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INTEGRATION OF OUTCOME-ORIENTED TARGETS INTO THE PROGRAMMES OF WORK OF THE CONVENTION, TAKING INTO ACCOUNT THE 2010 BIODIVERSITY TARGET, THE GLOBAL STRATEGY FOR PLANT CONSERVATION, AND RELEVANT TARGETS SET BY THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT

Addendum

Outcome-oriented targets for the implementation of the elaborated programme of work on marine and coastal biological diversity

Note by the Executive Secretary

I.   INTRODUCTION

1.   At its eighth meeting, the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) evaluated the implementation of the programme of work on marine and coastal biological diversity. As a result, SBSTTA adopted recommendation VIII/3 A, in which it concluded that although progress has been made in the implementation of the programme of work, much still remains to be done to achieve its full implementation, and to halt the decline in marine and coastal biological diversity globally. SBSTTA therefore recommended that the Conference of the Parties should extend the time period of the programme by an additional six years, at which point its implementation would be re-evaluated. SBSTTA also concluded that some refinement to the programme of work is needed as a result of recent developments and new priorities. As part of the elaboration process, SBSTTA recommended the setting of clear targets for the implementation of activities, taking into account the Plan of Implementation of the World Summit on Sustainable Development.

2.   In response to this request, the Executive Secretary has prepared the present note following the framework described in his note on integration of outcome-oriented targets into the programmes of work of the Convention, taking into account the 2010 biodiversity target, the Global Strategy for Plant Conservation, and relevant targets set by the World Summit on Sustainable Development (UNEP/CBD/SBSTTA/9/14). Section II of the present note presents a vision, a mission, and related outcome-oriented targets and goals for the programme of work. Section III contains a brief review of the relationship between the programme of work and other relevant processes. The targets in this document have been peer-reviewed.

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*   UNEP/CBD/SBSTTA/9/1.

3.   In addition to the suggested recommendations on outcome-oriented targets in the above-mentioned note by the Executive Secretary (UNEP/CBD/SBSTTA/9/14), the Subsidiary Body may also wish to endorse the annexed proposals for the integration of targets in the programme of work on marine and coastal biodiversity.

II.   VISION, MISSION, GOALS AND TARGETS OF THE PROGRAMME OF WORK ON MARINE AND COASTAL BIOLOGICAL DIVERSITY

A.   *Overall vision*

4.   The overall vision that the effective implementation of the elaborated programme of work on marine and coastal biological diversity strives to attain is to halt the loss of marine and coastal biological diversity nationally, regionally and globally.

B.   *Mission*

5.   The overall goal of the programme of work on marine and coastal biodiversity, consistent with the Strategic Plan of the Convention, is to achieve significant reduction of the current rate of marine and coastal biological diversity loss by the year 2010.

6.   The goal, which was supported by SBSTTA in paragraph 2 (j) of its recommendation VIII/3 A, is derived from the overall target of the Convention's Strategic Plan (decision VI/26, annex). The Strategic Plan target was also endorsed by the World Summit on Sustainable Development in its Plan of Implementation.

C.   *Goals and targets*

7.   Eleven targets corresponding to the nine long-term goals put forward in the note by the Executive Secretary on integration of outcome-oriented targets into the programmes of work of the Convention (UNEP/CBD/SBSTTA/9/14) were selected, and are annexed to the present document. The targets were selected on the basis of a review of targets used in international processes, including the Global Strategy for Plant Conservation, the World Summit on Sustainable Development, the Millennium Development Goals, the 2003 World Parks Congress and the Defying Ocean's End Conference, held in Los Cabos, Mexico, from 30 May to 3 June 2003, which brought together 150 experts from 20 countries to articulate a global plan of action to address concerns related to ocean health.

III.   RELATIONSHIP BETWEEN THE PROGRAMME OF WORK ON MARINE AND COASTAL BIOLOGICAL DIVERSITY AND OTHER RELEVANT PROCESSES.

A.   *Millennium Development Goals*

8.   The implementation of the programme of work on marine and coastal biological diversity makes a direct contribution to the achievement of the Millennium Development Goals (MDGs), specifically its target 9, namely, to integrate principles of sustainable development into country policies and programmes and to reverse the loss of environmental resources. Through its promotion of sustainable fisheries and aquaculture, the programme of work also contributes to target 2, which is to halve, between 1990 and 2015, the proportion of people who suffer from hunger.

