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BACKGROUND ON THE DEVELOPMENT OF VOLUNTARY GUIDELINES FOR THE CONSIDERATION OF BIODIVERSITY IN ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND STRATEGIC ENVIRONMENTAL ASSESSMENTS (SEAS) IN MARINE AND COASTAL AREAS

Note by the Executive Secretary

In paragraph 50 of decision X/29, the Conference of the Parties to the Convention on Biological Diversity requested the “Executive Secretary to facilitate the development of voluntary guidelines for the consideration of biodiversity in environmental impact assessments (EIAs) and strategic environmental assessments (SEAs) in marine and coastal areas using the guidance in annexes II, III and IV to the Manila workshop report (UNEP/CBD/SBSTTA/14/INF/5), provide for technical peer-review of those guidelines, and submit them for consideration to a future meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) prior to the eleventh meeting of the Conference of the Parties, *recognizing* that these guidelines would be most useful for activities that are currently unregulated with no process of assessing impacts”.

Pursuant to this request, the Secretariat of the Convention commissioned, with the financial support from the Government of Spain, the development of draft voluntary guidelines for the consideration of biodiversity in environmental impact assessments (EIAs) and strategic environmental assessments (SEAs) in marine and coastal areas as well as a background study.

Drafts of the voluntary guidelines (UNEP/CBD/SBSTTA/16/7/Add.1), together with a background study report contained in this note, were circulated to Parties, other Governments and organizations for technical peer-review through CBD Notification SCBD/STTM/JM/JLe/rg/78095 (issued on 7 November 2011). The comments from the technical peer-review were taken into account in finalizing the voluntary guidelines and the background study report.

* UNEP/CBD/SBSTTA/16/1.

**BACKGROUND ON THE DEVELOPMENT OF VOLUNTARY GUIDELINES FOR THE
CONSIDERATION OF BIODIVERSITY IN ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND
STRATEGIC ENVIRONMENTAL ASSESSMENTS (SEAS) IN MARINE AND COASTAL AREAS**

(paragraph 50, decision X/29)

1. This document describes and analyses the key guidance and concerns raised in annexes II, III and IV to the report of the Manila Expert Workshop on Scientific and Technical Aspects Relevant to Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) in Marine Areas beyond National Jurisdiction (UNEP/CBD/SBSTTA/14/INF/5). Drawing on this guidance and selected global, regional and sectoral frameworks, key elements were identified for inclusion in draft guidelines for EIAs and draft guidance SEAs in marine and coastal areas, as contained in parts I and II respectively of document UNEP/CBD/SBSTTA/16/7/Add.1 as well as the present document.

I. BACKGROUND AND INTRODUCTION

2. At its tenth meeting, the Conference of Parties (COP) requested the Executive Secretary to facilitate the development of voluntary guidelines for the consideration of biodiversity in EIAs and SEAs in marine and coastal areas using the guidance in annexes II, III and IV to the Manila Workshop Report (UNEP/CBD/SBSTTA/14/INF/5), provide for technical peer review of those guidelines, and submit them to a future meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) prior to the eleventh meeting of the COP, recognizing that these guidelines would be most useful for activities where comprehensive guidance for regulation and impact assessment is not already available from competent authorities.

3. Pursuant to this request, the Secretariat of the Convention on Biological Diversity has prepared, with the assistance of a team of consultants, draft voluntary guidelines for the consideration of biodiversity in EIAs and SEAs in marine and coastal areas using the guidance in annexes II, III and IV to the Manila Workshop Report. In preparing the draft guidelines, all of the guidance and concerns raised in annexes II, III and IV to the Manila Workshop report were considered and addressed.

**II. DESCRIPTION AND ANALYSIS OF GUIDANCE AND CONCERNS
RAISED IN ANNEXES II, III AND IV OF THE MANILA WORKSHOP
REPORT**

4. This section describes and analyses the key guidance and concerns raised in annexes II, III and IV of the Manila Workshop Report (UNEP/CBD/SBSTTA/14/INF/5) and how they relate to the development of draft voluntary guidelines for EIAs and SEAs in marine and coastal areas. As well as the Manila Workshop Report, the analysis draws on the CBD Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment (annex I to decision VIII/28, 9 December 2006) and CBD Draft Guidance on Strategic Environmental Assessment. In addition, the analysis draws on selected global, regional and sectoral instruments and frameworks for EIA and SEA.

**A. *Manila Expert Workshop Conclusions on Environmental Impact
Assessments in Marine Areas beyond National Jurisdiction***

5. The Manila Workshop observed that the CBD Voluntary Guidelines on Biodiversity Inclusive Impact Assessment (CBD Voluntary Guidelines on EIA) as contained in decision VIII/28 of the Conference of the Parties were developed to give biodiversity considerations greater prominence in EIAs and to function generically, independent of the specific type of ecosystem or activity for which an EIA was to be conducted. The Workshop concluded, however, that the CBD Voluntary Guidelines on EIA were almost exclusively based on EIAs conducted for terrestrial, freshwater and coastal ecosystems and that marine areas beyond national jurisdiction have a number of ecological, governance and practical differences which should be taken into account in applying the Guidelines to these areas.

