has granted licenses to explore manganese nodules, which can be described as small round sized rocks, formed “by the concretion of iron and manganese hydroxides around a small core”.¹⁰² They occur at water depths of about 3.000-6.000m”.¹⁰³ In general they, contain high concentrations of manganese, nickel, iron, silicon, aluminum, cobalt and copper, and are found lying atop the sediments on the ocean floor.¹⁰⁴

3.2 Specific challenges

Knowledge about the impacts of mining on the deep-sea ecosystem is scarce. The deep seabed is situated in deep and remote areas, and its ecosystem and habitat has been subject of minor studies. Fear exists that mining activities may destroy the ecosystem before they are even identified.¹⁰⁵ Environmental risks include, *inter alia*, toxic effects on the water column from the discharge of tailings and the creation of a massive near-bottom sediment plume as a consequence of nodule removal. Another impact may be the release of bottom water entrained with lifted nodules and sediments. This may enhance nutrient and heavy-metal concentrations, which may affect food-web dynamics and survival of fish on the oceanic surface.¹⁰⁶ The effects of pollution and disposal of waste may cause harm to marine environments, “including affecting protected fish species or marine parks in the vicinity of such activities”.¹⁰⁷ The deep seabed habitat and species recovery rates are uncertain.¹⁰⁸

These uncertainties raise the questions of whether the current framework on exploration activities can and should be improved, and the role of the precautionary approach to deep seabed mining prospecting and exploration. The role of the precautionary approach will be addressed in subchapter 5.1.

The potentially severe effects imposes a challenge on how to balance the increasing global demand for metals and rare-earth elements and the potential need to protect the uncertainty

¹⁰¹ Ibid p.11

¹⁰² Rayfuse ”Differentiating the Common?” p.462

¹⁰³ Petersen ”News from the Seabed” p.2

¹⁰⁴ Rayfuse ”Differentiating the Common?” p.462

¹⁰⁵ Ibid p.465

¹⁰⁶ Ibid

¹⁰⁷ Poisel, “Deep Seabed Mining: Implications of Seabed Disputes Chamber's Advisory Opinion” p.213

¹⁰⁸ Van Dover, “Impacts of anthropogenic disturbances at deep-sea hydrothermal vent ecosystems” *Marine Environmental Research* 102 (2014) p.68, accessed 30. August 2016 DOI: <http://dx.doi.org/10.1016/j.marenvres.2014.03.008>

surrounding the deep-sea ecosystem.¹⁰⁹ The level of understanding of the ecology and structure of the deep sea has to be sufficient to permit an adequate assessment of the effects of exploration. This must consider the need for different exploration techniques for the divergent minerals found at the deep seabed, as they are different in nature and must be explored differently. The science in relation to the environmental impact of mining activities at the deep seabed is incomplete and uncertain.¹¹⁰ This is especially true with regard to uncovered exploitation activities. The impacts of exploitation activities will remain theoretical based on assumptions until the activities begin and impacts are experienced and monitored.¹¹¹ Nevertheless, exploration activities have started, and the potential harm caused by exploration activities is illustrated by the fact that it is an obligation in Mining Code to conduct prior EIAs.

3.3 Current state of deep seabed mining

Presently, ISA has assigned licensed areas to states for exploration activities, although exploitation activities have not yet been commenced. It is assumed that certain exploitation activities will be commercially viable in the future.¹¹² The first draft on exploitation regulations issued by the Legal and Technical Commission (LTC) was published in July 2016 and is now open for comments.¹¹³

The ISA has entered into 15-year contracts for exploration for polymetallic nodules, polymetallic sulphides and cobalt-rich ferromanganese crusts in the deep seabed with twenty-four contractors. The ISA states on its webpage: “Sixteen of these contracts are for exploration for polymetallic nodules in the Clarion-Clipperton Fracture Zone (15) and Central Indian Ocean Basin (1). There are five contracts for exploration for polymetallic sulphides in the South West Indian Ridge, Central Indian Ridge and the Mid-Atlantic Ridge and four contracts for exploration for cobalt-rich crusts in the Western Pacific Ocean”.¹¹⁴

¹⁰⁹ Ibid

¹¹⁰ Le Gurun, “Environmental impact assessment and the international Sea Bed authority” p.223-224

¹¹¹ Van Dover “Impacts of anthropogenic disturbances at deep-sea hydrothermal vent ecosystems” p.65

¹¹² Halfar and Fujita “Precautionary management of deep-sea mining” p.104

¹¹³ “International Seabed Authority”: Report on working Draft Regulations and Standard Contract Terms on Exploitation for Mineral Resources in the Area, published July 2016, accessed at 20. August 2016 at https://www.isa.org.jm/files/documents/EN/Regs/DraftExpl/Draft_ExplReg_SCT.pdf

¹¹⁴ International Seabed Authority: Deep seabed minerals contractors, accessed 20. July 2016: <https://www.isa.org.jm/deep-seabed-minerals-contractors>

Whether commercial exploitation will commence depends largely on resource prices and potentially increased demand for resources due to steady population growth¹¹⁵ and its environmental impacts, which have yet to be fully assessed.¹¹⁶ If the prices of metals that are found at sea increase due to shortages of those minerals onshore, sea-floor mining could become economic.

3.4 EIA regulations in the Mining Code

3.4.1 Scope and content

As aforementioned, deep seabed mining is covered by the regime of the Area as prescribed and set out in LOSC Part XI,¹¹⁷ Annexes III and IV and the 1994 Agreement relating to the Implementation of Part XI(IA).¹¹⁸ Thus, the LOSC regime provides more detailed rules on the EIA in the case of mining activities in the Area than mining at the continental shelves of states.¹¹⁹ The marine environment in the Area must be protected from harmful effects caused by activities.¹²⁰ This requirement “implies a need to assess the impacts of mining activities on the marine environment and to establish which measures are required to maintain the ecological balance of the marine environment”.¹²¹ The 1994 Implementation Agreement includes an obligation for contractors to provide a plan of work that must include an EIA of the proposed activities.¹²²

The ISA is the competent organization through which states parties to the Convention shall organize and control activities in the Area.¹²³ The authority and control of the ISA is inherently limited to include only mineral resources, which are defined in Article 133, and include “all solid, liquid or gaseous mineral resources *in situ* in the Area at or beneath the seabed, including polymetallic nodules”. Thus, such items as marine genetic resources and fisheries are not covered.