B.   *Plan of Implementation of the World Summit on Sustainable Development*

9.   The following targets of the Plan of Implementation of the World Summit on Sustainable Development (WSSD) are completely consistent with the programme of work on marine and coastal biological diversity, and will be integrated (either directly or in a modified format as appropriate) into the programme of work:

(a)   *Paragraph 29 (d)*: Encourage the application by 2010 of the ecosystem approach, noting the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem 1/ and decision V/6 of the Conference of the Parties;

(b)   *Paragraph 31 (a)*: Maintain or restore (fisheries) stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015;

(c)   *Paragraph 32 (c)*: Develop and facilitate the use of diverse approaches and tools, including the ecosystem approach, the elimination of destructive fishing practices, the establishment of marine protected areas consistent with international law and based on scientific information, including representative networks by 2012 and time/area closures for the protection of nursery grounds and periods, proper coastal land use; and watershed planning and the integration of marine and coastal areas management into key sectors; 2/

(d)   *Paragraph 33 (d)*: Make every effort to achieve substantial progress by the next Global Programme of Action conference in 2006 to protect the marine environment from land-based activities

(e)   *Paragraph 36 (b)*: Establish by 2004 a regular process under the United Nations for global reporting and assessment of the state of the marine environment, including socio-economic aspects, both current and foreseeable, building on existing regional assessments.

(f)   *Paragraph 44*: The achievement by 2010 of a significant reduction in the current rate of loss of biological diversity.

10.   In addition, the programme of work on marine and coastal biological diversity makes a direct contribution to the implementation of the following paragraphs of the Plan of Implementation of the World Summit:

(a)   *Paragraph 31 (d)*: Urgently develop and implement national and, where appropriate, regional plans of action, to put into effect the FAO international plans of action, in particular the International Plan of Action for the Management of Fishing Capacity 3/ by 2005 and the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing 4/ by 2004. Establish effective monitoring, reporting and enforcement, and control of fishing vessels, including by flag States, to further the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing;

(b)   *Paragraph 58 (g)*: Develop community-based initiatives on sustainable tourism by 2004 and build capacities necessary to diversify tourism products, while protecting culture and traditions and effectively conserving and managing natural resources.

C.   *Biodiversity-related conventions, United Nations organizations and other relevant regional and international organizations and processes*

11.   The programme of work on marine and coastal biological diversity is consistent with the relevant provisions of the United Nations Convention on the Law of the Sea, the marine and coastal components of the Ramsar Convention on Wetlands, the regional seas programmes and action plans, the International Coral Reef Initiative, the FAO Code of Conduct on Responsible Fisheries, the Reykjavik Declaration on Responsible Fisheries in the Marine Environment, and activities of the Intergovernmental Oceanographic Commission (IOC) of UNESCO.

12.   In addition, elements are relevant to provisions of other conventions, including, *inter alia*, the Convention on Migratory Species, the International Maritime Organization, the World Heritage

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1/   See Food and Agriculture Organization of the United Nations document C200/INF/25, appendix I.

2/   This wording is also consistent with SBSTTA recommendation VIII/3 A.

3/   Rome, Food and Agriculture Organization of the United Nations, 1999.

4/   Ibid., 2001.

Convention and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Annex

GLOBAL OUTCOME ORIENTED TARGETS FOR THE PROGRAMME OF WORK ON MARINE AND COASTAL BIOLOGICAL DIVERSITY

Goal 1. Halt the loss of ecosystems, habitats and biomes

Target 1: Provide effective protection for at least 10% of each habitat type globally, and establish at least marine and coastal protected areas in areas outside of national jurisdiction, as a step towards a longer-term target of including 20-30% of each habitat type in effectively managed marine and coastal protected areas.

Rationale

`1.   According to paragraph 6 of SBSTTA recommendation VIII/3 B, marine and coastal protected areas are an essential element in the conservation and sustainable use of marine and coastal biodiversity. However, current data indicates that less than 0.5% of the world's oceans are protected. The World Summit on Sustainable Development, in paragraph 31 (c) of its Plan of Implementation, adopted a target of developing a representative network of marine and coastal protected areas by 2012, and this target was also endorsed in paragraph 9 of recommendation VIII/3 B. The present target and target 2 should be viewed in the context of this 2012 target.

2.   The purpose of the present target is to: (i) increase the area of marine environment included in marine and coastal protected areas; (ii) increase the representation of different habitats in marine and coastal protected areas, including ecosystems under-represented to date, such as those in the high seas; and (iii) increase the effectiveness of marine and coastal protected areas. Effective protection in this context refers to either: (i) representative areas where extractive uses are excluded and other human pressures minimized; or (ii) areas where threats are managed for the purposes of biodiversity conservation and/or sustainable use (see recommendation VIII/3 B, para. 11). The target is consistent with the recommendation of the World Parks Congress that there is an urgent need for action to address the severe under-representation of marine ecosystems in the global protected areas system. The long-term goal of 20-30% comes from recommendation 5.22 of the 2003 World Parks Congress and is based on recent research findings that indicate that such an area will be needed for sustainable management. 5/ Both the target and the long-term goal should be adjusted as required in the context of adaptive management. Management action should not be delayed in the hope of acquiring perfect knowledge and scientific understanding. On the contrary, better use of existing knowledge can be made in the design process, and management approaches adjusted in light of monitoring and research efforts that are oriented towards providing the necessary feedback for management.

