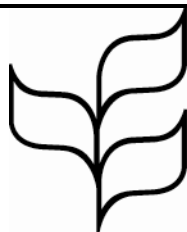




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### **EXPERT WORKSHOP ON SCIENTIFIC AND TECHNICAL ASPECTS RELEVANT TO ENVIRONMENTAL IMPACT ASSESSMENT IN MARINE AREAS BEYOND NATIONAL JURISDICTION**

Manila, 18 - 20 November 2009

### **BACKGROUND DOCUMENT TO AN EXPERT WORKSHOP ON SCIENTIFIC AND TECHNICAL ASPECTS RELEVANT TO ENVIRONMENTAL IMPACT ASSESSMENT IN MARINE AREAS BEYOND NATIONAL JURISDICTION**

#### **Part I: Review of Scientific and Technical Aspects of Global, Regional and National Environmental Impact Assessment Frameworks and Their Relevance to Marine Areas Beyond National Jurisdiction**

*Note by the Executive Secretary*

#### **BACKGROUND**

1. Pursuant to decision IX, paragraph 10, the Executive Secretary is convening, with financial support from the European Commission, an Expert Workshop on Scientific and Technical Aspects relevant to Environmental Impact Assessment in Marine Areas Beyond National Jurisdiction, to be held at the Pan Pacific Hotel in Manila, the Philippines, from 18 to 20 November 2009.
2. To facilitate effective contribution of inputs to this expert workshop, the Secretariat has commissioned a background study, with a financial support from the Government of Spain, to review key scientific and technical elements in selected global, sectoral, regional and national environmental impact assessment (EIA) and strategic environmental assessment frameworks with a view to identifying which of those elements should be considered in developing scientific and technical guidance for the implementation of environmental impact assessments and strategic environmental assessments for activities and processes under their jurisdiction and control which may have significant adverse impacts on marine biodiversity beyond national jurisdiction.
3. The results of this study are compiled in two parts, including this note (Part I) and another document UNEP/CBD/ EW-EIAMA/1/INF/1/Add.1 (Part II). This note focuses on reviewing scientific and technical aspects of global, regional and national environmental impact assessment frameworks and their relevance to marine areas beyond national jurisdiction. Part II deals with: (i) reviewing scientific and technical aspects of global, regional and national experiences of strategic environmental assessment and their relevance to marine areas beyond national jurisdiction; and (ii) identifying possible elements to be considered as contribution to the development of scientific and technical guidance for environmental impact assessment and strategic environmental assessment in marine areas beyond national jurisdiction. These notes are submitted as information for participants to the Workshop.

In order to minimize the environmental impacts of the Secretariat's processes, and to contribute to the Secretary-General's initiative for a C-Neutral UN, this document is printed in limited numbers. Delegates are kindly requested to bring their copies to meetings and not to request additional copies.

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## INTRODUCTION

4. At its ninth meeting in 2008, the Conference of Parties to the Convention on Biological Diversity (COP) invited Parties, other Governments and relevant organizations, including in the context of the United Nations 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 and to cooperate in further developing scientific and technical guidance for the implementation of EIAs and strategic environmental assessments (SEA) for activities and processes under their jurisdiction which may have significant adverse impacts on marine biodiversity beyond national jurisdiction, taking into consideration the work of the Food and Agricultural Organization (FAO) of the United Nations (UN), the International Maritime Organization (IMO) and other relevant organizations, with a view to ensuring such activities are regulated in such a way that they do not compromise ecosystem integrity and to report to COP at its tenth meeting on progress made in that regard (Decision IX/20, paragraph 8). COP 9 also noted the need for capacity building for developing countries, in order to fully implement existing provisions of EIA, as well as the challenges and difficulties in carrying out EIA in marine areas beyond national jurisdiction.

5. COP 9 then decided to convene an expert workshop, taking into account the relevant provisions of the United Nations Convention on the Law of the Sea (LOSC) and the Convention on Biological Diversity (CBD) and including experts from different relevant organizations, with balanced regional and sectoral representation, to discuss scientific and technical aspects relevant to EIA in areas beyond national jurisdiction with a view to contributing to the development of such scientific and technical guidance, building on ongoing relevant sectoral, regional and national EIA efforts. In response to this request, the CBD Secretariat is convening an expert workshop in Manila, Philippines from 18 to 20 November 2009 (Decision IX/20, paragraph 10).

6. This background document, which was prepared as information for participants at the expert workshop in November 2009, builds upon the CBD Voluntary Guidelines on biodiversity-inclusive impact assessment (Annex I to Decision VIII/28, 9 January 2006) and in particular:

- (a) review, compile, analyse and synthesize existing literature and information on scientific and technical aspects of global, sectoral, regional and national EIA efforts of relevance to marine areas beyond national jurisdiction; and
- (b) provide recommendations for possible elements to be considered for the development of scientific and technical guidance for EIA in marine areas beyond national jurisdiction.

## **DESCRIPTION AND ANALYSIS OF SCIENTIFIC AND TECHNICAL ASPECTS OF GLOBAL, REGIONAL AND NATIONAL ENVIRONMENTAL IMPACT ASSESSMENT FRAMEWORKS AND THEIR RELEVANCE TO MARINE AREAS BEYOND NATIONAL JURISDICTION**

7. The genesis of environmental impact assessment processes lies in domestic law; in particular the National Environment Policy Act (NEPA) 2000 of the United States of America, first enacted in 1969, which reflected a growing political consciousness of the adverse impacts of human activities on the environment, at least for areas within national jurisdiction. There has been a parallel development of environmental impact assessment obligations in international instruments which has been influenced by the evolution of international environmental law principles such as the obligation to protect and preserve the marine environment, the duty to prevent transboundary harm, the duty to cooperate and the precautionary principle. The 1987 United Nations Environment Programme's Goals and Principles of Environmental Impact Assessment (UNEP EIA Principles) provide some fundamental guidelines on EIA. For example, Principle 1 provides that States should not undertake or authorize activities without prior consideration at an early stage of their environmental effects.

8. At the global and regional level, instruments applicable to activities in marine areas within and beyond national jurisdiction frequently reflect an obligation to conduct environmental impact assessments of the effects of such activities on the marine environment. Some national legislation reflects obligations to conduct environmental impact assessments on activities likely to have significant adverse effects on transboundary areas and in very limited cases on areas beyond national jurisdiction. Under domestic law a number of typical components have come to be associated with an environmental impact assessment, including the screening of activities to determine whether environmental impact assessment is required, the scoping and content of assessments, notification of and public participation in assessment processes, post-assessment obligations, during- and post-activity monitoring of environmental impacts and compliance with mitigation measures. This section reviews the typical components of an environmental impact process and their implementation in global and regional instruments relevant to marine areas beyond national jurisdiction. Selected national legislation which relates to the effects of activities under national jurisdiction or control on marine areas beyond national jurisdiction is also examined.

### **A. Screening**

#### **Threshold for Screening**

9. The term 'screening' signifies the application of threshold criteria to determine which activities will be subject to an environmental impact assessment. The most common threshold defined in multilateral instruments is the likelihood of an activity having a significant and harmful or adverse effect on the environment. The United Nations Convention on the Law of the Sea (LOS) provides in Article 206 that where States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment. This obligation extends to marine areas within and beyond national jurisdiction; however,

the words “as far as practicable” have been interpreted as limiting the obligation to a State’s domestic capacity and resources to conduct such assessments.<sup>1</sup>

10. The threshold of “significant and harmful changes” to the marine environment is found in many of the regional seas conventions’ provisions on environmental impact assessment. Responsibility for developing environmental impact assessment guidelines, legislation and processes which prevent or minimize harmful effects on the Convention Area is devolved in most cases to States Parties with the assistance of competent global, regional and sub-regional organizations. In most cases the environmental impact assessment obligation of the States Parties is limited to activities which affect marine areas within national jurisdiction and to transboundary effects among the States Parties, although there are some regional seas conventions which include high seas areas in their geographic scope of application.<sup>2</sup>

11. In the Convention on Biological Diversity (CBD), Contracting Parties are required to identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity and to monitor their effects through sampling and other techniques (Art. 7(c)). This obligation applies to processes and activities, regardless of where their effects occur, carried out under the jurisdiction or control of Contracting Parties in areas under their national jurisdiction or beyond the limits of national jurisdiction (Art. 4 (b)).