The ISA has developed a comprehensive set of rules for deep-sea mining incorporated in the “Mining Code”, which elaborates on the rules pertaining to the requirements for EIAs. The

¹¹⁵ Petersen, “News from the Seabed” p.1

¹¹⁶ Ibid p.11

¹¹⁷ LOSC Article 134(2)

¹¹⁸ Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 12 December 1982, 28 July 1994, UNTS 1836, 3. (Hereinafter 1994 Implementation Agreement)

¹¹⁹ LOSC Article 1(1)(1)

¹²⁰ Ibid Article 145

¹²¹ Elferink “Environmental Impact Assessment in Areas beyond National Jurisdiction” p.459

¹²² 1994 Implementation Agreement, Annex, Section 1(7)

¹²³ LOSC Article 157(1)

regulations on the EIA in the Mining Code form a part of the environmental regulations that allow for the sustainable development of mineral resources in the Area.¹²⁴

At present, the ISA has issued regulations regarding the exploration of different marine minerals, including Cobalt-rich Ferromanganese Crust,¹²⁵ polymetallic sulphides¹²⁶ and polymetallic nodules.¹²⁷ The three sets of regulations consist of the same composition, but there are some differences due to the distinctive features of the different resources. For all three sets of regulations, the rules regarding the protection and preservation of the environment are contained in Part V, which also includes rules concerning EIAs. The rules on EIAs in the regulations are similar. Thus, only one of the regulations will be used as an example, which will be the regulations on polymetallic nodules. In the following, the regulations in the Mining Code relevant to EIAs for prospecting and exploration activities will be assessed.

3.4.2 Prospecting

Prospecting is the search for deposits of resources in the Area, including estimating the composition, sizes and distributions of deposits of the resources and their economic values.¹²⁸ Prospectors and the ISA are obliged to apply the precautionary approach, and prospecting shall not be undertaken if “substantial evidence indicates the risk of serious harm to the marine environment”.¹²⁹ Thus, prospecting can be started only if the contractor proves that the activity will not involve serious harm to the environment.¹³⁰

From a logical point of view it might be somewhat contradictory to establish an obligation to conduct an EIA before engaging in prospecting activities. Prospecting is a natural and necessary outset of an EIA, and the prospecting phase is a pre-stage of conducting an EIA and starting the exploration activity. Nevertheless, the knowledge of the deep seabed habitat is scarce. Because the minerals are often found at great depths, the sound and light caused by the equipment used in prospecting may cause harm to the environment because the living resources at the deep seabed are adapted to a dark, cold and quiet environment.

¹²⁴ Lallier and Maes, “Environmental impact assessment procedure for deep seabed mining in the area” p.2

¹²⁵ ISBA/18/A/11

¹²⁶ ISBA/16/A/12/Rev.1

¹²⁷ ISBA/19/C/17

¹²⁸ Ibid Regulation 1(3)(e)

¹²⁹ Ibid Regulation 2(2)

¹³⁰ Pineschi “The Duty of Environmental Impact Assessment” in the First ITLOS Chamber’s Advisory Opinion” p.428

The LTC was established by LOSC Article 163 with the mandate to issue technical or administrative recommendations for the guidance of contractors, which are general in nature.¹³¹ The LTC has issued a recommendation on the “guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area” (LTC Recommendation),¹³² which is first and foremost aimed at exploration activities.¹³³

In accordance with the LTC Recommendation, an EIA procedure must be performed if the activity has the potential to cause “serious harm” to the environment.¹³⁴ The reference is made to “any activities” in the Area. Thus, if the prospecting activities have the potential to cause “serious harm” to the environment, an EIA procedure must be performed.

Even though prospecting has an impact on the deep seabed environment, it may be difficult to argue that the prospecting activity fulfills the high threshold of “serious harm”, because it may not necessarily include hazardous sampling or influence the physical habitats to a great extent. Nevertheless, it is possible that prospecting may cause serious harm to the environment because of the scarce knowledge about deep seabed habitats and ecosystems. From the legal point of view, the obligation to protect and preserve the environment also applies to prospecting. It is certain that the impact of prospecting cannot be completely eliminated, but the challenge is how the impact can be mitigated. To secure information on the kind of prospecting methods that should be used to minimize the impacts of prospecting to the deep-sea marine environment and avoiding “serious harm”, it might be fruitful to conduct an EIA to gather the necessary information.

3.4.3 Exploration

It is required that a preliminary EIA has to be submitted for approval of the plan of work for exploration activities.¹³⁵ For exploration activities, contractors, other interested entities and the ISA is obliged to cooperate in conducting the necessary research to perform an adequate review of the potential environmental impacts of an activity.¹³⁶ The LTC has the mandate to recommend approval to the ISA if the proposed plan of work complies with the rules set forth

¹³¹ ISBA/19/C/17 Regulation 39(1)

¹³² ISBA/19/LTC/8 (LTC Recommendation)

¹³³ Ibid Part I(1)

¹³⁴ Ibid Part II A(9)(a),

¹³⁵ ISBA/19/C/17 Regulation 18(c) and Pineschi “The Duty of Environmental Impact Assessment in the First ITLOS Chamber’s Advisory Opinion” p.434

¹³⁶ ISBA/19/C/17 Regulation 31(6)

in the Mining Code.¹³⁷ Thus, the LTC works as a specific advisory scientific and technical body, and the ISA makes decisions on EIAs based on advice provided by the LTC.¹³⁸ This mechanism illustrates that the proposed activity is subject to close assessment before it is accepted, which may be advantageous from an environmental perspective, because the assessment of potential impacts is carried out in three autonomous and distinctive sectors that can provide a solid foundation comprehensively evaluating the potential activity.

The three sets of regulations on the different minerals in the Mining Code do not provide any specific details for the EIA procedure, and do not articulate that a certain threshold has to be fulfilled for determining whether a project must undergo a preliminary EIA procedure.

The LTC Recommendation has developed more detailed provisions on the scope and content of the EIA procedure, and consists of a list of activities¹³⁹ that have no potential for provoking serious harm to the environment, thus not requiring a prior EIA.¹⁴⁰ Examples of activities listed are sampling small quantities of water and rock sampling for environmental baseline studies and measurements.