6. In annex II to its report, the Workshop considered the general nature of these differences, their implications for EIAs of activities in ocean areas beyond national jurisdiction and relevant gaps in the CBD Voluntary Guidelines. In Annex III to its Report, it analysed each of the Guidelines, noting whether special considerations need to be taken into account in their application to marine areas beyond national jurisdiction.

B. Ecological differences

7. The great depth of most marine areas beyond national jurisdiction creates extreme conditions for biodiversity. Pressure changes continuously with increasing depth and at depth both temperature and food availability are generally low. In some regions, oxygen levels can be exceptionally low, although in general, oceanic waters are well oxygenated. Light is attenuated rapidly with increasing depth. No light penetrates deeper than 1000 metres and at shallower depths most waters occur within the Twilight Zone. All of these factors have strong gradients which have significant physiological and trophic effects on the distribution of species, ecosystem structure and ecosystem functioning. Species typically are common over a vertical range of a few hundreds of metres but may range throughout an ocean basin in the horizontal axis. Depth is the second largest gradient on Earth after latitudinal change. Temporal variance in physical conditions tends to be low but can also locally be high, such as within submarine canyons, in areas of steep topography, in mesoscale eddies and at the interfaces of different water masses. Mesoscale ocean “weather” produces complex systems, with spatial and temporal variation in pelagic ecosystems, and in some areas on the seafloor. Ocean weather is typically an order of magnitude smaller in scale than atmospheric weather.

8. Some ecosystems are dependent on chemical energy, such as at hydrothermal vents and cold seeps, but most marine organisms are dependent on organic matter created by photosynthesis. The flux of organic matter decreases exponentially with increasing depth. The dynamics of primary production at the sea surface in the different biogeochemical provinces of the world have a profound effect on the organisms that occur in the water column and on the deep seabed below. Ecosystem structure and ecosystem processes can be tightly coupled to seasonal and decadal changes in surface water productivity.

9. Habitat patchiness is important to biodiversity. For the seabed and benthic communities in marine areas beyond national jurisdiction, habitat patchiness can occur on spatial scales comparable to terrestrial and coastal ecosystems. For the high seas water column, however, features are patchy on much larger spatial scales but vary on shorter time scales. Most but not all marine areas beyond national jurisdiction have lower primary and secondary productivity than coastal areas and many terrestrial ecosystems. This means that populations and communities can, in general, sustain only lower levels of perturbation without serious impacts. Both the lower productivity of ecosystems in these areas and the life histories of species characteristic of those ecosystems mean that, in general, recovery times from perturbations are much slower than recovery times from perturbations of similar magnitude in coastal and terrestrial ecosystems.

10. In contrast, the large area of many oceanic ecosystems means that species are distributed over much greater areas than on land, although often at lower population densities. Biomass per unit volume or per unit area is up to 5 orders of magnitude greater on land than in the ocean, but much of this is structural materials in plants. Animal biomass on land is only around 0.01 per cent. In the sea, animal biomass is about 10 per cent (1000 times greater) in proportion.

11. Connectivity of processes and ecosystem components is also important to biodiversity. Organisms in the water column generally have higher migratory and dispersal abilities but only limited information is available on the movement and dispersal of benthic species. With the potential for greater larval transfer, there is increased connectivity in the water column although there is still limited knowledge on the connectivity of marine ecosystems from coastal to deep-sea areas. It should be also noted that there is limited knowledge on connectivity of coastal ecosystems such as mangroves, coral reefs and sea grasses, which are all functionally linked.

12. Trophic interactions in the sea are more complex than those on land. The longest food chain lengths occur in pelagic ecosystems. The food webs in seas are complex, and the complexity decreases

when moving from pelagic to polar regions and to deeper waters in proportion to richness of biodiversity. High taxon-level diversity is greatest in the sea. While only one animal phylum is exclusively terrestrial, 23 phyla are marine endemics.

C. *Governance differences*

13. Under the 1982 United Nations Convention on the Law of the Sea (UNCLOS), two maritime zones lie beyond national jurisdiction, namely the high seas and the international seabed area (“Area”). Their legal regimes differ substantially from those of the areas under national jurisdiction, as outlined below. The legal regime for the high seas, which comprise all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State,¹ is contained in Part VII, which establishes the principle of freedom of the high seas, and provides a non-exhaustive list of the activities covered by this principle². These activities include navigation, overflight, laying of submarine cables and pipelines, construction of artificial islands and other installations permitted under international law, fishing, and scientific research. Under UNCLOS, the high seas are open to all States, whether coastal or land-locked. Part VII of the UNCLOS also recognizes that freedom of the high seas is exercised under the conditions laid down by it and by other rules of international law, and with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under UNCLOS with respect to activities in the Area

14. The legal regime for the Area, which comprises the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction,³ is contained in Part XI and the 1994 Agreement relating to the implementation of Part XI of UNCLOS, which provide that the Area and its resources⁴ are the common heritage of mankind. This means that their exploration and exploitation shall be carried out for the benefit of mankind as a whole, irrespective of the geographical location of States. Part XI of the UNCLOS, the International Seabed Authority (ISA) must adopt appropriate rules, regulations and procedures for , *inter alia*, the prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities; and for the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.⁵ Activities not involving resource exploration and exploitation fall under the exclusive jurisdiction of the flag State over vessels flying its flags. Several other institutions and processes provide a forum for the development of relevant measures.