12. In the fisheries sector, the threshold of significant adverse impact is used in the 2009 FAO International Guidelines for the Management of Deep Sea Fisheries in the High Seas, which were developed to help States and regional fisheries management organizations and arrangements implement a call from the United Nations General Assembly to prevent significant adverse impacts on vulnerable marine ecosystems or not to authorize the bottom fishing activity to proceed (UNGA resolution 61/105 paragraphs 80-91) . In the subsequent FAO guidelines, significant adverse impacts are defined as those that compromise ecosystem integrity (i.e., ecosystem structure or function) in a manner that:

- (i) impairs the ability of affected populations to repair themselves;
- (ii) degrades the long-term natural productivity of habitats; and
- (iii) causes, on more than a temporary basis, significant loss of species richness, habitat or community types.

13. The Guidelines specify that impacts should be evaluated individually, in combination and cumulatively. Some international conventions applicable to particular species which migrate through marine areas beyond national jurisdiction require parties to assess the potential impact of proposed activities, plans and programmes on such species, but devolve responsibility to the national level for fulfilling these obligations. The Convention on the Conservation of Migratory Species of Wild Animals (CMS) in its Resolution 7.2 on Impact Assessment and Migratory Species of 8 September 2002 urges Parties to include in EIAs and SEAs as complete a consideration as possible of effects involving impediments to migration, of transboundary effects on migratory species, and of impacts on migratory patterns or migratory ranges.

14. A subsidiary agreement to the CMS, the 2001 Agreement for the Conservation of Albatross and Petrels provides in Annex 3 that the Parties shall assess the potential impact on albatrosses and petrels of policies, plans, programmes and projects which they consider likely to affect the conservation of albatrosses and petrels before any decision on whether to adopt such policies, plans, programmes and projects is made and to make the results of these assessments publicly available. Another subsidiary agreement to the CMS, the 1996 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS), requires Parties to carry out impact

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<sup>1</sup> Myron Nordquist, *United Nations Convention on the Law of the Sea. A Commentary* (Boston, Martinus Nijhoff, 1985) at para 206.6(b).

<sup>2</sup> The scope of application of the 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, the 1992 Convention for the Protection of the Marine Environment of the North-east Atlantic (OSPAR Convention) and the 1995 Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) extends to marine areas beyond national jurisdiction.

assessments in order to provide a basis for either allowing or prohibiting the continuation or the future development of activities that may affect cetaceans or their habitat in the Agreement area, including fisheries, offshore exploration and exploitation, nautical sports, tourism, and cetacean watching, as well as establishing the conditions under which such activities may be conducted. In Resolution No. 4, Adverse Effects of Sound, Vessels and other Forms of Disturbance on Small Cetaceans of 12 December 2006 to the 1991 Agreement on Small Cetaceans of the Baltic and North Seas (ASCOBANS), the Parties called for the development, with military and other relevant authorities, of effective mitigation measures, including EIAs and relevant standing orders, to reduce disturbance of and potential physical damage to small cetaceans.

15. The test applied for screening activities for environmental impact assessment under the Madrid Protocol to the Antarctic Treaty is more complex and multi-layered than many other international instruments. Bastmeijer and Roura explain the screening process in terms of three levels – the preliminary assessment level, the initial environmental evaluation level and the comprehensive environmental evaluation level.<sup>3</sup> A preliminary assessment is carried out at the national level for all activities subject to the Protocol with less than a minor or transitory impact. If an activity has no more than a minor or transitory impact, an initial environmental evaluation must be carried out, and if it has more than a minor or transitory impact, a comprehensive environmental evaluation must be carried out. All activities, both governmental and non-governmental, in the Antarctic treaty area (south of 60 degrees south latitude) are subject to these provisions, except for fishing, sealing, whaling and emergency operations, as these are covered by other international instruments.

### **Methods and Criteria Used in Screening**

16. Various methods of screening to determine whether an impact is significant and harmful to the environment have been employed in multilateral instruments and national legislation. The UNEP EIA Principles list some of the mechanisms States can use to determine whether an activity is likely to significantly affect the environment, including:

- Lists of categories of activities that by their nature are, or are not, likely to have significant effects;
- Lists of areas that are of special importance or sensitivity (such as national parks or wetland areas), so that any activity affecting such areas is likely to have significant effects;
- Lists of categories of resources (such as water, tropical rain forests, etc.), or environmental problems (such as increased soil erosion, desertification, deforestation) which are of special concern, so that any diminution of such resources or exacerbation of such problems is likely to be significant;
- An initial environmental evaluation, i.e., a quick informal assessment of the proposed activity to determine whether its effects are likely to be significant; and
- Criteria to guide determinations on whether the effects of a proposed activity are likely to be significant.

17. The 1991 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) employs a combination of these mechanisms to determine whether a proposed activity is likely to have a significant adverse transboundary impact and should therefore be subject to an environmental impact assessment. Parties are required to establish an environmental impact assessment procedure for activities listed in Appendix I that are likely to cause significant adverse transboundary impact. Of the activities listed in Appendix I, large-diameter oil and gas pipelines and offshore hydrocarbon production are relevant for their potential to affect biodiversity beyond national jurisdiction (ie. The high seas water column), Parties are also required to enter into discussions, at the initiative of any

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<sup>3</sup> Kees Bastmeijer and Timo Koivurova, *Theory and Practice of Transboundary Environmental Impact Assessment* (Leiden, Martinus Nijhoff Publishers, 2008) 182.

Party, on whether activities not listed in Appendix I are likely to cause adverse transboundary impacts and, where they so agree, to subject those activities to the prescribed environmental impact assessment procedure. Appendix III sets out the following general criteria to assist in determining whether an activity is likely to have a significant adverse transboundary impact:

- Size: proposed activities which are large for the type of activity;
- Location: proposed activities which are located in or close to an area of special environmental sensitivity or importance (such as wetlands designated under the RAMSAR Convention, national parks, nature reserves, sites of special scientific interest, or sites of archaeological, cultural or historical importance); also, proposed activities in locations where the characteristics of the proposed development would be likely to have significant effects on the population;
- Effects: proposed activities with particularly complex and potentially adverse effects, including those giving rise to serious effects on humans or on valued species or organisms, those which threaten the existing or potential use of an affected area, and those causing additional loading which cannot be sustained by the carrying capacity of the environment.

18. At the sub-regional level, the Espoo Convention has prompted the negotiation of the draft Protocol on Environmental Impact Assessment in a Transboundary Context to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea. This instrument, using a threshold of significant adverse effect on the marine environment, lists activities in Appendix I which are recognized as being likely to cause significant adverse transboundary environmental impacts. These include oil, gas and petrochemical industry exploration and extraction activities, the laying at the bottom of the sea of oil and gas pipelines, construction of artificial islands, spits and reefs in the coastal zone, introduction of species alien to natural ecological systems, and plans, programmes, concepts, and other documents aimed at the solution of global environmental problems, such as preservation of the ozone layer and biodiversity, which are likely to affect the marine environment of the Caspian Sea.

19. The Guidelines for Environmental Impact Assessment in the Arctic, although not legally binding on Arctic States, specify that, in the Arctic, EIA should be applied to activities associated with the exploitation of both renewable and non-renewable natural resources, public use, military activities, and the development of infrastructure for different purposes that may cause significant environmental impacts. They note that the two main approaches adopted by Arctic States for deciding on the application of EIA procedures are mandatory assessment based on lists of environmentally harmful projects and case-by-case decisions. The Guidelines also note that the sensitivity of Arctic areas may justify the application of lower threshold levels for environmental impact assessment which recognise the sensitivity of Arctic areas and the potential for cumulative impacts. Sensitivity criteria in the marine context can be based on factors such as: time period of the project, the status of marine species, habitats and ecosystems in particular marine areas, the level of production or quantities of emissions involved in a particular project, and the scientific and cultural significance of particular marine areas. The example is given of an environmental impact assessment being undertaken for the first scientific expedition in Arctic waters of the Swedish icebreaker Oden in 1991 because of concerns about the effects of underwater noise, interference with marine mammals and exhaust emissions.