Similar to the Espoo Convention, the LTC Recommendation also consists of a list of activities requiring prior EIAs. The Recommendation “set out a detailed list of information a contractor is to provide”.¹⁴¹ The LTC Recommendation does not consist of a definition of “serious harm”. Despite this, “the specific enumeration of exploration activities requiring EIA excludes unilateral interpretations, as the “threshold” of seriousness requiring EIA has already been determined at the international level”.¹⁴² For these activities, a baseline study and an environmental monitoring programme during and after the activity has to be carried out.¹⁴³

The conduct of environmental baseline studies is essential for the impact assessment.¹⁴⁴ It is related to the EIA in terms of ensuring the best possible information before a decision on the activity is being made.¹⁴⁵ It provides an elaboration on the scope and content of the EIA process, because baseline studies are necessary for obtaining sufficient information from the

¹³⁷ Ibid Regulation 21

¹³⁸ Ibid Regulation 22

¹³⁹ ISBA/19/LTC/8 Part IV para.19

¹⁴⁰ ISBA/19/LTC/8 Annex I para. 50

¹⁴¹ Elferink “Environmental Impact Assessment in Areas beyond National Jurisdiction” p.461

¹⁴² Pineschi “The Duty of Environmental Impact Assessment in the First ITLOS Chamber’s Advisory Opinion” p.429

¹⁴³ ISBA/19/LTC/8 para.19

¹⁴⁴ ISBA/19/LTC/8 para 26(a) and Annex I para 50

¹⁴⁵ ISBA/19/C/17 Regulations 31(2) and 32

area to document the conditions that exists prior to exploration or exploitation and to gather data that may make it possible to provide the information necessary “to make accurate environmental impact predictions”.¹⁴⁶ Monitoring is important in relation to EIA because monitoring of the impacts should be seen as a part of the concept of sustainable development.¹⁴⁷ Furthermore, the baseline, monitoring and impact assessment studies are likely to be de primary inputs to the EIA for commercial mining.¹⁴⁸

The LTC Recommendations connect the assessment of cumulative impacts to the baseline studies. The data established through the baseline studies will be used for regional environmental management and the assessment of cumulative impacts,¹⁴⁹ which are defined in the LTC Recommendation as impacts “resulting from incremental changes caused by other past, present or foreseeable actions”.¹⁵⁰ The aspect of cumulative impacts is not further elaborated on in the LTC Recommendation, and is not directly connected to the regulations on EIAs.

The LTC Recommendation Annex I consist of what kind of information that must be included in the baseline studies and monitoring programmes. As this is closely related to the EIA procedure, it is relevant to mention certain aspects of it that make it possible to assess whether the Mining Code provides a substitute for EIAs to work as a tool for sustainable development. One category is the group related to chemical oceanography, which is important for assessing the possible influence of mining.¹⁵¹ Annex I illustrates that the LTC Recommendation is relatively detailed and adapted to the different requirements related to the divergent environmental aspects.¹⁵² This is further exemplified by requiring a different kind of sampling equipment “depending upon the seabed characteristics and the size of the fauna to be collected”.¹⁵³ Yet, the aspects includes is of a rather technical and scientific nature.

ITLOS advisory opinion concerning activities in the Area provides some guidelines with regards to the scope and content of the EIA obligation for deep seabed mining activities. The Chamber noted that the sponsoring states must take into account, objectively, the relevant

¹⁴⁶ ISBA/19/LTC/8 para.13

¹⁴⁷ Case Concerning The Gabčíkovo-Nagymaros Project, Judgment, I.C.J. Reports 1997, p.7 para.140

¹⁴⁸ ISBA/19/LTC/8 para.19

¹⁴⁹ Ibid para.16

¹⁵⁰ Ibid Annex II

¹⁵¹ Ibid Annex I para.13

¹⁵² Ibid Annex I para.36

¹⁵³ Ibid Part V para.34

options that is reasonable, relevant and conducive to the benefit of mankind as a whole.¹⁵⁴ It is clear from this that it is the interest of the international community which is the fundamental standard to be taken into account at all levels of the decision-making process, not the national.¹⁵⁵ Consequently, the outcome of the EIA procedure is important in the decision-making process, as the decision has to be based on the interest of the mankind as a whole.

Another aspect asserted by the Chamber that makes the content of the EIA obligation clearer, is the consideration for the general obligation to protect and preserve the marine environment as prescribed by LOSC Article 192. The Chamber referred to this article as a factor to consider in assessing the responsibilities with regard to those activities that are among the most hazardous to the environment.¹⁵⁶ If this aspect of the advisory opinion is read in conjunction with the Chamber's assessment of the precautionary approach, a further elaboration of the content of the EIA may be provided. The Chamber noted that the regulations in the Mining Code have turned the non-binding Principle 15 of the Rio Declaration into a binding obligation. "This means that the sponsoring States will have to apply the precautionary approach not as a policy tool, but rather as a binding legal norm".¹⁵⁷

The Chamber stated that the indications in the three sets of regulations, and especially in the LTC Recommendation add precision and specificity to the obligation to conduct EIA as it applies in the context of activities in the Area.¹⁵⁸ This means that the content of the EIA itself must be determined by the regulations in the Mining Code. In this regard, the Chamber deviated the reasoning of the ICJ in the Pulp Mills Case where the Court held that the content of the EIA is defined by the national laws of the States. The approach made by the ITLOS Chamber may lead the way to a wider understanding of the content of the EIA that looks "towards international bodies for the definition of the content of the EIA, thus working towards a global and not a narrow localised approach".¹⁵⁹

Another interesting aspect is the elaboration by the ITLOS Chamber about how the EIAs are connected with LOSC Article 142, which deals with resources that straddle between the Area

¹⁵⁴ ITLOS advisory opinion concerning activities in the Area para.230

¹⁵⁵ Pineschi "The Duty of Environmental Impact Assessment in the First ITLOS Chamber's Advisory Opinion" p.430

¹⁵⁶ Ibid p.430 and ITLOS advisory opinion concerning activities in the Area para.97