15. International cooperation with respect to activities in the high seas is effectuated through a number of global and regional organizations, under the global policy guidance of the General Assembly of the United Nations. Part VII of the UNCLOS, together with other global and regional instruments on marine environmental protection, marine living resource exploitation and maritime transport considered in more detail below, create a framework within which States must effectively exercise their jurisdiction and control over vessels flying their flag on the high seas. These instruments specify certain rights and obligations which States must comply with in relation to their flag vessels.

16. Part XI of the UNCLOS, together with Part XII on the protection and preservation of the marine environment, provide the overarching framework for the protection and preservation of the marine environment from the harmful effects which may arise from activities in the Area. Article 192 provides

¹ UNCLOS, article 86.

² UNCLOS, article 87, paragraph 1.

³ UNCLOS, article 1, paragraph 1 (1).

⁴ For the purposes of Part XI, “resources” are all solid, liquid or gaseous mineral resources in situ in the area at or beneath the seabed, including polymetallic nodules (UNCLOS, art.133).

⁵ UNCLOS, Art.145.

for the general obligation of States to protect and preserve the marine environment. With respect to activities in the Area, article 209 further provides that international rules, regulations and procedures shall be established in accordance with Part XI to prevent, reduce and control pollution of the marine environment from activities in the Area. Under that article, States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from activities in the Area undertaken by vessels, installations, structures and other devices flying their flag, or of their registry, or operating under their authority, as the case may be. The requirements of such laws and regulations shall be no less effective than the international rules, regulations and procedures established in accordance with Part XI. In addition, it must be noted that article 194 also provides that States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights. Under article 195, in taking measures to prevent, reduce and control pollution of the marine environment, States shall act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.

17. The ISA bears the primary responsibility for formulating the relevant international rules, regulations and procedures to protect the marine environment from the harmful effects which may arise from activities undertaken in the Area (see para.14 above).

D. Global and regional instruments relevant to EIAs in marine and coastal areas

18. Binding and detailed provisions for the conduct of EIAs exist under national legislation in respect of most areas within national jurisdiction. In marine areas beyond national jurisdiction, relevant global and regional conventions may contain obligations related to EIA but these tend to be more general and rely on flag State implementation, leading to variable standards of compliance.

E. United Nations Convention on the Law of the Sea

19. UNCLOS 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. In addition, articles 205 and 206 include a duty to communicate reports of the results of such assessments by publishing them or providing them, at appropriate intervals to the competent international organizations, which should make them available to all States. It can be inferred that 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.

F. 1992 Convention on Biological Diversity (CBD)

20. The Convention on Biological Diversity contains a specific requirement to conduct EIAs for activities under a Contracting Party's jurisdiction or control which are likely to have significant adverse effects on biodiversity - both terrestrial and marine - and for areas within and beyond national jurisdiction. Under Article 14 (1) (a) and (d), each Contracting Party shall:

(a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures;

(d) In the case of imminent or grave danger or damage, originating under its jurisdiction or control, to biological diversity within the area under jurisdiction of other States or in areas beyond the limits of national jurisdiction, notify immediately the potentially affected States of such danger or damage, as well as initiate action to prevent or minimize such danger or damage.

G. 1987 United Nations Environmental Programme Goals and Principles of Environmental Impact Assessment (UNEP EIA Principles)

21. The 1987 UNEP EIA Principles provide that States should not undertake or authorize activities without prior consideration at an early stage of their environmental effects. This principle is intended to apply to all components of the global environment, including marine and coastal areas.

H. Regional Seas Conventions

22. Most of the regional seas conventions contain obligations to conduct EIAs for activities under the jurisdiction or control of States Parties with the potential for “significant and harmful changes” to the marine environment within the convention’s area of responsibility. In most cases, however, responsibility for developing EIA guidelines, legislation and processes which prevent or minimize harmful effects to the convention area is devolved to States Parties with the assistance of competent global, regional and subregional organizations. In most cases this will limit the EIA obligations of States Parties to activities which have an impact on marine areas within national jurisdiction and to transboundary effects among the States Parties, although some regional seas conventions, such as the Barcelona Convention and the OSPAR Convention, include areas beyond national jurisdiction in their geographic scope of application.

I. 1991 Protocol on Environmental Protection to the Antarctic Treaty (Madrid Protocol)

23. Activities in the Antarctic Treaty area (i.e., south of 60 degrees south latitude) are subject to more complex and multi-layered environmental assessments under the Madrid Protocol than in most other marine areas. There are three assessment levels: the preliminary assessment level, the initial environmental evaluation level and the comprehensive environmental evaluation level. 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 are subject to these provisions except for fishing, sealing, whaling and emergency operations, as these are covered by other international instruments.

J. 1997 Guidelines for Environmental Impact Assessment in the Arctic (Arctic EIA Guidelines)

24. The Arctic EIA Guidelines, although not legally binding, specify that EIA should be applied to activities in the Arctic associated with the exploitation of both renewable and non-renewable natural resources, public use, military activities and the development of infrastructure for different purposes and that may cause significant environmental impacts. The Guidelines also note that the sensitivity of Arctic areas may justify the application of lower threshold levels for EIA which recognize the sensitivity of Arctic areas and the potential for cumulative impacts. Sensitivity criteria in the marine context can be based on factors such as the duration 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.