20. The CBD Voluntary Guidelines for Biodiversity-Inclusive Environmental Impact Assessment emphasise the importance of including biodiversity-related criteria in the screening process. These Guidelines specify the following questions related to biodiversity impacts which should be asked in any screening process:

- Would the intended activity affect the biophysical environment directly or indirectly in such a manner or cause such biological changes that it will increase risks of extinction of genotypes, cultivars, varieties, populations of species, or the chance of loss of habitats or ecosystems?
- Would the intended activity surpass the maximum sustainable yield, the carrying capacity of a habitat/ecosystem or the maximum allowable disturbance level of a resource, population, or

ecosystem, taking into account the full spectrum of values of that resource, population or ecosystem?

- Would the intended activity result in changes to, and/or rights over biological resources?

21. These Guidelines raise some of the limitations of using negative or positive lists of types of activities which should be subject to environmental impact assessment. Instead, they advocate lists identifying those geographical areas where important biodiversity is found, in which projects would require environmental impact assessment. They also recommend that biodiversity expertise be included in expert teams assessing whether particular activities should be subject to environmental impact assessment.

22. Some sectoral instruments relevant to marine areas beyond national jurisdiction automatically subject certain activities to environmental impact assessment. In the deep seabed mining sector, Regulation 18 (c) and (d) of the Polymetallic Nodules Regulations provide that applicants for exploration contracts must submit a preliminary assessment of the possible impact of the proposed exploration activities on the marine environment and a description of proposed measures for the prevention, reduction, and control of possible impacts on the marine environment to the International Seabed Authority. Regulation 20 (b), (c) and (d) of the draft Polymetallic Sulphides Regulations provide that applicants for exploration contracts must provide a description of the programme for oceanographic and environmental baseline studies that would enable an assessment of the potential environmental impact, including but not restricted to the impact on biodiversity of the proposed exploration activities, a preliminary assessment of the possible impact of the proposed exploration activities on the marine environment, and a description of proposed measures for the prevention, reduction and control of possible impacts on the marine environment.

23. In the maritime sector, Annex II of the 1996 London Protocol provides that applications to State Party authorities for permits to dump wastes permitted to be dumped at sea under Annex I must be accompanied by an assessment of the sea disposal options, including information on waste characteristics, conditions at the proposed dump site, fluxes and proposed disposal techniques and specify the potential effects on human health, living resources, amenities and other legitimate uses of the sea. These assessments can apply to dumping of wastes in marine areas beyond national jurisdiction as well as to areas within national jurisdiction.

24. In the fisheries sector, the UN Fish Stocks Agreement requires States to assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks, to develop data collection and research programmes to assess the impact of fishing on non-target and associated or dependent species and their environment, and to adopt plans which are necessary to ensure the conservation of such species and to protect habitats of special concern (articles 5 (d) and 6.(3.(d)). This is elaborated in the 2009 International Guidelines for the Management of Deep Sea Fisheries, which call for States to conduct assessments of individual bottom fishing activities, and to adopt measures to prevent significant adverse impacts on vulnerable marine ecosystems (VMEs). These procedures include identifying areas or features where VMEs are known or likely to occur and the location of fisheries in relation to these areas and features, and developing data collection and research programmes to assess the impact of fishing on target and non-target species and their environment. These Guidelines list the characteristics of VMEs which should be subject to assessments and give examples of potentially vulnerable species groups, communities and habitats, as well as features that potentially support them. The definitions and examples given of VMEs in the Deep Sea Fisheries Guidelines are useful in developing the potential elements to be included in more general guidance on Environmental Impact Assessment in Marine Areas beyond National Jurisdiction and will be discussed further in Section 4.

25. In national legislation, a variety of classifications and criteria is used to determine which projects pass the threshold of significance for the purpose of applying EIA processes. Under NEPA an environmental impact statement is required for all federal Government actions “significantly affecting the quality of the human environment” (NEPA 42 USC Section 102 4332). The term “human environment” is not limited in geographic scope, but there is no specific reference to incorporating significant impacts on

the human environment beyond national jurisdiction into an EIS. The legislation of European countries follows the guidance in EC Directive 85/337 on the Assessment of the Effects of Certain Public and Private Projects on the Environment which provides in Article 4 that projects listed in Annex I shall *prima facie* be made subject to an EIA and that Member States shall apply defined criteria to determine whether projects listed in Annex II shall be subject to an EIA. Of those projects listed in Annex I, only extraction of petroleum and natural gas for commercial purposes, where the amount extracted exceeds 500 tonnes a day in the case of petroleum and 500,000 cubic metres a day in the case of gas, and the laying of pipelines for the transport of gas, oil and chemicals with a diameter of more than 800 mm and a length of more than 40 km appear to be relevant to marine areas beyond national jurisdiction and offshore hydrocarbon production is not specifically mentioned. Under Article 4(2) and (3), Member States are to determine through a case-by-case examination or thresholds or criteria set by the States whether projects listed in Annex II are to be subject to an EIA. Of the projects listed in Annex II, the most relevant to marine areas beyond national jurisdiction are: intensive fish farming, extraction of minerals by marine dredging, installations for the harnessing of wind power for energy production, and oil and gas pipeline installations not included in Annex I. Annex III prescribes criteria which Member States must take into account in making this determination, including the size of the project, its cumulative effects with other projects, the use of natural resources, the production of waste, pollution, the risk of accidents, the relative abundance, quality and regenerative capacity of natural resources in the area, the absorption capacity of the natural environment, and the extent, transfrontier nature, magnitude, complexity, probability, duration, frequency and reversibility of the impact. Notwithstanding the comprehensive nature of these criteria, they do not include an assessment of the impact of the proposed project on areas beyond national jurisdiction.

26. The Canadian Environmental Assessment Act 1995 adopts a different approach, applying various levels of EIA to all projects where a federal authority has specific decision-making responsibility associated with the project and where the project is not listed in the Exclusion List regulations. This approach could capture projects with effects on marine areas beyond national jurisdiction, but there are no specific provisions in the Act requiring EIAs to identify these effects. The Australian Environment Protection and Biodiversity Conservation Act 1999 lists certain actions which are *prima facie* subject to an environmental approval process on the basis of their significant impact on certain areas. Ministerial approval is required for actions in Commonwealth marine areas that will have or are likely to have a significant impact on the environment. The only parts of a Commonwealth marine area which are relevant to marine areas beyond national jurisdiction are waters above the extended continental shelf, meaning that any projects and developments undertaken in these waters would be subject to environmental approval by the Minister for Environment.

27. In Japan, the 1997 Environmental Impact Assessment Law lists thirteen types of projects which are subject to EIA processes. Among these, large-scale projects which could have a serious impact on the environment are classified as Class 1 projects and must automatically follow the EIA process prescribed under the Act. Smaller-scale projects within the thirteen prescribed types are subject to a screening process, involving the application of certain judgment criteria, which determines whether they will be subject to an EIA. The list of project types subject to the EIA Law does not currently contain any activities which are relevant to marine areas beyond national jurisdiction, unless waste disposal sites can be interpreted as including marine dumping sites.

28. In New Zealand, the equivalent to an EIA process, known as a resource consent under the Resource Management Act 1991, does not apply to activities beyond the outer limits of the territorial sea or the coastal marine area as defined in the Act. The Law of the People's Republic of China on Environmental Impact Assessment 2002 applies to any project within the territory of the PRC or within other seas subject to the jurisdiction of the PRC (Article 3). The Environmental Impact Assessment Act of Iceland applies to projects on land, in Icelandic territorial waters, air space and within Iceland's pollution zone (Article 2). The Nature Management Act (Act of 19 June 2009) currently before the Norwegian Parliament requires that any pressure on an ecosystem shall be assessed on the basis of the cumulative environmental effects on the ecosystem now and in the future, but the geographical scope of the Act is generally limited to Norway's land territory and its waters out to the 12-nautical-mile territorial limit;



however, section 10 is also applicable to the continental shelf and areas under Norwegian jurisdiction beyond the territorial sea to the extent appropriate.