¹⁵⁷ Plakokefalos "Analysis. Seabed Disputes Chamber of the International Tribunal for the Law of the Sea Responsibilities and obligations of states sponsoring persons and entities with respect to activities in the Area" *Journal of Environmental Law* (2011) p.138

¹⁵⁸ ITLOS advisory opinion concerning activities in the Area para.149

¹⁵⁹ Plakokefalos "Analysis." p.139

and the continental shelves of states. The Chamber stated that “...it may be considered that [EIAs] should be included in the system of consultations and prior notifications set out in Article 142” with respect to resource deposits in the Area which lie across limits of national jurisdiction.¹⁶⁰ The fact that the Chamber included EIAs under the duties of Article 142 “fills a gap of the Convention and gives a more specific content to these obligations”.¹⁶¹ This may pave the way for a more active role for potentially affected states to comment and influence the decision-making process regarding activities in the Area. In general, the content of the duties of co-operation in the EIA process remains unclear.¹⁶² In this regard, the Espoo convention and its rules on public participation may provide guidance in potentially developing the rules, which is rendered necessary to ensure the quality of environmental decisions, which must be well informed.¹⁶³

An element that is missing with regard to the regulations of deep seabed mining that can be identified as good practice for the EIA is the review by independent experts.¹⁶⁴ To ensure effective protection as prescribed by LOSC Article 145, a decision legitimately needs to be well assessed and well informed. To meet this need, the Mining Code prescribes that the EIA must be supported by the best available scientific and technical information for exploration activities.¹⁶⁵ Furthermore, the same regulation elaborates that the Commission must develop and implement procedures to determine whether the exploration activity will have serious harmful effects, “including information provided pursuant to regulation 18”, which regulates data and information that are submitted by the applicant to for approval of the plan of work.¹⁶⁶ The word “including” in the regulation¹⁶⁷ indicates that the sources of information are not exhaustive. It is assumed that by referring to external and independent expertise in the regulation “enriches the available information necessary to properly determine whether the impacts of the proposed plan of work are significant”.¹⁶⁸

Even though it is not a direct obligation under LOSC and the Mining Code, the independence of experts should be considered in the context of the Area because of the expectations to see

¹⁶⁰ ITLOS advisory opinion concerning activities in the Area para.148

¹⁶¹ Pineschi ”The Duty of Environmental Impact Assessment in the First ITLOS Chamber’s Advisory Opinion” p.435

¹⁶² Ibid

¹⁶³ Lallier and Maes, “Environmental impact assessment procedure for deep seabed mining in the area” p.7

¹⁶⁴ Ibid p.1

¹⁶⁵ ISBA/19/C/17 Regulation 31(4)

¹⁶⁶ Ibid Regulation 31(4) and Regulation 18

¹⁶⁷ Ibid Regulation 31 (4)

¹⁶⁸ Lallier and Maes, “Environmental impact assessment procedure for deep seabed mining in the area”, p.3

the common heritage benefit from good EIA practice.¹⁶⁹ If this is assessed in conjunction with the Chamber's statement in the ITLOS Advisory Opinion of activities in the Area regarding the importance of considering the benefit of mankind as a whole, it is unfortunate that the regulations in the Mining Code at present do not include regulations on information issued by independent experts, because it does not ensure that decisions are taken on the basis of the best available scientific and technical information as required by the Regulations.¹⁷⁰

The system on EIAs for deep seabed mining activities in the LOSC and the Mining Code is well developed compared with other regulations on EIAs if read in conjunction with the ITLOS Advisory Opinion on activities in the Area and the Pulp Mills case. Nevertheless, the rules are limited in its extent, because it covers only marine minerals at the deep seabed in the Area, not mining activities within national jurisdiction or other activities in ABNJ such as marine genetic resources and deep seabed fisheries, presuming that relevant commercial fishing in the relevant depths is possible. The Mining Code does not specifically consider the cumulative impacts of the activities in the deep sea area, because other marine activities are excluded from the scope of the Mining Code.¹⁷¹ As already stated, the LTC Recommendation makes a reference to cumulative impacts in its regulation on environmental baseline data, but not to the EIA procedure as such.

Commercial exploitation activities are likely to be far more hazardous than exploration because of the potential of large-scale destruction of deep seabed habitats as a consequence of mining activities.¹⁷² The impacts of mining will be different for the different mineral types.¹⁷³ Therefore, it necessary to establish rules that are customized to the special requirement posed by the character of commercial mining, and to conduct thorough prior EIAs. As stated in subchapter 3.3, the first draft of regulations on commercial mining exploitation activities in the Area has been published by the ISA. The LOSC and the 1994 Agreement "require the ISA to capture optimal benefits from resource development and to set high thresholds for responsible mining practices, especially for the environment, pursuant to the precautionary principle and mine safety and health."¹⁷⁴ The ISA will need to reserve for itself substantial power and authority to manage, regulate and oversee the exploitation regime based upon the principles of, *inter alia*, high sensitivity to environmental concerns and use of the

¹⁶⁹ Ibid p.4

¹⁷⁰ Ibid

¹⁷¹ Druel "Environmental impact assessments in areas beyond national jurisdiction" p.6

¹⁷² Halfar "Precautionary management of deep-sea mining" p.104

¹⁷³ Petersen, "News from the Seabed" p.11

¹⁷⁴ ISA Technical Study No.11 p.18

precautionary principle and highly technical mechanisms and on as yet unknown challenges associated with successful deep ocean mining.¹⁷⁵

¹⁷⁵ Ibid p.20

4 A comparison of the Mining Code and other international instruments covering EIA obligations

The first of the two questions raised in subchapter 1.2 is whether the framework of EIAs on different activities and different maritime zones is consistent or fragmented. The second is to what extent the rules on EIA in the different frameworks can be compared.

The LOSC and Espoo Conventions are global, while the OSPAR and Helsinki Conventions are regional. The OSPAR Convention do not include a direct obligation to conduct EIAs for activities in general, while the Helsinki Convention requires that rules on EIAs are required by international law or supra-national regulations. The LOSC Article 206 applies for all activities that meets a certain threshold of seriousness, and is applicable to areas within national jurisdiction and ABNJ. The Mining Code only applies for mining activities in the Area, and is thus considered as a sectoral instrument that covers a specific activity. The Espoo Convention applies for all activities likely to have a significant adverse impact to the environment, but does not apply to ABNJ. Thus, the framework of EIAs can be considered as fragmented, because it covers different activities and is applicable in different maritime zones.