K. 1991 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention)

25. Under the Espoo Convention, States Parties must take the necessary legal, administrative or other measures to conduct EIAs for proposed activities, listed in Appendix I, that are likely to cause a significant adverse transboundary impact. At present, transboundary impact is limited to “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.” Parties are required to establish an EIA procedure for activities listed in Appendix I to the Convention that are likely to cause a significant adverse transboundary impact. Of the activities listed in Appendix I, large-diameter oil and gas pipelines and offshore hydrocarbon production are the most relevant for marine areas. Parties are also required to enter into discussions, at the initiative of any Party,

on whether activities not listed in Appendix I are likely to cause adverse transboundary impacts and where they agree to subject those activities to the prescribed EIA procedure.

L. *Draft Protocol on EIA in a Transboundary Context to the Caspian Sea Framework Convention for the Protection of the Marine Environment (Caspian Sea EIA Protocol)*

26. At the subregional level, the Espoo Convention has prompted the negotiation of at least one implementation agreement which is relevant to EIA in marine and coastal areas, 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:

- (a) Oil, gas and petrochemical industry exploration and extraction activities;
- (b) The laying of oil and gas pipelines at the bottom of the sea;
- (c) The construction of artificial islands, spits and reefs in the coastal zone;
- (d) The introduction of species alien to natural ecological systems and plans;
- (e) Programmes, concepts and other documents aimed at the solution of global environmental problems, such as the preservation of the ozone layer and biodiversity which are likely to cause adverse impacts on the marine environment of the Caspian Sea.

27. Appendix 2 to the draft EIA Caspian Protocol contains very comprehensive prescriptions for an EIA: multiple characteristics of impacts which must be described, the current environmental status of the receiving environment and a prognosis of the environmental status predicted to be caused by the proposed activity, the measures directed at the 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 alternative options considered.

M. *1998 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention)*

28. Notification and consultation with affected parties is an integral component of the EIA process in marine and coastal areas. These requirements for notification and public consultation 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 recognized in international environmental law. The 1998 Aarhus Convention elaborates on these principles in the context of environmental decision-making and is explicitly recognized in the Espoo Convention.

29. 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 and includes 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;

(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.

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

31. Parties to the 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.

N. Sectoral instruments

32. EIA requirements appear in global instruments applicable to a limited range of sectoral activities which occur in marine areas within and beyond national jurisdiction. These include fisheries, shipping and deep seabed mining.

O. Fisheries instruments

1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (United Nations Fish Stocks Agreement)

33. Under the United Nations Fish Stocks Agreement, in order to conserve and manage straddling fish stocks and highly migratory fish stocks, coastal States and States fishing on the high seas, in giving effect to their duty to cooperate in accordance with UNCLOS, are required 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 on the target stocks (Article 5(d)). This broad obligation is further developed in the non-legally binding FAO Code of Conduct for Responsible Fisheries (FAO Code) and relevant annexes, as well as in the non-legally binding 2009 FAO International Guidelines for Deep Sea Fisheries (Deep Sea Fisheries Guidelines).

1995 FAO Code of Conduct for Responsible Fisheries (FAO Code)

34. Under Article 7.2.3 of the FAO Code, States are urged to assess the impacts of environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks, and to assess the relationship among the populations in the ecosystem. The 2003 FAO Technical Guidelines on the Ecosystem Approach to Fisheries (EAF Guidelines) elaborate on the benefits of EAF and provide practical guidelines for making the changes necessary to achieve an ecosystem approach to marine capture fisheries. The Guidelines specify that fisheries should be managed to limit their impact on the ecosystem to the extent possible (clause 1.2.1). They recommend that States:

(a) Expand their knowledge of how fishing affects target stocks, especially through genetic studies on stock identity as the basis for effective management units, assessment of the minimum levels of biomass compatible with the maintenance of the species' ecosystem function and the identification of spawning and nursery areas for effective management of these vulnerable stages of the life cycle; and

(b) Conduct research into the impact of fishing on non-target species through by-catch and discards and what it is doing to food-web interactions, habitats and biodiversity (clause 5.1.2 and 3).

2009 International Guidelines for Deep Sea Fisheries (Deep Sea Fisheries Guidelines)

35. The Deep Sea Fisheries Guidelines recommend that States and regional fisheries management organizations/arrangements managing deep sea fisheries in the high seas adopt measures to prevent

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significant adverse impacts on vulnerable marine ecosystems (VMEs). These 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. The 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 (paragraphs 47-49 of Deep Sea Fisheries Guidelines). These definitions and examples given of VMEs in the Deep Sea Fisheries Guidelines are useful in developing the potential elements of draft EIA Guidelines for marine and coastal areas. The Guidelines also specify that States and RFMOs should ensure that deep sea fishing activities on the high seas are managed to prevent significant adverse impacts on VMEs or not authorized to proceed if it is assessed, in accordance with paragraphs 42 to 53 of the Guidelines, that they would have significant adverse impacts (paragraph 73 Deep Sea Fisheries Guidelines).