29. The National Environmental Management Act 1998 of South Africa and its EIA regulations apply within the Republic of South Africa; however, section 24 (6) does provide that the Minister for the Environment may make regulations stipulating the procedure to be followed and the report to be prepared in investigating, assessing and communicating potential impacts where the activity will affect the interest of more than one province or traverse international boundaries or will affect compliance with obligations resting on the Republic under customary or conventional international law. Although specific regulations have not been made under this enactment to cover impacts on the marine environment beyond national jurisdiction, this is a possible legislative mechanism for other States to adopt to incorporate consideration of potential impacts on the marine environment beyond national jurisdiction.

30. In general, the screening processes prescribed in national legislation on EIA will not capture proposed activities or projects to be conducted exclusively in marine areas beyond national jurisdiction, with the exception of some projects conducted on the extended continental shelf, but they may capture those offshore projects and activities within national jurisdiction which have impacts on marine areas beyond national jurisdiction. None of the national legislative enactments on EIA reviewed above contain explicit provisions requiring proponents to identify the impacts of proposed activities on the marine environment beyond national jurisdiction however there may be sectoral examples of national legislation requiring such assessments e.g. for fisheries activities conducted by national flag vessels on the high seas.

## **B. Scoping and Content of Environmental Impact Assessments**

31. Once the need for an EIA has been agreed, a scoping process follows that determines the focus, depth and terms of reference for the EIA. The fundamental objective of the scoping process is to identify those issues arising from the proposed activity which are most likely to have a significant impact on the environment and to describe alternatives that avoid, mitigate, or compensate for adverse impacts on the environment. The content of the EIA report is derived on the basis of these elements. While the scoping process tends to be more fully articulated in national legislation and policy documents on EIA, some global, regional and sectoral instruments relevant to marine areas beyond national jurisdiction provide specific guidance on the scoping and content of EIA reports.

32. The 1987 UNEP Goals and Principles of EIA specify that an EIA should include, at a minimum:

- (a) A description of the proposed activity;
- (b) A description of the potentially affected environment, including specific information necessary for identifying and assessing the environmental effects of the proposed activity;
- (c) A description of the practical alternatives, as appropriate;
- (d) An assessment of the likely or potential environmental impacts of the proposed activity and alternatives, including the direct, indirect, cumulative, short-term and long-term effects;
- (e) An identification and description of measures available to mitigate adverse environmental impacts of the proposed activity and alternatives, and an assessment of those measures;
- (f) An indication of gaps in knowledge and uncertainties which may be encountered in compiling the required information;
- (g) An indication whether the environment of any other State or of areas beyond national jurisdiction are likely to be affected by the proposed activity or alternatives; and
- (h) A brief non-technical summary of the information provided under the above headings.

33. Appendix II to the 1999 Espoo Convention provides similar minimum requirements for an EIA, but adds some technical issues including:

(a) An explicit indication of predictive methods and underlying assumptions, as well as the relevant environmental data used; and

(b) Where appropriate an outline for monitoring and management programmes and any plans for post-project analysis.

34. The CBD Voluntary Guidelines on Biodiversity-Inclusive EIA elaborate on the types of impacts and alternatives which should be identified and examined in a biodiversity-inclusive EIA report. The recommended examination of impacts includes:

(a) Describe expected biophysical changes (in soil, water, flora, fauna) resulting from proposed activities or induced by any socio-economic changes caused by the activity;

(b) Determine the spatial and temporal scale of influence of each biophysical change, identifying effects on connectivity between ecosystems, and potential cumulative effects;

(c) Describe ecosystems and land-use types lying within the range of influence of biophysical changes;

(d) Determine, for each of these ecosystems or land-use types, if biophysical changes are likely to have adverse impacts on biodiversity in terms of composition, structure (spatial and temporal) and key processes. Give confidence levels in predictions, and take into account mitigation measures. Highlight any irreversible impacts and any irreplaceable loss;

(e) For the affected areas collect available information on baseline conditions and any anticipated trends in biodiversity in the absence of the proposal;

(f) Identify, in consultation with stakeholders, the current and potential ecosystem services provided by the affected ecosystems or land-use types and determine the values these functions represent for society. Give an indication of the main beneficiaries and those adversely affected from an ecosystem-services perspective, focusing on vulnerable stakeholders; and

(g) Determine which of these services will be significantly affected by the proposed project, giving confidence levels in predictions, and taking into account mitigation measures. Highlight any irreversible impacts and any irreplaceable loss.

35. The recommended examination of alternatives and mitigation measures includes:

(a) Define possible alternatives including “no net biodiversity loss” or “biodiversity restoration” alternatives. Alternatives include location alternatives, scale alternatives, siting or lay-out alternatives, and/or technology alternatives; and

(b) Define possible measures to avoid, minimize or compensate for significant damage to, or loss of, biodiversity and/or ecosystem services; define possibilities to enhance biodiversity. Make reference to any legal requirements.

36. The Madrid Protocol to the Antarctic Treaty, which applies to substantial high seas areas, contains detailed provisions on scoping and content of EIA reports. For activities having only a minor or transitory effect on the Antarctic environment, the requirements are fairly minimal. An initial environmental evaluation (IEE) for this type of activity must contain:

(a) A description of the proposed activity, including its purpose, location, duration and intensity; and

(b) consideration of alternatives to the proposed activity and any impacts that the activity may have, including consideration of cumulative impacts in the light of existing and known planned activities.

37. Activities having more than a minor or transitory impact are subject to a more in-depth assessment in keeping with the pristine and sensitive nature of the Antarctic environment and lack of scientific understanding of potential impacts. A comprehensive environmental evaluation (CEE) must contain:

- (a) A description of the proposed activity, including its purpose, location, duration and intensity, and possible alternatives to the activity, including the alternative of not proceeding and the consequences of those alternatives;
- (b) A description of the initial environmental reference state with which predicted changes are to be compared and a prediction of the future environment reference state in the absence of the proposed activity;
- (c) A description of the methods and data used to forecast the impacts of the proposed activity;
- (d) Estimation of the nature, extent, duration and intensity of the likely direct impacts of the proposed activity;
- (e) Consideration of possible second-order or indirect impacts of the proposed activity;
- (f) Consideration of cumulative impacts of the proposed activity in light of existing activities and other known planned activities;
- (g) Identification of measures, including monitoring programmes, that could be taken to minimise or mitigate impacts of the proposed activity and to detect unforeseen impacts and that could provide early warning of any adverse effects of the activity, as well as to deal promptly and effectively with accidents;
- (h) identification of unavoidable impacts of the proposed activity;
- (i) consideration of the effects of the proposed activity on the conduct of scientific research and on other existing uses and values;
- (j) An identification of gaps in knowledge and uncertainties encountered in compiling the information required under this paragraph; and
- (k) A non-technical summary of the information provided under this paragraph.

38. Detailed EIA procedures are also being included in the draft Protocol being developed to the Framework Convention for the Protection of the Marine Environment of the Caspian Sea. Appendix 2 to the draft EIA Protocol contains very comprehensive prescriptions for an EIA, listing multiple characteristics of impacts which must be described, the current environmental status of the receiving environment, and a prognosis of the environmental status change predicted to be caused by the proposed activity, the measures directed at prevention, reduction, elimination or minimization of the adverse environmental impacts of the proposed activity, and a substantiation of the choice of the proposed activity in view of all considered alternative options.

39. Other regional seas agreements generally do not incorporate scoping and content prescriptions for EIA in their framework conventions, leaving this responsibility to the more detailed legislative enactments of their member States. In many regions, however, these organizations have contributed to the design and implementation of EIA requirements through capacity-building workshops. Their continuing role in promoting best-practice standards of EIA will be important in implementing EIA Guidelines for activities in marine areas beyond national jurisdiction.

40. Scoping and content provisions for EIA reports have been developed for a range of sectoral activities which occur in marine areas beyond national jurisdiction. In the maritime sector, dumping of certain wastes can be considered under Annex 1 to the London Protocol (though the dumping of most wastes is prohibited). Dump sites at sea can include areas beyond national jurisdiction. Under Annex 2 to the Protocol, each application for a permit to dump waste permitted to be dumped at sea under Annex 1 must be accompanied by an assessment of the potential effects of the disposal-at-sea option. The assessment must integrate information on waste characteristics, conditions at the proposed dump site(s), fluxes and proposed disposal techniques, and specify the potential effects on human health, living resources, amenities and other legitimate uses of the sea. It should define the nature, temporal and spatial scales, and duration of expected impacts based on reasonably conservative assumptions. An analysis of

the disposal-at-sea option must be included, based on a comparative assessment of human health risks, environmental costs, hazards (including accidents), economics and exclusion of future uses.