A comparison of the components of the EIA regulations in the different instruments discloses that the OSPAR and Helsinki Conventions do not viably fill the frame of the LOSC and the Mining Code in general, as it is fragmented and do not include a direct obligation to conduct EIAs. The Conventions are more viable for the activities that are directly regulated, such as oil and gas activities and seabed extractions and sediment extraction. The OSPAR North-East Atlantic Environment Strategy links the EIA procedure to the consideration of cumulative impacts of human activities, but it is not legally binding. Consequently, the scopes of the Conventions are too limited to consider it a useful reference for comparison to the rules in the Mining Code. LOSC Article 206 is not precise enough to meet the objective and purpose behind the obligation to conduct EIA to achieve sustainable development.

The Espoo Convention includes important components of the EIA procedure that is not included in the Mining Code. The Espoo Convention includes rules on public participation, both for the state of origin and the potentially effected state and independent expert reviews. The importance of including this for deep seabed mining is assessed in subchapter 5.2. Furthermore, the Espoo Convention has adopted a protocol on SEA.

A distinctive feature of the Mining Code is that it is adaptable to change.¹⁷⁶ This is important because of the continuous progress of science and technology and the potential for rapid changes to the environment due to climate change, which might be important for the development and the management of the EIA procedure. The LTC Recommendation also provides for potential revision at later dates that take into account the progress of science and technology.¹⁷⁷ Furthermore, deep seabed mining activities are monitored by the ISA. This ensures that the deficiencies of the EIAs and complex issues can be discussed.¹⁷⁸

The Mining Code is most likely to be considered as *lex specialis* related to deep seabed mining activities in the Area. Two interesting questions are whether this means that other potentially stricter regulations are ruled out and whether the overall objective of the LOSC to prevent pollution applies. Applicable to these questions is the statement from the ITLOS in its Advisory Opinion related to activities in the Area. The Chamber stated that the regulations in the Mining Code “are instruments subordinate to the Convention, which, if not in conformity with it, should be interpreted so as to ensure consistency with its provisions. They may, nevertheless be used to clarify and supplement certain aspects of the relevant provisions of the Convention”.¹⁷⁹ The discussion was related to the difference in scope of “activities in the Area” in the provisions of the LOSC and in the Mining Code. Nevertheless, the general reference to the Mining Code as “subordinate” may be applicable to other aspects of the Mining Code as well. Thus, the rules in the LOSC are most likely to be considered as *lex superior*. Consequently, the rules in the LOSC will prevail if a conflict between the rules in the Mining Code and LOSC occur. In the authors’ opinion, this is a theoretical question because the rules in the LOSC are too general to be capable of creating conflict with the rules in the Mining Code. If the problem arises, an interpretation of the rules will presumably be made to ensure that conflict does not occur.

With regard to the relationship between the Mining Code and stricter regulations in other instruments than the LOSC, the outcome is uncertain. The fact that ISA is trusted with the mandate to control the mineral resources in the Area with regard to access and benefit sharing as a common heritage of mankind indicates that the rules are considered as *lex specialis*, and prevails if a potential conflict with another instrument occur.

¹⁷⁶ ISBA/19/C/17 Regulation 42

¹⁷⁷ ISBA/19/LTC/8 Part I para.7

¹⁷⁸ Bastmeijer, “Theory and practice for transboundary environmental impact assessment”p.372

¹⁷⁹ ITLOS advisory opinion concerning activities in the Area para.93

5 The outcome of the EIA procedure

5.1 The role of the precautionary approach

One of the research questions is related to the role of the precautionary approach in case of uncertainties in the assessments. With regard to mining activities at the continental shelves of states, the absence of precise legal norms on EIAs in certain international frameworks generates a broad area of discretion to states with regard to making decision on mining activities and activities in general. The OSPAR, Helsinki Convention and the Mining Code include a precautionary approach, but neither the Mining Code nor the other instruments presented in this thesis provides any specific guidance on how to deal with uncertainty. The LOSC and the Espoo Convention does not include the precautionary approach in its regulations. Nevertheless, to apply a precautionary approach might be necessary in order to fulfill the obligation to preserve and protect the environment. Furthermore, the precautionary approach is linked to sustainable development.¹⁸⁰

A question that is related to the examination of how uncertainties in the assessments should be dealt with is whether the EIA mechanism is suitable to influence the substance of decision-making despite its procedural status. The outcome of the EIA does not provide any substantive obligation to prevent the activity from being carried out even though potential impacts are identified and cannot be adequately prevented.¹⁸¹ The conceptual premise is that the information collected through the EIA process must be considered before a decision on the activity is being made. The conceptual basis for EIAs “relies upon a set of presumptions that the causes and effects of harm can be predicted and that the significance of these effects can be measured”.¹⁸²

For mining activities in the Area, the Chamber in the ITLOS Advisory Opinion articulated that the precautionary principle in the Regulations in the Mining Code transform the non-binding statement of the precautionary approach in the Rio Declaration into a binding obligation. Furthermore it stated that the implementation of the precautionary approach as defined in the Mining Code is one of the obligations of sponsoring States.¹⁸³ By stating this,

¹⁸⁰ Sands and Peel, *Principles of International Environmental Law* p.219

¹⁸¹ Druel ”Environmental impact assessments in areas beyond national jurisdiction” p.37

¹⁸² Holder and Lee, *Environmental Protection, Law and Policy* p.551

¹⁸³ ITLOS advisory opinion concerning activities in the Area paras.126-127

the Chamber changed the non-binding statement of the precautionary approach in the Rio Declaration Principle 15 into a binding obligation.