General Assembly resolutions 61/105 and 64/72 on sustainable fisheries

36. In paragraph 83 of resolution 61/105 of 8 December 2006, the General Assembly called upon regional fisheries management organizations or arrangements with the competence to regulate bottom fisheries to adopt and implement measures, in accordance with the precautionary approach, ecosystem approaches and international law, for their respective regulatory areas as a matter of priority, but not later than 31 December 2008:

(a) To assess, on the basis of the best available scientific information, whether individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems, and to ensure that if it is assessed that these activities would have significant adverse impacts, they are managed to prevent such impacts, or not authorized to proceed;

(b) To identify vulnerable marine ecosystems and determine whether bottom fishing activities would cause significant adverse impacts to such ecosystems and the long-term sustainability of deep sea fish stocks, *inter alia*, by improving scientific research and data collection and sharing, and through new and exploratory fisheries;

(c) In respect of areas where vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold water corals, are known to occur or are likely to occur based on the best available scientific information, to close such areas to bottom fishing and ensure that such activities do not proceed unless conservation and management measures have been established to prevent significant adverse impacts on vulnerable marine ecosystems; and

(d) To require members of the regional fisheries management organizations or arrangements to require vessels flying their flag to cease bottom fishing activities in areas where, in the course of fishing operations, vulnerable marine ecosystems are encountered, and to report the encounter so that appropriate measures can be adopted in respect of the relevant site.

37. It also called upon those States participating in negotiations to establish a regional fisheries management organization or arrangement competent to regulate bottom fisheries to expedite such negotiations and, by no later than 31 December 2007, to adopt and implement interim measures consistent with paragraph 83 of the resolution and make these measures publicly available (paragraph 85). It also called upon flag States to either adopt and implement measures in accordance with paragraph 83 of the resolution, *mutatis mutandis*, or cease to authorize fishing vessels flying their flag to conduct bottom fisheries in areas beyond national jurisdiction where there is no regional fisheries management organization or arrangement with the competence to regulate such fisheries or interim measures in accordance with paragraph 85 of the present resolution, until measures are taken in accordance with paragraph 83 or 85 of the resolution (paragraph 86). The Assembly further called upon States to make publicly available through the Food and Agriculture Organization of the United Nations a list of those

vessels flying their flag authorized to conduct bottom fisheries in areas beyond national jurisdiction, and the measures they have adopted (paragraph 87).

38. Based on the review it carried out of the implementation of resolution 61/105, the General Assembly, in resolution 64/72 of 4 December 2009, *inter alia* called upon regional fisheries management organizations or arrangements with the competence to regulate bottom fisheries, States participating in negotiations to establish such organizations or arrangements, and flag States to take the following urgent actions in areas beyond national jurisdiction (paragraph 119):

(a) Conduct the assessments called for in paragraph 83 (a) of resolution 61/105, consistent with the Guidelines, and ensure that vessels do not engage in bottom fishing until such assessments have been carried out;

(b) Conduct further marine scientific research and use the best scientific and technical information available to identify where vulnerable marine ecosystems are known to occur or are likely to occur and adopt conservation and management measures to prevent significant adverse impacts on such ecosystems consistent with the Guidelines, or close such areas to bottom fishing until conservation and management measures have been established, as called for in paragraph 83 (c) of resolution 61/105;

(c) Establish and implement appropriate protocols for the implementation of paragraph 83 (d) of resolution 61/105, including definitions of what constitutes evidence of an encounter with a vulnerable marine ecosystem, in particular threshold levels and indicator species, based on the best available scientific information and consistent with the Guidelines, and taking into account any other conservation and management measures to prevent significant adverse impacts on vulnerable marine ecosystems, including those based on the results of assessments carried out pursuant to paragraph 83 (a) of resolution 61/105 and paragraph 119 (a) of the present resolution.

39. It also called upon flag States, members of regional fisheries management organizations or arrangements with the competence to regulate bottom fisheries and States participating in negotiations to establish such organizations or arrangements to adopt and implement measures in accordance with paragraphs 83, 85 and 86 of resolution 61/105, paragraph 119 of resolution 64/72, and international law, and consistent with the Guidelines, and not to authorize bottom fishing activities until such measures have been adopted and implemented (paragraph 120).

40. The Assembly further recognized the special circumstances and requirements of developing States and the specific challenges they may face in giving full effect to certain technical aspects of the Guidelines (paragraph 121). It also called upon States and regional fisheries management organizations or arrangements to enhance efforts to cooperate to collect and exchange scientific and technical data and information related to the implementation of the measures called for in the relevant paragraphs of resolution 61/105 and resolution 64/72 to manage deep sea fisheries in areas beyond national jurisdiction and to protect vulnerable marine ecosystems from significant adverse impacts of bottom fishing by, *inter alia* (paragraph 122):

(a) Exchanging best practices and developing, where appropriate, regional standards for use by States engaged in bottom fisheries in areas beyond national jurisdiction and regional fisheries management organizations or arrangements with a view to examining current scientific and technical protocols and promoting consistent implementation of best practices across fisheries and regions, including assistance to developing States in accomplishing these objectives;

(b) Making publicly available, consistent with domestic law, assessments of whether individual bottom fishing activities would have significant adverse impacts on vulnerable marine ecosystems and the measures adopted in accordance with paragraphs 83, 85 and 86, as appropriate, of resolution 61/105, and promoting the inclusion of this

information on the websites of regional fisheries management organizations or arrangements;

(c) Submission by flag States to the Food and Agriculture Organization of the United Nations of a list of those vessels flying their flag authorized to conduct bottom fisheries in areas beyond national jurisdiction, and the measures they have adopted to give effect to the relevant paragraphs of resolution 61/105 the present resolution;

(d) Sharing information on vessels that are engaged in bottom fishing operations in areas beyond national jurisdiction where the flag State responsible for such vessels cannot be determined.