3.   This target aims at implementing the precautionary approach through protecting representative unexploited examples of habitat types of which relatively little is currently known. The target also implies greatly increasing the protection provided for ecosystems that have so far been under-represented. For areas outside of national jurisdiction, at least 10 scientifically significant and globally representative highly protected marine and coastal protected areas should be implemented by 2010, including adequate monitoring and enforcement, reflecting recommendation VIII/ A, paragraph 19, in which SBSTTA agreed that there is an urgent need to establish marine and coastal protected areas in areas beyond national jurisdiction. The target figure of five high-seas marine protected areas by the year 2008 was put forward

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5/   For example, Roberts, C.M., B.S. Halpern, Rr. Warner, and S. Palumbia (2002) Designing marine reserve networks: why small, isolated protected areas are not enough. Conservation Biology in Practice 2: 9-17: J.A. Bohnsack5   B. Causey, M.P. Crosby, R.B. Griffis, M.A. Hixon, T.F. Hourigan, K.H. Koltes, J.E. Maragos, A. Simons and J.T. Tilmant (2000) A rationale for minimum 20-30% no-take protection. Proceedings of the 9th International Coral Reef Symposium, Bali, Indonesia, 2000; Botsford, L.W. and S.D. Gaines (2001) Dependence of sustainability on configuration of marine reserves and larval dispersal distance. Ecol,ogy Letters. 4: 144-150; Mangle. M. (2000) On the fraction of habitat allocated to marine reserves. Ecology Letters 3(1): 15-22.; Lindholm, J.P., P.J. Auster, M. Ruth, and L. Kaufman (2000) Modeling the effects of fishing and implications for the design of marine protected areas: Juvenile fish responses to variations in seafloor habitat. Conservation Biology 15: 424-437; Bohnsack, J.A. (2000) A comparison of the short term impacts of no-take marine reserves and minimum size limits. Bulletin of Marine Science 66: 615-650.

in recommendation 5.23 of the 2003 World Parks Congress, and the 10 high-seas marine protected areas by 2010 target should be interpreted in this context.

4.   For the target to be effective it would involve increasing protection of nursery and spawning areas by implementing time/area closures and other effective protection measures for nursery grounds and periods, including elimination of destructive fishing practices and gear. This acknowledges that the protection of nursery and spawning grounds is a critical step in the creation of sustainable fisheries and in the development of an ecologically functional marine protected areas network (and links this target with target 6). Protection of nursery and spawning areas has been identified as a priority activity in decision IV/5 of the Conference of the Parties, and the text is adapted from paragraph 32 (c) of the Plan of Implementation of the World Summit.

5.   The target should be implemented in a broader context of the ecosystem approach, by which effective integrated marine and coastal area management (IMCAM), or equivalent approaches, should be applied to the entire marine and coastal environment. In addition, activities to reach this target should be implemented together with those associated with targets 6, 8 and 9, which emphasize the need for a sustainable management framework for all human activities. Communication, education and outreach activities are also important to the success of this target.

Indicative list of possible indicators/means of verification

1.1   Number of marine and coastal protected areas and percentage of marine and coastal environment covered by marine and coastal protected areas as indicated by the World Database on Protected Areas and the Global Marine Protected Areas Database (currently under development by the World Conservation Monitoring Centre, WWF and the University of British Columbia);

1.2   Regular reporting of levels of compliance with/enforcement of provisions regarding marine and coastal protected areas;

1.3   Resource allocation to marine and coastal protected area operations as proportion of fisheries and other benefits;

1.4   Status of other marine and coastal ecosystems as indicated by global and regional assessment data;

1.5   Development of mechanisms to enable effective management and enforcement of marine and coastal protected areas beyond national jurisdiction;

1.6   Percentage of global marine and coastal environments mapped using remote-sensing technologies as a step towards designing representative networks of marine and coastal protected areas.

Target 2: Provide, by 2010, effective protection, monitoring and enforcement for at least 30% of tropical and cold water coral reefs and seamounts, and other particularly vulnerable marine and coastal ecosystems.

Rationale

1.   The Conference of the Parties has consistently emphasized the importance of coral reefs and their vulnerability, as is evident in the language of decisions IV/5, V/3 and VI/3. In keeping with these decisions, this target aims to provide increased protection for vulnerable ecosystems, such as coral reefs and seamounts.