The Chamber went further and stated that action is required where scientific evidence is insufficient, “but there are plausible indications of potential risks”.¹⁸⁴ The use of the word “indications” may signify a lower threshold for the application of the precautionary approach, and the role of the precautionary approach is thus clearer when there are uncertainties in the assessments. This can also be seen in conjunction with the fact that the decisions must be made on the basis of the benefit of mankind as a whole. If there is an alternative that has less impact and is as economically feasible or only slightly less beneficial, it should be prioritized because of the imminent need to make the decision that provides an outcome that is favorable to sustainable development. The Chamber further noted that the precautionary approach has been incorporated in several treaties and instruments, which reflect the formulation of Rio Declaration Principle 15, which “has initiated a trend towards making this approach part of customary international law”.¹⁸⁵

The ITLOS requested in its Advisory Opinion an endorsement of the EIA, the precautionary approach, best environmental practices and high standard of due diligence.¹⁸⁶ Furthermore, the outcome of the EIA procedure is important in the decision-making process, as the decision has to be based on the interest of the mankind as a whole. The Chamber also connected the precautionary principle to the EIA procedural obligations. Thus, for mining activities at the deep seabed, the precautionary principle may prevent the ISA from accepting that exploration and potential exploitation activities are being carried out.

If adequately implemented and sufficiently taken into account, the EIA procedure is a mean to fulfill the obligation to comply with the no-harm principle and the precautionary approach. From a legal perspective, if the outcome of an EIA indicates that there are too many uncertainties about the impacts of the submitted activity, the ISA should apply a precautionary approach and not authorize the activity, thereby taking the environmentally favorable decision.¹⁸⁷ In this way, the EIAs can shape the substantive outcome of a decision.

¹⁸⁴ Ibid para.131

¹⁸⁵ Ibid para.135

¹⁸⁶ Rayfuse, “Differentiating the Common?” p.487-488

¹⁸⁷ Druel ”Environmental impact assessments in areas beyond national jurisdiction” p.36

The assessment above only applies directly to mining activities in the Area, and the effect of the precautionary principle is uncertain for other activities commenced at the deep seabed. Establishing a clearer interconnection among the precautionary approach, the no harm principle and EIAs may provide a better framework for making the decision that is most environmentally favorable on the basis of the precautionary approach when there are uncertainties in the assessments. Thus, the precautionary approach and no-harm principle should be more closely linked to the EIA processes in the international frameworks to provide substance to the procedural obligation.

5.2 EIA as a tool for sustainable development and the adequacy of the rules on EIA to meeting the uncertainties of deep seabed mining

EIAs are considered as important instruments for reaching the goal of sustainable development, and¹⁸⁸ the precautionary approach is linked to sustainable development.¹⁸⁹ The questions are whether the framework on EIAs in relation to deep seabed mining is sufficient to meet the aim of sustainable development and whether the framework of EIAs ensures adequate protection of the environment. The objective of the thesis is to evaluate the adequacy of the rules on EIAs in relation to the legal challenges to meeting the uncertainties of deep seabed mining.

An overall assessment indicates that the rules on EIA in the Mining Code are well drafted in terms of working as a tool for sustainable development. This is further emphasized if the rules are read in conjunction with the statements made by the ITLOS Advisory Opinion on activities in the Area. The Mining Code consists of detailed rules on monitoring and post-project analysis, which should be seen as a part of the concept of sustainable development.¹⁹⁰ Furthermore, the rules in the mining code on co-operation between the contracting party, ISA and LTC in assessing the EIAs is a good system for meeting the uncertainties of deep seabed mining. The fact that ISA work as an authority for monitoring and supervising the EIA procedures is a component that enables a well-functioning EIA system. This is because ISA is

¹⁸⁸ Peters, "Achieving Sustainability through Effective Mechanisms of Environmental Impact Assessment and Strategic Environmental Assessment" p.79

¹⁸⁹ Sands and Peel, *Principles of International Environmental Law* p.219

¹⁹⁰ Bastmeijer, "Theory and practice for transboundary environmental impact assessment" p.374 and ICJ Gabčíkovo-Nagymaros case, para.140

capable of ensuring that the deficiencies of the EIA system can be addressed, and creates a forum for discussing complex issues for EIAs and environmental issues in general.¹⁹¹

The ITLOS Advisory Opinion concerning activities in the Area and the ICJ in the Pulp Mills has provided a better understanding of the scope and content of the EIA for mining activities in ABNJ. ITLOS stated that Article 192 is a factor to consider in the EIA process, and turned the precautionary approach in Principle 15 of the Rio Declaration into a binding obligation. The content of the EIA itself must be determined by the rules in the Mining Code, which is elaborated through the ITLOS Advisory Opinion. The relationship between the precautionary approach, no-harm rule and the importance of taking decision based on the benefit to mankind as a whole, provides a legal basis to meet the uncertainties of deep seabed mining despite the fact that EIA is a procedural rule. It is clear from the advisory opinion that it is the interest of the international community which is the fundamental standard to be taken into account at all levels of the decision-making process, not the national.¹⁹² Consequently, the outcome of the EIA procedure is important in the decision-making process, as the decision has to be based on the interest of the mankind as a whole.

Nevertheless, the Mining Code does not include all components that are considered as good practice for EIAs. Public participation and independent expert reviews are considered as necessary for implementing the precautionary approach and enabling well-informed decision-making that are based on sound scientific grounds.¹⁹³ The Mining Code needs further development by including public participation and independent expert reviews as procedural steps to guarantee effective protection of the environment.¹⁹⁴

Furthermore, the Mining Code do not include rules on SEAs, which are better suited than EIAs to identify the cumulative effects of different activities, because it is conducted at a policy level.¹⁹⁵ Public participation, independent expert review and SEAs are regulated through the Espoo Convention, which may be guiding in potentially developing the rules in the Mining Code. Furthermore, the Espoo Convention makes it clear that the decision has to take due account of the EIA. This could be included to the Mining Code to illustrate the necessity of taking into account the EIA report.

¹⁹¹ Bastmeijer, "Theory and practice for transboundary environmental impact assessment" p.372 and 374

¹⁹² Pineschi "The Duty of Environmental Impact Assessment in the First ITLOS Chamber's Advisory Opinion" p.430

¹⁹³ Lallier and Maes, "Environmental impact assessment procedure for deep seabed mining in the area" p.7

¹⁹⁴ Ibid

¹⁹⁵ Elferink, "Environmental Impact Assessment in Areas beyond National jurisdiction" p. 451-452 and 478

Despite the lack of procedural steps such as public participation, independent expert reviews and SEA rules, an overall assessment indicates that the framework of EIA related to deep seabed mining is meeting the aim to work as a tool for sustainable development if compared to the other legal instruments presented in the thesis. However, by assessing the environmental problems of the ocean space as a whole, a proper EIA regime for deep seabed mining activities cannot work alone to achieve the goal of sustainable development. There is a need to assess the problems of ocean space in relation to different activities from a holistic viewpoint because the problems of the oceans are closely interrelated. There is a need to include different aspects of environmental measures, i.e. the establishment of marine protected areas. For impacts to be adequately evaluated, there also is a need to gather information on the environment across borders.¹⁹⁶ This is also applicable for mining activities in ABNJ, because the impacts of deep seabed mining may have transboundary impacts. It is also important to ensure that the EIA influences the decision-making process.