41. The Assembly also encouraged States and regional fisheries management organizations or arrangements to develop or strengthen data collection standards, procedures and protocols and research programmes for identification of vulnerable marine ecosystems, assessment of impacts on such ecosystems, and assessment of fishing activities on target and non-target species, consistent with the Guidelines and in accordance with UNCLOS, including Part XIII thereof (paragraph 123).

42. A further review of the implementation of those resolutions was undertaken by the General Assembly at its 66th session.

P. Shipping instruments

1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Protocol)

43. In the shipping sector, dumping of certain wastes is addressed under annex 1 to the London Protocol. Dump sites at sea can include areas within and beyond national jurisdiction. Under annex 2 to the Protocol, each application for a permit to dump certain wastes addressed 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 or sites, fluxes and proposed disposal techniques and must also 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. If the assessment reveals that adequate information is not available to determine the likely effects of the proposed disposal option, then annex 2, paragraph 14, of the Protocol provides that this option should not be considered further.

London Convention/London Protocol Assessment Framework for Scientific Research Involving Ocean Fertilization (LC/LP Assessment Framework for OF)

44. The LC/LP Assessment Framework for Ocean Fertilization, adopted by the LC/LP Parties in a resolution in October 2010, takes a risk analysis approach to the decision on whether to approve ocean fertilization experiments as legitimate scientific research. The Assessment Framework characterises itself as a “tool to determine if the proposed activity constitutes legitimate scientific research that is not contrary to the LC/LP aims.” The determination under the Assessment Framework has two components, an Initial Assessment and an Environmental Assessment. The Initial Assessment determines whether the proposed ocean fertilization activity is legitimate scientific research. To pass the initial assessment and proceed to the next stage of Environmental Assessment, the proposed activity must have “proper scientific attributes”, including fulfilling the following rigorous criteria:

(a) The proposed activity should be designed to answer questions that will add to the body of scientific knowledge. Proposals should state their rationale, research goals, scientific hypotheses and methods, scale, timing, and locations with clear justification for why the expected outcomes cannot reasonably be achieved by other methods;

(b) Economic interests should not influence the design, conduct and/or outcomes of the proposed activity. There should not be any financial and/or economic gain arising directly from the experiment or its outcomes. This should not preclude payment for services rendered in support of the experiment or the future financial impacts of patented technology;

(c) The proposed activity should be subject to scientific peer review at appropriate stages in the assessment process. The outcome of the scientific peer review should be taken into consideration by the Contracting Parties. The peer review methodology should be stated and the outcomes of the peer review of successful proposals should be made publicly available together with the details of the project; and

(d) The proponents of the proposed activity should make a commitment to publish the results in peer-reviewed scientific publications and include a plan in the proposal to make the data and outcomes publicly available in a specified time frame.

45. Only if a proposed OF activity meets these criteria does it proceed to the Environmental Assessment stage of the determination. This next stage of assessment essentially decides whether the proposed OF activity is legitimate scientific research which also is not contrary to the aims of the LC/LP. In other words, scientific research can be legitimate but still be prohibited under the LC/LP if it is contrary to their aims.

Q. Deep seabed mining instruments

UNCLOS and the 1994 Part XI Agreement

46. The International Seabed Authority (ISA) is the organization through which States Parties shall, in accordance with Part XI of UNCLOS, organize and control activities in the Area, particularly with a view to administering the resources of the Area.⁶ Necessary measures must be taken in accordance with UNCLOS with respect to activities in the Area to ensure effective protection for the marine environment from the harmful effects which may arise from such activities. For this purpose, the ISA must adopt appropriate rules, regulations and procedures for:

(a) The prevention, reduction and control of pollution and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from harmful effects of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities;

(b) The protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.⁷

2000 Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (Polymetallic Nodule Regulations)

47. The Polymetallic Nodules Regulations impose comprehensive environmental protection obligations on the States and State-sponsored entities involved in the exploration phase of deep seabed mining. At every stage of their activities in relation to the Area, contractors have substantial responsibilities to assess and monitor the effects of their operations on the marine environment of the Area. States or State-sponsored entities submitting plans of work for exploration in the Area must submit a description of their proposed programmes for oceanographic and environmental baseline studies that would enable an assessment of the potential environmental impact of the proposed exploration activities on the marine environment and a description of proposed measures for the prevention, reduction and control of pollution and other hazards, as well as possible impacts on the marine environment.⁸ Once

⁶ UNCLOS, Article 157(1)

⁷ UNCLOS, Article 145, Annex III, Article 17(1)(b)(xii).