2.   This target reflects recent data from the Global Coral Reef Monitoring Network (GCRMN) and Coral Reef Degradation in the Indian Ocean (CORDIO) project, which concluded that reefs that are highly protected and are not stressed were better able to recover from bleaching events. The 30% target is

based on recent research findings. 6/   This paragraph also reflects recommendation VIII/3 B, paragraph 19, in which SBSTTA agreed on the need to protect seamounts. In addition, the immediate and urgent need to manage risks to marine biodiversity of seamounts and cold water coral reefs, through, e.g. elimination of destructive fishing practices such as bottom trawling, has been highlighted in a number of international forums, including the recent fourth meeting of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, the World Parks Congress (recommendation 5.2.3 and the Congress document on emerging issues (UNEP/CBD/SBSTTA/9/INF/21/Add.4)), the 2003 Defying Ocean's End Conference, the Tenth Deep-Sea Biology Symposium, and the Second International Symposium on Deep Sea Corals. It should also be noted that the issue of effective monitoring and enforcement is important for ensuring the effectiveness of all marine and coastal protected areas, and not only those in coral reef and seamount areas. Therefore the lessons learned from activities undertaken to reach this target have wider application.

Indicative list of possible indicators/means of verification

2.1   Status of coral reefs as indicated by monitoring data from the Global Coral Reef Monitoring Network, the CORDIO project and others;

2.2   Status of other marine and coastal ecosystems as indicated by global and regional assessment data;

2.3   Number of coral reef and seamount protected areas included in the Global Marine Protected Areas Database;

2.4   Controls on destructive fishing practices in place, particularly in vulnerable ecosystems, such as tropical and cold water coral reefs and seamounts;

2.5   Development and application of effective enforcement mechanisms, such as Vessel Monitoring Systems;

Goal 2. Halt loss of species diversity

Target 3: Establish and implement effective programmes to conserve *in situ*, by 2010, 80% of the known globally threatened and endangered marine species listed in 2002.

Rationale

Reaching the overall target of significant reduction of the current rate of marine and coastal biological diversity loss by the year 2010 will require the effective maintenance and recovery of threatened species, including those listed in the IUCN Red List of Threatened Species, in networks of protected areas or through other appropriate and effective management measures over the wider seascape. It will also require increased and urgent efforts to identify marine species whose life history or habitat requirements make them vulnerable to extinction and to add them to the lists of globally threatened and endangered species, where necessary, as well as to intensify efforts to prevent such vulnerable species from becoming globally threatened or endangered. It should be noted that as awareness of threatened and endangered marine and coastal species increases, it is likely that more of them will become listed. Because of this, a clear baseline (species listed in 2002) is defined in target 3 in order to avoid the probability of an otherwise moving target. Activities undertaken to reach this target should be coupled with efforts to identify, by 2010, all species that are globally endangered and threatened. The conservation of such unknown species is best undertaken through the use of precautionary tools, such as networks of highly protected MCPAs (see target 1). This target has been adapted from the 2003 World Parks Congress recommendation 5.04. The percentage (80%) may require further consultations. Activities to reach this target should be implemented together with those associated with targets 1, 2 and 10, in order to emphasize the need to undertake species management in an ecosystem context.

6/   E.g. Hughes, T.P., Baird, A.H., Bellwood, D.R., Card, M., Connolly, S.R., Folke, C., Grosberg, R., Hoegh-Guldberg, O., Jackson, J.B.C., Kleypas, J., Lough, J.M., Marshall, P., Nyström, M., Palumbi. S.R., Pandolfi, J.M., Rosen, B. and J. Roughgarden (2003) Climate Change, Human Impacts, and the Resilience of Coral Reefs. Science, vol. 301: 929-933

Indicative list of potential indicators/means of verification

3.1   IUCN Red List data and other marine inventory data;

3.2   Identification of life history characteristics that make marine species vulnerable to extinction;

3.3   Number of recovery programmes for endangered and threatened species that include both protected areas and mechanisms to protect species outside of protected areas (e.g. prevent/reduce gear entanglement, by-catch, etc., and improve water quality);

3.4   Degree of marine and coastal habitat loss and modification globally;

3.5   Percentage reduction of by-catch of endangered and threatened species;

3.6   Degree of application of the precautionary approach to species management through tools such as networks of highly protected areas.

Goal 3. Halt loss of genetic diversity

Target 4: Measure and significantly reduce, by 2010, the loss of marine and coastal genetic diversity.

Rationale

Genetic diversity is lost through reduction of population size caused by, for example, over-harvesting (as is the case in species targeted by unsustainable fisheries), habitat alteration and destruction, toxic materials, and invasive species. The loss of genetic diversity in the seas and coastal areas is not well documented, but is thought to be substantial because historical over-fishing has caused massive reduction in the abundance of large consumer species. 7/ Small populations contain less genetic variation than large ones, reducing their adaptability, for example, to climate change, and their ability to recover from over-harvesting, as is thought to be the case with the northern right whale. This goal aims to conserve genetic diversity among and within populations in order to increase the capability of populations and individual species to adapt to rapid environmental change. Activities to reach this target (including the maintenance of general habitat character and the removal of severe selective pressures) should therefore be implemented together with those associated with targets 1, 2, 3, 6 and 10.