41. In the Legal and Technical Commission Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the Area (ISBA/7/LTC/1/Rev.1\*\* of 13 Feb 2002), contractors are advised to provide very detailed information on three categories of activities which, by their nature, have a significant impact on the environment:

- (a) Dredging to collect nodules for on-land studies for mining or processing;
- (b) Use of special equipment to study the reaction of the sediment to disturbances made by collecting devices or running gear; and
- (c) Testing of collecting systems and equipment.

42. In respect of these activities, contractors are required to provide information on:

- (a) Nodule collection techniques (passive or active mechanical dredges, hydraulic suction, water jets);
- (b) Depth of penetration into the seabed;
- (c) Running gear (skis, wheels, caterpillars, Archimedes screws, bearing plates, water cushion, etc.) which contacts the seabed;
- (d) Methods for separation on the seafloor of the nodules and the sediment, including washing of the nodules, volume of the discharged sediment mixed with water, concentration of particles in the discharge mixture, height of discharge above the seafloor, etc;
- (e) Nodule crushing methods;
- (f) Methods for transporting the nodules to the surface;
- (g) Separation of the nodules on the surface vessel from the fines and the sediment;
- (h) Methods for dealing with the abraded nodule fines and sediment;
- (i) Volume and depth of overflow discharge, concentration of particles in the discharged water, and chemical and physical characteristics of the discharge;
- (j) Location of the mining test and boundaries of the test area;
- (k) Probable duration of the test; and
- (l) Test plans (collecting pattern, area to be perturbed, etc.)

43. Many less intrusive activities conducted by exploration contractors are specifically excluded from the requirement for EIA in the Recommendations.

44. In the fisheries sector, the International Guidelines for the Management of Deep Sea Fisheries in the High Seas provide very comprehensive recommendations on scope and content for flag States and RFMOs conducting impact assessments of this type of activity. Paragraph 47 of these Guidelines provides that such an impact assessment should address:

- (a) type(s) of fishing conducted or contemplated, including vessel and gear types, fishing areas, target and potential bycatch species, fishing effort levels and duration of fishing (harvesting plan);
- (b) best available scientific and technical information on the current state of fishery resources and baseline information on the ecosystems, habitats and communities in the fishing area, against which future changes are to be compared;
- (c) identification, description and mapping of VMEs known or likely to occur in the fishing area;

(d) data and methods used to identify, describe and assess the impacts of the activity, the identification of gaps in knowledge, and an evaluation of uncertainties in the information presented in the assessment;

(e) identification, description and evaluation of the occurrence, scale and duration of likely impacts, including cumulative impacts of activities covered by the assessment of VMEs and low-productivity fishery resources in the fishing area;

(f) risk assessment of likely impacts by the fishing operations to determine which impacts are likely to be significant adverse impacts, particularly impacts on VMEs and low-productivity fishery resources; and

(g) the proposed mitigation and management measures to be used to prevent significant adverse impacts on VMEs and ensure long-term conservation and sustainable utilization of low-productivity fishery resources, and the measures to be used to monitor effects of the fishing operations.

45. Assessments are also required to take into account differing conditions prevailing in areas where deep sea fisheries are well established and in areas where deep sea fisheries have not taken place or only occur occasionally.

46. These examples relevant to marine areas beyond national jurisdiction illustrate circumstances in which a sector has elaborated the minimum requirements for EIA prescribed in instruments such as the UNEP Goals and Principles for EIA and the Espoo Convention and provided tailored guidance for operators which reflects the conditions and likely impacts of their respective activities on the marine environment.

47. In the limited cases where national legislation on EIA captures activities which are conducted in marine areas beyond national jurisdiction or activities within national jurisdiction which may have significant effects on the marine environment beyond national jurisdiction, the scoping provisions of the legislation requiring a general description of impacts and alternatives could be interpreted or amended to include information on impacts on the marine environment beyond national jurisdiction. For instance, under Annex IV of EC Directive 85/337, the developer of a project must provide a description of the project including:

- The physical characteristics of the whole project;
- The main characteristics of the production processes;
- An estimate by type and quantity of expected residues and emissions (water and air pollution, noise, vibration, light) resulting from the operation of the proposed project;
- The aspects of the environment likely to be significantly affected by the proposed project, including, in particular, fauna, water, air, climatic factors and the inter-relationship between such factors;
- The likely significant effects of the proposed project on the environment resulting from the existence of the project, the use of natural resources, the emission of pollutants and the elimination of waste;
- The forecasting methods used to assess the effects on the environment;
- The measures envisaged to prevent, reduce and, where possible, offset any significant adverse effects on the environment; and
- The main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.

**C. Notification and Public Participation in Environmental Impact Assessment Processes**

48. The duty to notify and consult with affected parties is an integral component of environmental impact assessment processes in both the national and transboundary arenas. The general obligation to notify and consult in cases where there are transboundary impacts, derived from the international law duty to cooperate, is set out in the UNEP Goals and Principles of EIA. Principle 12 provides that: “When information provided as part of an EIA indicates that the environment within another State is likely to be significantly affected by a proposed activity, the State in which the activity is being planned should, to the extent possible:

- (a) notify the potentially affected State of the proposed activity;
- (b) transmit to the potentially affected State any relevant information from the EIA, the transmission of which is not prohibited by national laws and regulations; and
- (c) when it is agreed between the States concerned, enter into timely consultations.

49. In relation to consultation, Principle 7 provides that: “Before a decision is made on an activity, government agencies, members of the public, experts in relevant disciplines and interested groups should be allowed appropriate opportunity to comment on the EIA.”

50. The Espoo Convention elaborates on the duty to notify, providing a procedural template for notification and consultation in the transboundary context. Article 3 of the Convention specifies the required content of notifications, their timing, post-response obligations of the Party of Origin of the proposed activity, and requirements to notify and receive comments and objections from the publics of affected States. Article 5 obliges the Party of Origin to enter into consultations with affected States after completion of the EIA Documentation. These may relate to possible alternatives to the proposed activity, including the no-action alternative, possible measures to mitigate significant adverse transboundary impact, and to monitor the effects of such measures at the expense of the Party of Origin, other forms of mutual assistance in reducing any significant adverse transboundary impact of the proposed activity, and any other appropriate matters relating to the proposed activity.

51. The CBD Voluntary Guidelines on Biodiversity-Inclusive EIA provide more detail on the characteristics of effective or “real” public participation in the EIA process and the various categories of stakeholders in the process. Real participation is defined as shared analysis and assessment, a more collaborative form of public participation which goes beyond simple notification of or consultation with relevant stakeholders. Relevant stakeholders include beneficiaries of the project, those people that experience, as a result of the project intended or unintended changes in ecosystem services that they value, formal or informal institutions, and groups representing affected people and future generations. These Guidelines stipulate that public participation is relevant at all stages of EIA, particularly at the scoping and review stage, but also during the assessment study.

52. In the case of the marine environment, a duty to notify appears in Articles 205 and 206 of the LOSC which provides that States having reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of or significant and harmful changes to the marine environment should assess the potential effects of such activities on the marine environment and publish reports of the results obtained at appropriate intervals to the competent international organizations, which should make them available to all States. This duty encompasses planned activities under the jurisdiction or control of States which may cause significant and harmful changes to the marine environment beyond national jurisdiction. Article 198 of the LOSC also provides that when a State becomes aware of cases in which the marine environment is in imminent danger of being damaged or has been damaged by pollution, it shall immediately notify other States it deems likely to be affected by such damage as well as the competent international organizations. Craik comments that the most obvious candidates for competent international organizations in this context are the regional seas organizations and points to this role being given to the Commission on the Protection of the Black Sea against Pollution under the 1992 Convention on the Protection of the Black Sea against Pollution and to the Baltic Marine

Environment Protection Commission under the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention).<sup>4</sup>

53. Different versions of the duty to notify and consult with affected parties appear in many of the regional seas conventions with some of the more recent conventions containing stronger obligations. The 1995 Barcelona Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean makes specific mention of notification and consultation among Contracting Parties where activities are likely to have a significant adverse effect on areas beyond national jurisdiction. Article 4(3) provides that: “the Contracting Parties shall promote cooperation between and among States in environmental impact assessment procedures related to activities under their jurisdiction or control which are likely to have a significant adverse effect on the marine environment of other States or areas beyond the limits of national jurisdiction on the basis of notification, exchange of information and consultation”. This provision recognises the mandatory responsibility of Contracting States to protect and preserve the marine environment beyond national jurisdiction in their region.