⁸ Polymetallic Nodules Regulations, Reg. 18(b) (c) and (d).

contracts are signed with the ISA, exploration contractors are required to gather environmental baseline data against which to assess the likely effects of their activities on the marine environment and devise programmes to monitor and report on such effects.⁹ They must report annually to the Secretary-General of the ISA on the implementation and results of their monitoring programmes and submit environmental baseline data.¹⁰

Polymetallic Nodules Environmental Guidelines

48. Exploration contractors' annual reports are evaluated by the ISA Legal and Technical Commission, which issued Environmental Guidelines in 2001 which have been updated since then to assist contractors in fulfilling their obligations under the Polymetallic Nodules Regulations.¹¹ The Guidelines describe in extensive detail the data to be collected by the contractor in establishing an environmental baseline for a particular exploration area prior to exploration activities commencing. These data encompass information on:

- (a) The physical oceanographic conditions of the area to be explored, such as the currents, temperature and turbidity regimes along the entire water column and particularly near the seafloor;
- (b) The chemical oceanographic conditions of the exploration area, such as the water column chemistry, including the water overlaying the nodules;
- (c) The sediment properties of the area, including measurement of soil mechanics to adequately assess the superficial sediment deposits which are the potential source of the deep water plume; and
- (d) The biological communities in the exploration area, including the seafloor communities, pelagic communities, sightings of marine mammals in the area and the level of trace metals in dominant species.¹²

49. As well as providing environmental baseline data on exploration areas, contractors must submit EIAs for particular exploration activities and the results of certain observations and measurements during and after exploration activities to the Secretary-General of the ISA. The Guidelines expand on the types of exploration activities which require an EIA and the observations and measurements to be made. Prior EIAs are required for:

- (a) Sampling with epi-benthic sled, dredge or trawl, to collect nodules for on-land studies for mining and/or processing if the sampling area of any one sampling activity exceeds 10,000 square metres;
- (b) Use of specialized equipment to study the effect of artificial disturbances that may be created on the seafloor; and
- (c) Testing of collection systems and equipment.¹³

50. While performing exploration activities, contractors must report the following observations and measurements to the Secretary-General of the ISA:

- (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;

⁹ Polymetallic Nodules Regulations, Reg. 31(4); see also Part XI Implementing Agreement, Annex, Section 1, paragraph 7.

¹⁰ Polymetallic Nodules Regulations, Reg. 31(5).

¹¹ Ibid.

¹² Polymetallic Nodules Environmental Guidelines, para 8.

¹³ Polymetallic Nodules Environmental Guidelines, para 10.

(e) Volume of sediment rejected by the collector, size and geometry of the discharged plume and behaviour of the plume behind the collector;

(f) Area and thickness of re-sedimentation by the side of the collector tracks to the distance where re-sedimentation is negligible; and

(g) Volume of overflow discharge from the surface vessel, concentration of particles in the discharged water, chemical and physical characteristics of the discharge and behaviour of the discharged plume at the surface or in mid-water.¹⁴

51. The observations and measurements to be reported to the Secretary-General following a specific exploration activity have particular relevance to the effects of the activity on the surrounding benthic fauna. Contractors must report on:

(a) The thickness of re-deposited sediment on the side of the collector tracks;

(b) The behaviour of the different types of benthic fauna subjected to re-sedimentation;

(c) The possible changes in the benthic fauna in adjacent areas apparently not perturbed by the activity;

(d) The changes in the characteristics of the water at the level of the discharge from the surface vessel during the mining test, and

(e) The possible changes on the behaviour of the corresponding fauna.¹⁵

52. If a contractor moves to the exploitation stage, the environmental monitoring requirements under the current Polymetallic Nodule Regulations become more exacting, obligating the contractor to propose areas to be set aside and used exclusively as impact reference zones and preservation reference zones.¹⁶

2010 Polymetallic Sulphide Regulations

53. Regulation 20 (b), (c) and (d) of the 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 to the marine environment.

R. Institutional framework for Marine Areas beyond National Jurisdiction

54. A number of international organizations, both global and regional have sectoral competences in respect of marine areas beyond national jurisdiction. Parties to the Convention on Biological Diversity shall, as far as possible and as appropriate, cooperate, directly or, where appropriate, through competent international organizations, in respect of areas beyond national jurisdiction (Article 5 Convention on Biological Diversity). Under the global, cross-sectoral, policy guidance of the General Assembly of the United Nations, relevant international organizations include the International Maritime Organization (IMO), the International Seabed Authority (ISA), the Food and Agricultural Organization (FAO), United Nations Environment Programme (UNEP), the United Nations Educational Scientific and Cultural Organization (UNESCO), the regional seas organizations and regional fisheries management organizations.

¹⁴ Polymetallic Nodules Environmental Guidelines, para 14.

¹⁵ Polymetallic Nodules Environmental Guidelines, para 15.

¹⁶ Polymetallic Nodules Regulations, Reg. 31(7).

S. *Practical differences between EIAs for Marine Areas beyond National Jurisdiction and those for Marine Areas within National Jurisdiction*

55. In contrast to coastal and terrestrial ecosystems, data on ecosystems in marine areas beyond national jurisdiction are often lacking. Inadequate knowledge of ecosystems that may be at risk means that the ability to assess known risks is poor. In addition, the industry or body proposing an activity in marine areas beyond national jurisdiction is often based far from the site of the proposed activity; this is also the case of the governmental and administrative authorities of the State bearing flag State responsibility for the vessels used by the industry or body.