Indicative list of possible indicators/means of verification

4.1   Development of new and improved methods to measure marine and coastal genetic diversity;

4.2   Genetically effective population size of marine and coastal species;

4.3   Range contraction of marine and coastal species;

4.4   Degree of selective pressure (including selective harvesting techniques) applied on marine and coastal species;

4.5   Genetic diversity of fish stocks, marine turtles and other well-studied species.

Goal 4. Control threats from invasive alien species

Target 5: Control, by 2010, all pathways, including shipping, trade and mariculture, for potential alien invasive species in the marine and coastal environment.

Rationale

1.   The main sources of unintentional introductions of invasive alien species into the marine environment are considered to be ballast water from ships, and through hull fouling and other ship structure sources, and mariculture. Therefore, controlling these vectors is likely to have the greatest effect in reducing the number and severity of invasions. However, this target also recognizes that other sources

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7/   Jackson, J.B.C., Kirby, M.X., Berger, W.H., Bjorndal, K.A., Botsford, L.W., Bourque, B.J., Bradbury, R.H., Cooke, R., Erlandson, J., Estes, J.A., Hughes, T.P., Kidwell, S., Lange, C.B., Lenihan, H.S., Pandolfi, J.M., Peterson, C.H., Steneck, R.S., Tegner, M.J. and R.R. Warner (2001) Historical overfishing and the recent collapse of coastal ecosystems. Science, Vol 293, pp. 629-638.

of introductions exist (for example trade in marine species, and aquarium releases or escapes) and that controlling these pathways through effective regulation is important.

2. The effective implementation of the draft IMO International Convention on the Control and Management of Ships' Ballast Water and Sediments, once adopted, will be a key contribution to this target. Development and effective implementation of new ballast water treatment technologies to eliminate need for open-ocean discharge, will also be necessary. 8/ Also essential will be the identification and elimination of other potential pathways for introduction of alien species, such as the development of an international regime to address hull-fouling as a vector, development of programmes to eradicate invasive alien species and other appropriate measures.

3. The control of pathways is regarded as the most effective way to address the problem of invasive alien species in the marine environment, as eradication of an already established species is extremely difficult, if not impossible. This target is adapted from paragraph 34 (b) of Plan of Implementation of the World Summit.

Indicative list of potential indicators/means of verification

5.1 Number and severity of alien invasions in marine and coastal ecosystems;

5.2 Number of key pathways for accidental introduction controlled in each country (e.g. ballast water, hull fouling and other ship structure sources, trade in marine species, mariculture);

5.3 Presence of effective processes for ensuring that only low risk deliberate introductions occur;

5.4 Number of effective techniques for prevention, early detection, eradication and control of invasive alien species in the marine and coastal environments;

5.5 Degree of adherence to the IMO Ballast Water Convention;

5.6 Development and use of ballast-water treatment technologies that eliminate the need for open ocean discharge;

5.7 Development and implementation of international regimes to address non-ballast vectors, including hull-fouling, fisheries and aquaculture;

5.8 Number of national, regional and global programmes for eradicating/controlling invasive alien species;

5.9 Regular reporting of levels of compliance with/enforcement of invasive alien species provisions;

5.10 Resource allocation to invasive alien species operations;

5.11 Degree of adherence to relevant provisions of the FAO Code of Conduct for Responsible Fisheries;

5.12 Degree of adherence to the International Council for the Exploration of the Sea (ICES) Code of Practice on Introduction and Transfer of Marine Organisms;

5.13 Development of regional invasive alien species databases.

Goal 5. Halt unsustainable use, including unsustainable fishing and other extractive uses (ensure sustainable use)

Target 6: Ensure by 2010 that a minimum of 80% of all fishery products from wild populations are caught in a demonstrably sustainable manner; that plans are in place to restore all overfished stocks, and that unsustainable destructive fishing practices are eliminated.

8/ The draft Ballast Water Convention still condones the dumping of untreated ballast water into the open ocean. Scientists have raised concerns that some coastal species may thrive in the open ocean as temperatures rise, and pervasive marine debris (especially plastics) is available to provide them shelter. Development of new *in situ* treatment technologies, or other approaches, therefore remain essential to eliminate the need for open ocean discharge of untreated ballast water.

Rationale

1.   According to recent FAO statistics, 47% of global fisheries are fully fished, while 18% are overfished and 9% depleted. In addition, 90% of large predatory fish biomass worldwide has been lost since pre-industrial times. 9/ Overfishing affects habitats, food webs and non-target species, yet the impacts on biodiversity on the level of ecosystems, species and genes are poorly researched. Nevertheless, we know that by-catch amounts to approximately 30 million tonnes of sea life each year, and it is estimated that about 25% of catches worldwide are discarded. High impact fishing (including bottom trawling, long lining, gill netting, and dynamite fishing) causes damage to sensitive habitats, such as cold-water coral reefs and seamounts.