One activity of particular importance is mining at the continental shelves of states. Marine areas within national jurisdiction form a big part of the world's oceans, and it is assumed that massive sulphides are to be found mainly at the continental shelf of states.¹⁹⁷ The Mining Code is not applicable to areas within national jurisdiction, although the activity and uncertainties with regard to the environment are the same. To secure sustainable development of deep-sea habitats, the states need to conduct proper EIAs for activities at their continental shelves. This is because marine biodiversity and the marine environment does not respect marine boundaries, and the "problems of ocean space are closely interrelated and need to be considered as a whole".¹⁹⁸ LOSC Article 206 gives the states considerable leeway to decide how the rules on EIAs shall be incorporated and carried out. Thus, EIAs for areas within national jurisdiction are, to a large extent, developed and elaborated in domestic legislation.¹⁹⁹ Less developed nations may especially lack adequate regulations with regard to EIAs, and their regulations on EIAs may be weaker or non-existent.²⁰⁰ Mining at the continental shelves of these countries could result in serious marine environmental degradation and have adverse effects.

¹⁹⁶ Bastmeijer, *Theory and Practice of Transboundary Environmental Impact Assessment* p. 365

¹⁹⁷ Halfar and Fujita, "Precautionary management of deep-sea mining" p.104

¹⁹⁸ LOSC Preamble

¹⁹⁹ Craik, "The International Law of Environmental Impact Assessment" p.23

²⁰⁰ Halfar and Fujita, "Precautionary management of deep-sea mining" p.103

The threshold that is included in the different frameworks result in that a certain degree of seriousness determines whether the activity must be subject to an EIA procedure.²⁰¹ To ensure better protection of the environment, this should be related more specific to vulnerably indicators, where an EIA should be required where there is a reasonable chance that impact will occur. This would “decrease the broad discretion left to states as to whether to initiate” EIA or not.²⁰² It would be fruitful to discuss on whether there is a need to lower the threshold for the EIA obligation. An argument is that the thresholds for EIAs as applicable to other activities at the deep seabed not covered by the Mining Code should be lower because of the high level of scientific uncertainties for these parts of the oceans.²⁰³

Another problem from the holistic viewpoint is that one specific activity as such may not pose substantive harmful effects on the environment, but two or more activities conducted in the same area may altogether put too much stress on the marine environment.²⁰⁴ In relation to the research question on whether the rules on EIA meets its ideal aim to work as a tool for sustainable development, it is interesting to assess the question of cumulative impacts.

It has been documented that companies have gathered marine genetic resources (MGR) from ABNJ, and some are related to hydrothermal vent microorganisms and product based on a fungus from deep-sea sediments, an area that is also relevant to mining operations.²⁰⁵ Accordingly, certain difficulties of access to genetic resources in ABNJ are the same for mineral resources covered by the administration of ISA, in particular those at profound depths, which have been scarcely explored and studied. MGRs are not specifically mentioned in the LOSC. In contrast, the CBD includes a definition of marine genetic resources in Article 2. Genetic material means “any material of plant, animal microbial or other origin containing functional units of heredity”. Genetic resources are not considered minerals in accordance with LOSC Article 133, and are thus subject to the EIA procedure prescribed in LOSC Article 206.

It is reasonable to assume that managing all deep seabed activities in one single instrument would have been preferential from an environmental perspective, because the activities may in certain instances be performed in the same area as deep seabed mining. It would have

²⁰¹ Bastmeijer, *Theory and Practice of Transboundary Environmental Impact Assessment*, p.362

²⁰² Ibid p.364

²⁰³ Druel, *Environmental Impact Assessments in Areas Beyond National Jurisdiction*” p.36

²⁰⁴ Bastmeijer, *Theory and practice of transboundary environmental impact assessment* p.386

²⁰⁵ United Nations: A/66/70/Add.2 para.167

formed a better platform for assessing and disclosing the cumulative impacts, and would have provided the decision-makers with adequate basis for evaluating whether to commence the potential activity and enable them to take environmental sound decisions. An interesting question is whether the ISA is a suitable authority to administer other activities conducted at the deep seabed, such as sampling of MGR. It is considered as an important factor to have a system in place to ensure international monitoring or supervision mechanism to ensure that the deficiencies of the EIAs and complex issues can be discussed.²⁰⁶ The fact that the ISA is trusted with the mandate to control the mineral resources in the Area with regard to access and benefit sharing as a common heritage of mankind indicates that it is reasonable to discuss whether the ISA or a similar body should organize and decide on other activities at the deep seabed in ABNJ. Since the areas of collection may be similar, the rules on EIA established through the Mining Code may be illustrative for establishing rules on EIAs for other activities. Nevertheless, the rules on EIAs in the Mining Code are developed to meet the conditions and challenges that deep seabed mining imposes. A potential framework that covers other activities must be adapted to the special techniques that apply to the collection of these specific resources.

As mentioned in the introduction chapter, the different issues related to biodiversity in ABNJ are being discussed in the meetings of the BBNJ Working Group. A number of states have highlighted the need to implement the precautionary and ecosystem approaches and the wider use of environmental management tools, including EIAs.²⁰⁷ The BBNJ Working Group has recommended that the General Assembly decide to develop an international legally binding instrument on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction,²⁰⁸ including rules on EIAs, which will be an important contribution to sustainable development.²⁰⁹ The possibility and potential content of a new implementing agreement for biodiversity in ABNJ is not yet absolutely certain. The rules on EIA in relation to deep seabed mining already exist through the Mining Code, but there is clearly a need to adopt regulations on EIAs to other activities in ABNJ and assess the problem of ocean space from a holistic viewpoint and adapting the rules with this as a point of departure in order to achieve the goal of sustainable development.