54. The 1992 Helsinki Convention for the Protection of the Marine Environment of the Baltic Sea has more highly developed and stronger notification and consultation requirements in its EIA provisions in keeping with the sensitivity of its semi-enclosed marine environment. Article 7 provides that:

(a) Whenever an environmental impact assessment of a proposed activity that is likely to cause a significant adverse impact on the marine environment of the Baltic Sea Area is required by international law or supra-national regulations applicable to the Contracting Party of origin, the Contracting Party shall notify the Commission and any Contracting Party which may be affected by a transboundary impact on the Baltic Sea Area; and

(b) The Contracting Party of origin shall enter into consultations with any Contracting Party which is likely to be affected by such transboundary impact, whenever consultations are required by international law or supra-national regulations applicable to the Contracting Party of origin.

55. The Abidjan Convention for the West and Central African Region provides, in Article 13, that:

“The Contracting Parties shall, in consultation with the Organization, develop procedures for the dissemination of information concerning the assessment of the activities of any planning activity entailing projects within its territory, particularly in the coastal areas that may cause substantial pollution of, or significant and harmful changes to, the Convention area.”

56. The Lima Convention for the South East Pacific provides, in Article 8, that: “The High Contracting Parties shall, in cooperation with the Executive Secretariat, develop procedures for the dissemination of information concerning the environmental impact assessment of any planning activity entailing projects within its territory, particularly in the coastal areas, that may cause substantial pollution of, or significant and harmful changes to, the area of application of the Convention.”

57. The Jeddah Convention for the Red Sea and Gulf of Aden provides, in Article XI, that: “The Contracting Parties may, in consultation with the General Secretariat, develop procedures for dissemination of information on the environmental impact assessment of projects being planned and executed particularly in the coastal areas on the marine environment.”

58. The Cartagena Convention for the Wider Caribbean region provides, in Article 12, that: “Each Contracting Party shall, with the assistance of the Organization when requested, develop procedures for the dissemination of information of the environmental impact assessment of the potential effects of their major development projects on the Convention area and may, where appropriate, invite other Contracting Parties which may be affected to consult with it and to submit comments.”

59. The Nairobi Convention for the Marine and Coastal Environment of the Eastern African Region provides, in Article 13, that: “the Contracting Parties shall, if appropriate in consultation with the Organization, develop procedures for the dissemination of information on assessment of the potential

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<sup>4</sup> Neil Craik, *The International Law of Environmental Impact Assessment* (Cambridge, Cambridge University Press, 2008) 145.

environmental effects of major projects which it has reasonable grounds to expect may cause substantial pollution of, or significant and harmful changes to the Convention Areas and, if necessary, for consultations among the Contracting Parties concerned.”

60. The Noumea Convention for the South Pacific Region provides, in Article 16, that: “With respect to the assessment of the potential effects of their major projects on the marine environment of the Convention Area, each Party, shall, where appropriate, invite: (i) public comment according to its national procedures; and (ii) other Parties that may be affected to consult with it and submit comments. The results of these assessments shall be communicated to the Organisation, which shall make them available to interested Parties.

61. The 2002 Antigua Convention for the Protection of the Marine and Coastal Environment of the Northeast Pacific provides, in Article 10(3) and (4), that:

(a) The Contracting Parties shall endeavour to include an assessment of possible environmental effects when planning any activity that involves the implementation of projects inside their territory that may, especially in coastal areas, cause pollution in the area within the scope of this Convention or cause significant or harmful environmental alterations to it; and

(b) The Contracting Parties shall, in cooperation with the Executive Secretariat, work out methods for disseminating information on the assessment of the activities mentioned in the previous paragraph of this article.

62. In addition to the regional seas conventions, other regional environmental protection instruments contain detailed provisions on notification of and public participation in EIAs. The draft Caspian Sea Convention Protocol on EIA contains very comprehensive provisions on Notification and Public Participation in Articles 4 and 5. Notifications to Affected Parties under Article 4 of the Protocol must include:

- Information on the planned activity and materials of the preliminary EIA which contain data on the possible transboundary environmental impact on the affected Party;
- Corresponding information related to the procedure of EIA of the planned activity which is envisaged by the national normative legal documents accepted by the Party of origin; and
- A request to submit by the affected party reasonably accessible information on the status of the Caspian Sea marine environment and of pollution from the land-located sources within the jurisdiction of the affected Party if such information is necessary for preparation of the EIA documentation on the planned activity.

63. The affected Party is then given a time limit within which to advise the party of origin on whether it wishes to participate in the EIA process. Under Article 5 of the Protocol, the Contracting Parties are required to ensure timely and effective public participation in the EIA procedure for a proposed activity from the stage that the EIA terms of reference are elaborated. As well as making publicly available through multiple means the EIA documentation and other relevant information, they are also required to ensure that the public has the opportunity to make comments and/or objections on the proposed activity within a specified time frame.

64. The Antarctic Environmental Protocol provides in Annex I paragraph 3 that a draft Comprehensive Environmental Evaluation shall be made publicly available and shall be circulated to all Parties, which shall also make it publicly available for comment. Under paragraph 4 of Annex I the draft CEE shall be forwarded to the Committee on Environmental Protection at the same time it is circulated to the Parties and at least 120 days before the next Antarctic Treaty Consultative Meeting for consideration as appropriate. Under paragraph 6 of Annex I, a final CEE shall address and include or summarise comments received on the draft CEE and shall be circulated to all Parties which shall also make it publicly available at least 60 days before the commencement of the proposed activity in the Antarctic Treaty area.



65. In some of the sectoral instruments relevant to EIA of activities occurring in marine areas beyond national jurisdiction, requirements and recommendations to disseminate information to relevant sectoral organizations is emerging as a feature. In the International Guidelines for the Management of Deep Sea Fisheries in the High Seas, paragraphs 51 and 52 provide that:

“51. States in accordance with domestic laws, and RFMOs should make publicly available: (i) impact assessments; (ii) existing and proposed conservation and management measures and; (iii) advice and recommendations provided by the appropriate RFMO, a scientific or technical committee, or other relevant body.

52. For areas not regulated by a RFMO, States should, on an annual basis, submit their impact assessments as well as any existing or proposed conservation and management measures to FAO, which should make them publicly available.”

66. The draft assessment framework for scientific research involving ocean fertilization being developed by the London Convention and Protocol Scientific Groups contains certain provisions for notification and consultation during the assessment of proposals for ocean fertilization experiments. Paragraph 1.6 of the framework provides that on receipt of a proposal by a “competent body/ies” (this term is still in square brackets in the draft but presumably will include relevant authorities of Contracting Parties to the London Convention and Protocol), the Secretariat of the London Convention and Protocol should be informed, countries affected should be identified and a plan developed to explain the potential impacts, encourage scientific cooperation and provide for ongoing consultation during the assessment process.

67. The requirements for notification and public consultation found in so many of the global and regional instruments relevant to activities with potential impacts on the marine environment beyond national jurisdiction and in national legislation are also consistent with domestic administrative law principles of freedom of information, public participation in government decision-making and the access of individuals to natural justice in respect of decisions affecting them. These good governance principles are increasingly being recognised in international environmental law. The 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters elaborates on these principles in the context of environmental decision-making and is explicitly recognised in the Espoo Convention, the Kiev Protocol and EC Directive 2003/4 on public access to environmental information.