2.   This target, which is adapted from paragraphs 31 (b) and 32 (c) of the Plan of Implementation of the World Summit, aims to maintain fisheries on a sustainable level, and to restore those fisheries that are no longer sustainable. By also addressing destructive fishing practices, the target aims to minimize by-catch and protect habitats from harmful fishing gear. The percentage (80%) may require further consultations. The target should be seen as a step towards the World Summit target of maintaining and restoring fisheries stocks to sustainable levels no later than 2015. This target is related to targets 1 and 2, as marine and coastal protected areas presents a key tool for achieving sustainable fisheries. However, as indicated in target 10, achieving sustainable fisheries and eliminating destructive impacts will require broader efforts to develop and implement a sustainable fisheries management framework in an ecosystem context that incorporates the protection of marine biodiversity. For example, the United Nations Fish Stocks Agreement contains such a principles, but it needs to be more widely ratified and implemented. It should also be applied to all high seas fish stocks, not just those that are highly migratory or straddling. Paragraph 31 (d) of the Plan of Implementation of the World Summit also puts forward a number of actions that will contribute to the achievement of this target.

Indicative list of possible indicators/means of verification

6.1   Trends in fisheries statistics collected by the FAO and regional fisheries bodies;

6.2   Trophic integrity of marine ecosystems;

6.3   Trends in volume and composition of by-catch;

6.4   Percentage reduction of by-catch of endangered and threatened species;

6.5   Number of countries with an effective ecosystem approach to fisheries management;

6.6   Research investment in studies of the ecology and interactions of target species with non-target species and habitat; as opposed to stock assessment and "exploratory" fishing;

6.7   Number of fisheries where important breeding or nursery areas are identified and provided adequate protection to sustain recruitment;

6.8   Degree of application of the precautionary approach in fisheries management;

6.9   All fisheries, including deep sea and deep slope fish stocks of the high seas, covered by effective management regimes;

6.10   Number of regional fisheries management organizations certified as implementing globally recognized standards for good governance and best management practices, including ecosystem-based management and biodiversity conservation goals;

6.11   Number of fisheries certified through international certification schemes;

6.12   Degree of implementation of FAO Code of Conduct on Responsible Fisheries;

6.13   Amount and severity of fisheries-related habitat impacts;

9/   Myers, R.A. and B. Worm (2003) Rapid Worldwide Depletion of Predatory Fish Communities. *Nature*, vol 423: 280-283

6.14   Appropriate mechanisms in place to prevent and eliminate opportunities for illegal, unregulated and unreported (IUU) fishing.

Target 7: Ensure by 2010 that 80% of mariculture facilities are operated sustainably, as a step towards achieving the long-term goal of 100% sustainable mariculture.

Rationale:

According to the Ad Hoc Technical Expert Group on Mariculture, all forms of mariculture affect biodiversity at the genetic, species and ecosystem level. The main effects include habitat degradation, disruption of trophic systems, depletion of natural seedstock, transmission of diseases, and reduction of genetic variability. T he biodiversity effects of pollutants, such as chemicals and drugs, are not very well studied, though are generally assumed to be negative. While mariculture output is still dwarfed by the tonnage of farmed freshwater organisms, it is growing worldwide, and has become an important contributor to the world's food supply. No internationally agreed criteria have yet been developed specifically for the environmental regulation of aquaculture operations, but many national and regional regulations and laws, largely based on scientifically accepted environmental criteria, have been adopted. Article 9 of the FAO Code of Conduct for Responsible Fisheries provides a set of voluntary principles and standards that, if applied, ensure that potential social and environmental problems associated with aquaculture development are duly addressed and that aquaculture develops in a sustainable manner. This target therefore acknowledges the contribution of mariculture to food security while seeking to ensure that mariculture operations are undertaken in a sustainable manner.

Indicative list of possible indicators/means of verification

7.1   Degree of adherence to Article 9 of the FAO Code of Conduct for Responsible Fisheries;

7.2   Degree of adherence to international certification schemes;

7.3   Amount of coastal land clearance for mariculture operations;

7.4   Health of marine and coastal ecosystems adjacent to mariculture operations as indicated by monitoring programmes;

7.5   Water quality in areas with mariculture operations;

7.6   Percentage of new mariculture developments that employed environmental impact assessments;

7.7   Amount of accidental releases of alien species from mariculture operations;

7.8   Level of use of environmental impact assessment/strategic environmental impact assessment for mariculture operations.

Goal 6. Reduce pressures from climate change and pollution

Target 8: Achieve, by 2010, substantial improvement in marine ecosystem health and coastal water quality by protecting the marine environment from land-based activities through effective application of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities and other appropriate instruments, including proper coastal land use, watershed planning, and integration of integrated marine and coastal area management into key sectors.