²⁰⁶ Bastmeijer, *Theory and Practice of Transboundary Environmental Impact Assessment* p.372

²⁰⁷ United Nations: A/62/66/Add.2 para.269

²⁰⁸ United Nations Ad Hoc Open-ended Informal Working Group: A/69/780, para I.1(e)

²⁰⁹ Hubert, "UN General Assembly Resolution to develop a new legally binding instrument on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction" Available at <http://site.uit.no/jclos/2015/08/17/un-general-assembly-resolution-to-develop-a-new-legally-binding-instrument-on-the-conservation-and-sustainable-use-of-marine-biological-diversity-of-areas-beyond-national-jurisdiction/>

6 Remaining problems and the future development of EIAs related to deep seabed mining

There is a need to endorse the aspect of cumulative impacts in relation to the rules specifically covering EIAs and to adapt rules that consider the cumulative impacts of deep seabed mining.²¹⁰ It would also be beneficial for the protection of the marine environment to fill the gap related to the lack of consistency between regional and sectoral frameworks.²¹¹ Not all activities in ABNJ related to the deep seabed are regulated, and the ISA mandate extends solely to mineral resources in the Area. The impacts of the activities that are not covered by an adequate EIA regime may render the total implications on deep seabed biodiversity significant.

Even if an EIA discloses potential harmful effects on the environment, the EIA does not require the proponent of that activity to abandon the activity or mitigate its adverse environmental impact because of its procedural status.²¹² An aspect that might make EIAs for deep seabed mining activities more viable is the adoption of rules on public participation and independent expert reviews. This will provide more transparency to the procedures. Making EIAs subject to public participation supports global capacity building and transparency, which is important because the resources in the area are considered as the common heritage of mankind. Public participation is needed because the expectation is that this provides qualitative comment on the suitability of projects capable of balancing or even countering scientific information about possible effects on the environment which is important in decision making procedures.²¹³ Independent expert reviews are important to ensure that the decisions are taken on the basis of the best available scientific and technical information.²¹⁴

As previously stated, there is an interaction between science and law. Science may have an indirect normative influence and plays an important role in determining outcomes of the EIA process.²¹⁵ Establishing a close interconnection and co-operation between the two sets of fields of expertise will benefit the EIA procedure because it may mitigate the scientific uncertainty in relation to deep seabed mining, which poses a challenge to the regime of

²¹⁰ Druel, *Environmental Impact Assessments in Areas Beyond National Jurisdiction* p.33

²¹¹ Ibid

²¹² Craik "The International Law of Environmental Impact Assessment" p.4

²¹³ Holder and Lee "Environmental Protection, Law and Policy" p.548

²¹⁴ Lallier and Maes, "Environmental impact assessment procedure for deep seabed mining in the area" p.4 and 7

²¹⁵ Craik, *The International Law of Environmental Impact Assessment* p.216-217

EIAs.²¹⁶ In the environmental context, reviews are based upon, *inter alia*, data related to the state of the environment. For science to play an adequate role, the decision-making process must allow for laws and practice to be revised in light of new scientific information.²¹⁷ This together with expert reviews will provide the decision makers with the information necessary to make an adequate decision on whether to commence the process of the activity.

Incorporating SEA requirements to deep seabed mining activities would be beneficial in relation to ensure that the impacts are addressed at the earliest possible stage in the decision-making process,²¹⁸ as SEA applies at a plan or programme level, not a project level.²¹⁹ This system is capable of accommodating different aspects of decision making, at the deeper level of policy coordination.²²⁰ By nature it covers a wider area or a wider range of activities, and often over a longer time span than the EIAs of projects. Thus, SEAs are in a better position to evaluate the cumulative impacts of deep seabed activities. The emerging development of SEAs in international instruments reflects an “expansion of the scale of concerns in environmental law”.²²¹ It is important to adopt this to deep seabed mining both for exploration and exploitation when this activity commences.

The impact of deep seabed mining is uncertain, but exploration has begun anyway. Large-scale commercial mining has not yet commenced. The rules in the Mining Code and the LTC Recommendations are largely developed for exploration activities, and are not adequately developed to meet the challenges of exploitation activities. It is preferred to have a system in place before commercial mining-exploitation of resources commences. This is important for both the deep seabed and the continental shelves of states. As mentioned in subchapter 5.2, the ISA is working on developing regulations on exploitation activities for the deep seabed. Nevertheless, the rules and regulations in the Mining Code are not applicable to mining activities at the continental shelves, even though the challenges and aspects of the uncertainties of the impacts on the environment are the same.

²¹⁶ Le Gurun, “Environmental impact assessment and the international Sea Bed authority” p. 223- 224

²¹⁷ Kirk, “Science and the international regulation of marine pollution” in *The Oxford Handbook of the Law of the Sea*, ed. Donald Rothwell et.al (2015) p.517.

²¹⁸ Druel, “Environmental impact assessments in areas beyond national jurisdiction” p.37

²¹⁹ Ibid p.12

²²⁰ Holder and Lee, *Environmental Protection, Law and Policy* p.597

²²¹ Ibid p. 549

It may be more challenging to maintain the best environmental safeguards once commercial scale mining commences.²²² If exploitation licenses are granted in the future, a specific hurdle will be to assess the different environmental challenges due to the different techniques for the divergent minerals found at the deep seabed. It is assumed that “whether deep-sea mining will be a viable activity in the future depends largely on its environmental impacts, which have yet to be fully assessed”.²²³ It is preferential to establish a framework on exploitation activities before commercial mining commences. A viable code for mining must be developed, including rules for EIAs at the stages of test mining and commercial exploitation. The potential for a severe impact imposes a challenge on how to balance the increasing global demand for metals and rare-earth elements and the need to protect the deep-sea ecosystem. The level of understanding of the ecology and structure of the deep sea must be sufficient to conduct an adequate assessment of the effects of commercial mining.

²²² Warner, “Conserving marine biodiversity in areas beyond national jurisdiction, Co-evolution and interaction with the Law of the Sea” in *The Oxford Handbook of the Law of the Sea*, ed. Donald Rothwell et.al (2015) p.764

²²³ Petersen, “News from the Seabed” p.11

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