68. Article 4 of the Aarhus Convention requires Parties to ensure that their public authorities, in response to a request for environmental information, make such information available to the public within the framework of national legislation, including copies of the actual documentation. The definition of “environmental information” is very comprehensive, including any information in written, visual, aural electronic or any other material form on:

(a) the state of the elements of the environment, such as air and atmosphere, water, soil, land, landscape and natural sites, biological diversity and its components....and the interaction among these elements;

(b) factors such as substances, energy, noise and radiation, and activities or measures, including administrative measures, environmental agreements, policies, legislation, plans and programmes, affecting or likely to affect the elements of the environment and cost-benefit and other economic analyses and assumptions used in environmental decision-making; and

(c) the state of human health and safety, conditions of human life, cultural sites and built structures, inasmuch as they are or may be affected by the state of the elements of the environment.

69. The definition of environmental information is not limited to the environment in areas of national jurisdiction and therefore the obligations under the Convention can be interpreted as applying to information on the state of the environment in marine areas beyond national jurisdiction to the extent that it is within the knowledge of public authorities of the Parties to the Convention.

70. States Parties to the Aarhus Convention must be pro-active in ensuring that their public authorities possess and update environmental information which is relevant to their functions and that mandatory systems are established so that there is an adequate flow of information to public authorities about proposed and existing activities which may significantly affect the environment and that such information is transparent and effectively accessible. In addition, they must provide for public participation in decisions on whether to permit proposed activities listed in Annex I to the Convention and other proposed activities which may have a significant effect on the environment. The list of activities in Annex I is very similar to the list of activities in Annex I to the EC Directive 85/337 and does not specifically mention offshore activities; however, extraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tons a day in the case of petroleum and 500,000 cubic metres a day in the case of gas and the installation of pipelines for the transport of gas, oil or chemicals with a diameter of more than 800 mm and a length of more than 40 km are mentioned.

71. EC Directive 2003/4 implementing the Aarhus Convention provides in Article 3 that Member States shall ensure that public authorities are required to make environmental information held by them or for them available to any applicant at his or her request without them having to state an interest. The definition of “environmental information” in Article 2 of the EC Directive goes further than the Aarhus Convention and includes “any information in written, visual, aural, electronic or other material form on: “the state of the elements of the environment, such as air and atmosphere, water, soil....and natural sites including wetlands, coastal and **marine areas**, biological diversity and its components... and the interaction among these elements.”

72. The Directive does not limit its definition of environmental information to areas within national jurisdiction and contains similar provisions to the Aarhus Convention on dissemination of environmental information through public authorities and access to justice in relation to decisions concerning the release of environmental information.

#### **D. Post-Assessment Obligations/Final Decisions**

73. Generally the only obligations for decision makers arising out of EIAs undertaken at the domestic or international level will be to take into account the results of the assessment and public participation in that assessment and in some instances provide reasons for their decisions. The final decision on whether to go ahead with a project is left to the proponent at both the domestic and international level. The obligation on the final decision-maker is characterised by Craik as one of due diligence, requiring the proponent of the project to fully examine the potential environmental impacts of a particular project and give due consideration to the interests of affected parties. If an EIA concludes that significant harm is likely to marine areas beyond national jurisdiction, then under the international law duty to prevent transboundary harm set out in Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration and confirmed by the ICJ in their Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons<sup>5</sup> the State conducting such an EIA would be under a positive obligation to mitigate that harm or refrain from the activity.<sup>6</sup>

74. The UNEP Goals and Principles of EIA reflect this due diligence approach. The first goal provides that before decisions are taken by the competent authority or authorities to undertake or authorize activities that are likely to significantly affect the environment, the environmental effects of those activities should be fully taken into account. Principle 9 contains a requirement for justification, specifying that the decision on any proposed activity subject to an EIA should be in writing, state the reasons therefor, and include the provisions, if any, to prevent, reduce or mitigate damage to the environment, and that it should be made available to interested persons or groups.

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<sup>5</sup> *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion 1996 ICJ Rep 15, paragraph 29.

<sup>6</sup> Craik, above n. 3, 67.

75. Article 6 of the Espoo Convention adopts a similar approach, requiring Parties to ensure that, in the final decision on the proposed activity, due account is taken of the outcome of the EIA, including the EIA documentation, as well as the comments received by affected Parties and the outcome of public consultations. The party of origin must provide the affected Party with the final decision on the proposed activity along with the reasons and considerations on which it was based. If additional information on the significant transboundary impact of a proposed activity which was not available at the time a decision was made with respect to that activity and which could have materially affected the decision becomes available to a concerned Party before work on that activity commences, that Party must immediately inform other concerned Parties and consult as to whether the decision needs to be revised.

76. At the regional level the draft Protocol on EIA in a Transboundary Context to the Caspian Sea Framework Convention replicates the due diligence prescriptions of the Espoo Convention, except for the obligation to consult with concerned parties on additional information which becomes available before work on an activity commences. Article 6(2) of the Protocol provides that the competent authority of the party of origin shall ensure that the proposals and comments received from the affected party are incorporated into the final EIA document and are taken into consideration together with the outcome of the EIA in the final decision on the activity. The Party of origin is also required to provide the affected party and the Secretariat of the Convention with the final decision on the activity along with the reasons and considerations on which it was based, including information on how the comments and objections received were taken into account. The other regional seas conventions devolve these responsibilities to the States-Party decision-makers and their national procedures.

77. The CBD Voluntary Guidelines on Biodiversity-Inclusive EIA acknowledge that the final decision to proceed with an activity following an EIA is essentially a political choice, but emphasize the importance of having clear criteria for taking biodiversity into account in decision-making and to guide trade-offs between social, economic and environmental issues. They recommend that these criteria should draw upon principles, objectives, targets and standards for biodiversity and ecosystem services contained in international and national, regional and local laws, policies, plans and strategies. In particular they advise that the precautionary principle should be applied in decision-making in cases of scientific uncertainty when there is a risk of significant harm to biodiversity. Higher risks and/or greater potential harm to biodiversity require greater reliability and certainty of information. The reverse implies that the precautionary approach should not be pursued to the extreme and in cases of minimal risk, a greater level of uncertainty can be accepted. They recommend that decisions should seek to strike a balance between conservation and sustainable use for economically viable and socially and ecologically sustainable solutions.

78. The UNGA resolution 61/105 takes a stronger and more direct approach. Under paragraph 83(a) of the resolution, deep sea bottom fisheries on the high seas are to be managed, using assessments on the basis of the best available scientific information, to prevent significant adverse impacts on vulnerable marine ecosystems, or not allowed to proceed. The FAO Guidelines, including their procedures for impact assessments, have been developed in order to inform States and RFMOs on ways to implement this call.

79. The draft assessment Framework for Ocean Fertilization experiments takes a risk-analysis approach to the decision to approve ocean fertilization experiments as legitimate scientific research. It provides in para 9.1 that a decision by the [competent body] to approve a proposal involving ocean fertilization and to determine that it is legitimate scientific research which is not contrary to the aims of the London Convention and Protocol should only be made if all earlier steps of the Framework have been satisfactorily completed. The approval should ensure that the scientific objectives of the experiment can be met and that, as far as practicable, environmental disturbance and detriment are minimized and the benefits maximized.

80. In the Framework for the Assessment of Wastes or other Matter that may be Considered for Dumping in Annex 2 of the London Protocol, the role of the assessment outcomes in the final decision to dump is determinative. Under paragraph 14 of Annex 2, each disposal option assessment must be considered in light of a comparative assessment of human health risks, environmental costs, hazards

(including accidents), economics, and exclusion of future uses. If this assessment reveals that adequate information is not available to determine the likely effects of the proposed disposal option, then paragraph 14 provides that this option should not be considered further.

#### **E. During- and Post-Activity Monitoring of Environmental Impacts and Compliance with Mitigation Measures**

81. A practical adjunct to the EIA process is the follow-up stage in which ongoing environmental impacts of proposed activities and implementation of mitigation measures are monitored during and after the activity. The need for such monitoring is endorsed in general terms in many global and regional instruments and amplified in sectoral instruments relevant to marine areas beyond national jurisdiction.

82. Principle 10 of the UNEP Goals and Principles on EIA provides that: “Where it is justified, following a decision on an activity which has been subject to an EIA, the activity and its effects on the environment or the provisions of the decision on this activity should be subject to appropriate supervision.”