Rationale

Land-based activities are a major source of threats to the health, productivity and biodiversity of the marine environment. The term "health" in this context should be interpreted as the ability of an ecosystem or population to regenerate from damage and stress, and could be considered to be equivalent to the term "persistence". Threats from land-based activities include pollution (municipal, industrial and agricultural wastes and run-off, as well as atmospheric deposition) and physical alteration and destruction

of habitats. In addition, recent monitoring data 10/ show that coral reefs that are protected from other external stress factors are better able to recover from climate-change induced coral bleaching events, linking the implementation of this target to that of targets 1 and 2. This target, which is adapted from paragraphs 33 and 32 (c) of the Plan of Implementation of the World Summit, seeks to reduce and eliminate to the extent possible land-based impacts on the marine environment, therefore also increasing the ability of marine habitats to recover from climate-change-induced impacts, such as coral bleaching

Indicative list of possible indicators/means of verification

8.1   Degree of implementation of the Global Programme of Action;

8.2   Percentage of water effectively treated before discharge;

8.3   Level of implementation of integrated marine and coastal area management and watershed management measures;

8.4   Health of marine ecosystems as indicated by monitoring programmes;

8.5   Level of use of environmental impact assessment/strategic environmental impact assessment for coastal developments;

8.6   Level of monitoring of marine and coastal resources using remote sensing technologies.

Target 9: Manage by 2010 any major impacts on coastal ecosystems or vulnerable species of unusual climate events so that recovery rates are maximized and impacts on dependent communities minimized.

Rationale

1.   Ecosystems that are healthy have significant capacity to both resist and recover from periodic disturbances, such as coral bleaching events or population collapses due to shifts in currents and changes in sea temperature. Ecosystems in a compromised state have limited capacity to do the same. In the case of coral reefs, the destruction of associated habitats, such as mangroves and seagrass beds, which serve as nursery areas for many reef species, contributes to the limited capacity of coral-reef ecosystems to recover from natural or human-induced impacts. As noted in decision V/3 of the Conference of the Parties, most coral reefs are located in developing countries, and the majority of the people living near coral reefs are often extremely poor. Thus, even minor declines in the productivity of coral-reef ecosystems as a result of coral bleaching events could have dramatic socio-economic consequences for local people who depend on coral-reef services. A similar issue applies in areas such as the Pacific coast of South America, where El Niño/La Niña cycles have major effects on the fisheries on which many poor communities and many seabirds and marine mammals depend. Other impacts on affected species such as Humboldt penguins can remove their ability to recover from these periodic climate events, particularly if human-induced climate change alters those cycles.

2.   This target seeks to maintain ecosystem resistance and resilience to climate change through controlling and minimizing other major human-induced impacts on coastal ecosystems and species resulting from a variety of causes including overexploitation, coastal development, destructive fishing practices, land-based pollution, coral mining, marine-based pollution, and recreational misuse. It also aims to minimize the impact of climatic events, such as coral bleaching, on coastal communities dependent on marine and coastal resources for their livelihoods. Relevant activities may include identification and institution of additional and alternative measures for securing the livelihoods of people who directly depend on the services provided by the affected ecosystems. The application of sound management practices, including marine and coastal protected areas and integrated marine and coastal area managment, are integral for achieving this target. Representative networks of marine and coastal protected areas should be designed to offer resilience in the face of climate-induced threats, including through maintaining connectivity between more highly protected areas and providing for replication of habitat and ecosystem types. Activities to reach this target should be implemented together with those

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10/   Wilkinson, C. (Ed) (2002) Status of Coral Reefs of the World: 2002; Linden, O., Souter, D., Wilhelmsson, D and D. Obura (Eds) (2002) Coral Reef Degradation in the Indian Ocean – Status Report 2002.

related to targets 1, 2, 3, 6, 8 and 10. It may also be appropriate to institute specific recovery programmes to assist some affected species, for example, by significantly reducing predation or by-catch of penguin populations during the recovery period.

Indicative list of possible indicators/means of verification

9.1   Degree of recovery after major bleaching events as indicated by monitoring programmes such as Global Coral Reef Monitoring Network data;

9.2   Development of networks of marine and coastal protected areas that have explicit measures to address replication and connectivity;

9.3   Level of implementation of integrated marine and coastal area management and watershed management measures;

9.4   Sustainability of livelihoods of local communities;

9.5   Development of measures to assess and monitor ecosystem resilience.

Goal 7. Maintain capacity of ecosystems to deliver good and services

Target 10: Implement, by 2010, the ecosystem approach for management of marine and coastal living resources.