56. The considerations raised in paragraph 48 mean that the cost of conducting an EIA for activities is higher than EIAs for comparable activities in coastal or terrestrial areas. The necessary follow-up management, control, surveillance and monitoring recommended by an EIA are also much more costly to achieve the same outcome or less effective on a given budget.

57. Capacity-building needs for EIAs relating to activities in marine areas beyond national jurisdiction will be of a different nature to capacity-building needs in marine areas within national jurisdiction. In marine areas beyond national jurisdiction, “customs of practice” for EIA are less well established, methodologies are less mature and multiple assessment cultures may converge in the same area. Capacity-building is more likely to occur in these areas through engagement with international organizations such as Intergovernmental Oceanographic Commission/UNESCO, Food and Agriculture Organization of the United Nations, International Maritime Organization, and International Seabed Authority.

58. These practical differences have two important implications for EIAs of activities in marine areas beyond national jurisdiction. First, the application of a precautionary approach will be even more crucial in decision-making. Second, there will necessarily be greater dependence on incremental and iterative test approaches to permitting activities, given the outcomes of an EIA. To increase very limited knowledge on its impacts, an activity may be allowed at a small scale, and carry strict conditions or monitoring and surveillance, so that the limited activity becomes the source of better information for more complete assessment of the likely impacts of the activity on a larger scale.

T. *Gaps in the CBD Voluntary Guidelines as they relate to activities in marine areas, in particular areas beyond National Jurisdiction*

59. Based on its analysis of the different conditions applicable to EIA in marine areas beyond national jurisdiction, the Manila Workshop identified a number of gaps that needed to be addressed in the CBD Voluntary Guidelines. These include:

(a) The acquisition of better knowledge on marine ecosystems beyond national jurisdiction so that assessment and decision-making are based on adequate information and sound science;

(b) The assembling of global experience with marine ecosystems beyond national jurisdiction on how those ecosystems have responded to past human impacts and natural forces, and how effective mitigation measures have been when they have been applied;

(c) The development of global and, where appropriate, regional standards for acceptable perturbation;

(d) The conduct of research to develop better understanding of the linkages between impacts and ecosystem processes within and beyond national jurisdiction;

(e) Establishing better governance structures for the implementation of EIA in marine areas beyond national jurisdiction, including clarifying what qualifies a group as a “stakeholder” and how all stakeholders can participate in decision-making on an equal basis, how entitlement to compensation is established, and whose standards are to be applied in an EIA;

(f) Fostering better collaboration among states and agencies that have the technology and capacity to do all the scientific, technical and governance tasks involved in EIA in marine areas beyond national jurisdiction; and

(g) Enhancing the capacity of States and international organizations to exercise legitimate monitoring, control and surveillance (MCS) of EIA conditions and to deter actions by groups choosing to enforce self-determined standards of conservation.

U. Manila Expert Workshop Conclusions on Strategic Environmental Assessment (SEA) in Marine Areas beyond National Jurisdiction

60. The Manila Workshop commented that SEAs have distinct advantages that are particularly appropriate for planning the management of marine areas beyond national jurisdiction. They allow the activities of multiple users of ocean space to be coordinated through mechanisms such as integrated management plans for regions and subregions. Such plans can be designed to maintain species habitats and ecosystem structure in space and time over the full water column down to and including the seabed and subsoil. They can also take into account individual and cumulative impacts by users and natural environmental change.

61. The Workshop concluded that the process of undertaking SEAs in marine areas beyond national jurisdiction may often be constrained by lack of information on:

- (a) The distribution and density of species and habitats;
- (b) The natural variation in species and habitat distribution;
- (c) The effects of human-induced events on species and habitats; and
- (d) Linkages between and among species and their physical environments.

62. SEAs allow for modifications to be made to integrated management plans over time, as more knowledge is acquired on the ecosystems and biodiversity of marine areas beyond national jurisdiction and the severity of impacts from human activities. SEAs may also establish environmental networks to promote further research into the marine environment and stimulate co-funding with industry, government, nongovernmental organizations and scientific institutions.

63. The Workshop commented that SEAs can be set up to address the large scale of ocean ecosystems, such as abyssal plain muds and the vast mountain ranges of mid-ocean ridges, and the connectivity of localized and separated ecosystems, such as hydrothermal vents, cold water coral reefs, and seamounts. They can take into account the topography of the seafloor, the nature of sediment (i.e., diatoms, cocolithophorans, foraminiferans etc.) and the interaction of fauna and sediment on the sea bed, latitudinal change, depth zonation (e.g., the effects of temperature and pressure on the physiology of fauna) and food input from photosynthetic or chemosynthetic sources.

64. In its conclusions on SEAs, the Workshop identified elements which were lacking in the CBD Draft Guidance on SEA, particularly as it related to SEAs in marine areas beyond national jurisdiction. The discussion was organized around a summary overview of biodiversity triggers as contained in Appendix 2 to the Draft Guidance on SEA. It identified topographic features and associated ecosystems found in marine areas that should be considered with regard to Trigger 1 in the draft SEA Guidance (area known to provide important ecosystem service). These features and ecosystems have been included in the draft SEA Guidance for Marine and Coastal Areas.

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