83. The Espoo Convention recognizes the need for concerned parties to assess whether a post-project analysis of a proposed activity and its impact on the environment should be carried out in Article 7. Any post-project analysis undertaken must include the surveillance of the activity and the determination of any transboundary impact. Under Appendix V to the Convention the objectives of such an analysis are described as including:

- (a) Monitoring compliance with the conditions set out in the authorization of approval of the activity and the effectiveness of mitigation measures;
- (b) Review of an impact for proper management and in order to cope with uncertainties;
- (c) Verification of post-project predictions in order to transfer experience to future activities of the same type.

84. Where, as a result of the post-project analysis, the party of Origin or the affected party has reasonable grounds for concluding that there is a significant adverse transboundary impact or factors have been discovered which may result in such an impact, it shall immediately inform the other Party and the concerned parties shall consult on necessary measures to reduce or eliminate the impact.

85. The CBD Voluntary Guidelines on Biodiversity-Inclusive EIA expand on the various types and purposes of post-project measures, including monitoring, compliance, enforcement and environmental auditing. The Guidelines comment that monitoring and auditing are used to compare the actual outcomes after project implementation has started with those anticipated before implementation. They also serve to verify that the proponent is compliant with the environmental management plan (EMP).<sup>7</sup> In the biodiversity context, monitoring focuses on those components of biodiversity most likely to change as a result of the project, i.e. indicator organisms or ecosystems that are most sensitive to the predicted impacts. Regular auditing verifies the proponent’s compliance with the EMP and to assess the need for adaptation of the EMP. These Guidelines emphasize the importance of enforcement of the conditions of an EMP.

86. The Arctic EIA Guidelines define the basic elements of a good monitoring program as including:

- Clearly defined objectives;
- An environmental baseline for monitoring change;

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<sup>7</sup> The environmental management plan (EMP) is a synthesis of all proposed mitigation and monitoring actions set to a timeline with specific responsibilities assigned and prescribed follow up actions normally contained in the EIA report (also known as an Environmental Impact Statement (EIS) in some jurisdictions).

- Environmental criteria, if available and applicable, for certain environmental components such as water or air;
- A method to measure the amount of change to an environmental resource occurring over a specific period of time; the change should be measured quantitatively if possible;
- A method to determine the extent to which the activity in question contributes to the environmental change;
- A method to assess the effectiveness of mitigation measures adopted with the action;
- Regular review and revision, when necessary, to ensure that the program objectives are being met as cost-effectively as possible; and standardized methodologies that are compatible with those used elsewhere in the Arctic as well as internationally.

87. Post-project monitoring is a discretionary component under the provisions relating to initial environmental evaluation of activities having no more than a minor or transitory impact on the environment in the Antarctic Environmental Protocol, but is a compulsory component under the provisions relating to comprehensive environmental evaluation (CEE) of activities having more than a minor or transitory impact on the environment. Article 5 of Annex I to the Antarctic Environmental Protocol provides that: (i) Procedures shall be put in place, including appropriate monitoring of key environmental indicators, to assess and verify the impact of any activity that proceeds following the completion of a CEE; and (ii) The procedures referred to in paragraph 1 above...shall be designed to provide a regular and verifiable record of the impacts of the activity in order, *inter alia*, to:

- (a) enable assessments to be made of the extent to which such impacts are consistent with the protocol; and
- (b) provide information useful for minimising or mitigating impacts, and where appropriate, information on the need for suspension, cancellation or modification of the activity.”

88. Any significant information obtained or procedures put in place as a result of monitoring are to be circulated to the Parties to the Antarctic Environmental Protocol, forwarded to the Committee for Environmental Protection (CEP) under the Protocol and made publicly available. The responsibility for monitoring under these provisions of the Antarctic Protocol still falls on States Parties individually with no prescribed enforcement or auditing role for the CEP or the Antarctic Treaty Consultative Meeting (ATCM).

89. In general other regional seas agreements do not incorporate provisions on post-project monitoring as this responsibility is devolved to States Parties through their national procedures. The Draft EIA Protocol to the Caspian Sea Convention specifies in Article 7 provisions in very similar terms to those of Article 7 of the Espoo Convention for development of the ecological monitoring programme and post-project analysis plan.

90. The need to provide ongoing monitoring of the significant adverse impacts of activities in marine areas beyond national jurisdiction has also received recognition in sectoral instruments. The Deep Sea Fishing Guidelines recommend that Flag States and RFMOs should include in their impact assessments of deep sea fishing activities likely to produce significant adverse impacts in a given area, the proposed mitigation and management measures to be used to prevent significant adverse impacts on vulnerable marine ecosystems and ensure long-term conservation and sustainable utilization of low productivity fishery resources and the measures to be used to monitor effects of the fishing operations. These Guidelines recommend that States and RFMOs develop and implement both individually and cooperatively through RFMOs effective monitoring, control and surveillance frameworks to ensure compliance with conservation and management measures for deep sea fisheries.

91. In the deep seabed mining sector, the Legal and Technical Commission Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for polymetallic nodules in the Area contain quite rigorous provisions on monitoring during and after testing of collecting systems and equipment. The exploration contractors are required to make certain

observations and measurements while performing activities subject to EIA, such as dredging for nodules, use of special equipment to study the reaction of sediment to disturbances made by collecting devices or running gears and testing of collection systems and equipment. While performing a specific activity, the Contractor must provide the Secretary General with:

- (a) Width, length and pattern of the collector tracks on the seafloor;
- (b) Depth of penetration in the sediment, lateral disturbance caused by the collector;
- (c) Volume of sediment and nodules taken by the collector;
- (d) Ratio of sediment separated from the nodule on the collector, volume of sediment rejected by the collector, size and geometry of the discharged plume, behaviour of the plume behind the collector;
- (e) Area and thickness of re-sedimentation by the side of the collector tracks to the distance where re-sedimentation is negligible; and
- (f) Volume of overflow discharge from the surface vessel, concentration of particles in the discharged water, chemical and physical characteristics of the discharge, behaviour of the discharged plume at surface or in mid-water.

92. After the performance of a specific activity, the Contractor must provide the Secretary General with information on:

- (a) Thickness of re-deposited sediment on the side of the collector tracks;
- (b) Behaviour of the different types of benthic fauna subjected to re-sedimentation;
- (c) Changes of the benthic fauna in the collector tracks, including possible re-colonization;
- (d) Possible changes in the benthic fauna in adjacent areas apparently not perturbed by the activity; and
- (e) Changes in the characteristics of the water at the level of the discharge from the surface vessel during the mining test, and possible changes in the behaviour of the corresponding fauna.

93. The draft Assessment Framework for Scientific Research Involving Ocean Fertilization being developed by the Scientific Groups of the London Convention and Protocol contains detailed monitoring requirements. A project proponent must submit a monitoring programme for approval by the [competent body] (bracketed in the draft assessment framework) which addresses the following points:

“ 1. monitoring is used to verify that approval conditions are met - *compliance monitoring* – and that assumptions made during the approval review and site selection process were correct and sufficient to protect the environment and human health – *impact monitoring*. It is essential that such monitoring programmes have clearly defined objectives. The type, frequency and extent of monitoring will depend on the Impact Hypothesis and local and regional consequences;

2. The Impact Hypothesis forms the basis for guiding impact monitoring. The monitoring programme should be designed to determine the Area of Impact and to ascertain that changes are within the range of those predicted. The following questions must be answered:

- (a) what testable hypotheses can be derived from the Impact Hypothesis?
- (b) what measurements (type, location, frequency, performance requirements) are required to test these hypotheses?
- (c) how should the data be managed and interpreted?;

3. The [competent body] (bracketed in the draft assessment framework) is encouraged to take account of relevant research and modelling information in evaluating the design and requesting modification of impact monitoring programmes; and

4. As new results become available, monitoring requirements should be reviewed at appropriate intervals in relation to the objectives and can provide a basis to:

- (a) modify or terminate the impact monitoring;
- (b) modify or revoke the authorization;
- (c) redefine or close the approved site; and
- (d) modify the basis on which proposals to conduct ocean fertilization are assessed”.