Rationale

1.   Marine and coastal ecosystems deliver a range of goods and services. These include: (i) provision of protein supply through fish to 6.2 billion people globally; (ii) functionality of healthy marine ecosystems that cycle nutrients, including from land run-off into food chains that ultimately supply fish for consumption; (iii) generation of significant tourism income and support to international commerce; and (iv) acting as the major component of global climate regulation. The recent World Parks Congress concluded that given the level of threat worldwide to marine ecosystems, there is an urgent need for action to protect and restore ocean health and productivity. This is reinforced by the growing evidence of fisheries decline and collapse, and the increasing pressures on coastal resources as a result of over 50% of the world's population living within 100 miles of the coast. Furthermore, the growing reach of technology means that the last natural refuges are becoming accessible.

2.   Management of marine and coastal resources is always undertaken in the context of ecological uncertainty, and because of this, management action that is precautionary in nature, based on the best available science, and is applied on a broad ecosystem scale can best maintain ecosystem capacity to deliver goods and services. T he ecosystem approach is the primary framework for the implementation of the Convention, and its importance in ensuring the long-term productivity and sustainability of marine and coastal living resources and environments has been highlighted, for example, by the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem, the World Summit on Sustainable Development and the recent fourth meeting of the United Nations open-ended informal consultative process on oceans and the law of the sea. However, according to the national reports under Article 26 of the Convention on Biological Diversity submitted to the Secretariat, the ecosystem approach is not yet widely applied for the management of marine and coastal living resources. Target 10 is adapted from paragraph 30 (d) of the Plan of Implementation of the World Summit and is consistent with decisions V/3 and V/6 of the Conference of the Parties to the Convention on Biological Diversity.

Indicative list of possible indicators/means of verification

10.1   Number of large marine ecosystems managed according to the principles of the ecosystem approach;

10.2   Number of large marine ecosystems with managed highly protected areas representing full diversity of ecosystems and habitats;

10.3   Level of implementation of effective integrated marine and coastal area management;

10.4   Frequency of implementation of the Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem and associated guidance, and the Code of Conduct on Responsible Fisheries;

10.5   Documented shifts in governance approaches from single species management to ecosystem-based management of living resources;

10.6   Frequency of governance approaches that fully acknowledge the role of and involve all stakeholders, including indigenous peoples and local communities dependent upon marine and coastal living resources.

Goal 8. Support sustainable livelihoods, food security and health

Target 11: Halt by 2010 the decline in biological resources, and associated indigenous and local knowledge, innovations and practices that support sustainable livelihoods and local food security, and enhance the incorporation of sustainable traditional and local knowledge practices into policy formulation and management.

Rationale

Indigenous, traditional and local communities have a wealth of knowledge about biodiversity and its sustainable management, and in many countries marine and coastal biodiversity underpins livelihoods and food security. Application of local and traditional knowledge in the management of biological resources may also promote the maintenance of local and traditional knowledge systems. This target is consistent with target 9 of the Millennium Development Goals (to integrate principles of sustainable development into country policies and programmes and to reverse the loss of environmental resources). Measures to address the decline in associated indigenous and local knowledge should be implemented consistent with the Convention's programme of work on Article 8(j) and related provisions.

Indicative list of possible indicators/means of verification

11.1   Documentation of traditional and local knowledge and traditional uses of marine and coastal biodiversity, in accordance with agreed procedures, through surveys and other approaches;

11.2   Incorporation of traditional and local knowledge and sustainable management practices into management and governance systems for marine and coastal living resources;

11.3   Level of participation of local communities in the management and governance systems for marine and coastal living resources;

11.4   Percentage of marine and coastal ecosystems under proper and effective co-management systems;

11.5   Effectiveness of involvement of indigenous and local communities and their traditional and local knowledge in information and monitoring systems for marine and coastal ecosystems.

Goal 9. Ensure the fair and equitable sharing of benefits arising out of the use of marine and coastal genetic resources

Target 12: Put in place by 2010 appropriate measures to ensure the fair and equitable sharing of benefits arising out of the utilization of marine and coastal genetic resources under national jurisdiction.

Rationale

1.   In order to assist Parties, Governments and relevant stakeholders with the implementation of the access and benefit-sharing provisions of the Convention, the Conference of the Parties adopted at its sixth meeting the Bonn Guidelines on Access to Genetic Resources and the Fair and Equitable Sharing of the Benefits arising from their Utilization. These voluntary guidelines are meant to assist Parties and relevant stakeholders when establishing legislative, administrative and policy measures on access to genetic resources and benefit-sharing and/or when negotiating contractual arrangements for access and benefit sharing. Against this background, this target aims to ensure that national systems established to

implement the access and benefit-sharing provisions of the Convention, also cover access to marine and coastal genetic resources and the fair and equitable sharing of benefits arising out of the utilization of these resources, in accordance with the Convention.

2.   It should be noted however that genetic resources in the deep seabed in areas outside of national jurisdiction are not covered by the access and benefit-sharing provisions of the Convention, and that this issue may deserve further consideration in the context of recommendation VIII/3 D.

Indicative list of possible indicators/means of verification:

12.1   Appropriate mechanisms in place.