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EXAMINATION OF THE OUTCOME-ORIENTED GOALS AND TARGETS (AND ASSOCIATED INDICATORS) AND CONSIDERATION OF THEIR POSSIBLE ADJUSTMENT FOR THE PERIOD BEYOND 2010

Note by the Executive Secretary

I. INTRODUCTION

1. In paragraph 5 of decision IX/9, the Conference of the Parties requested the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to examine at its fourteenth meeting the outcome-oriented goals and targets, and associated indicators, contained in the annex to decision VIII/15, with a view to recommending adjustments, if and where necessary, taking into account the third edition of the Global Biodiversity Outlook, the analysis/synthesis of views on the revision and updating of the Strategic Plan of the Convention for the post-2010 period prepared by the Secretariat (UNEP/CBD/WGRI/3/3/Add.1), and further work by the Biodiversity Indicators Partnership and the scientific community. In paragraph 1 of the same decision, the Conference of the Parties requested the Ad Hoc Open-ended Working Group on the Review of Implementation, at its third meeting, to prepare, for the consideration and adoption by the Conference of the Parties, at its tenth meeting, a revised and updated Strategic Plan, including a revised biodiversity target, drawing upon, *inter alia*, an examination by SBSTTA of the scientific and technical aspects of the outcome-oriented goals and targets, and associated indicators.

2. This note has been prepared to assist SBSTTA in its consideration of the scientific and technical aspects of the outcome-oriented goals and targets, and associated indicators. It draws upon a number of sources, including an Expert Workshop on the 2010 Biodiversity Indicators and Post-2010 Indicator Development jointly organized by the UNEP World Conservation Monitoring Centre and the CBD Secretariat (Reading, United Kingdom, 6 - 8 July 2009), an Informal Expert Workshop on the updating of the Strategic Plan of the Convention for the post-2010 period (London, United Kingdom, 18 - 20 January 2010), the sixth UN/Norway Trondheim Conference on Biodiversity and a number of consultations and submissions on the updating of the Strategic Plan of the Convention (http://www.cbd.int/sp/sp2010+/) and the scientific literature.

* UNEP/CBD/SBSTTA/14/1.

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II. VIEWS ON THE GOALS AND TARGETS SET UNDER THE CONVENTION

3. In the context of the Convention, outcome-oriented goals and targets have first been set through the mission statement of the Strategic Plan and through the Global Strategy for Plant Conservation, both adopted in 2002. As part of the framework for monitoring implementation of the Convention and achievement of the 2010 target, a set of outcome-oriented targets was adopted in 2004, slightly modified in 2006 and applied to the seven thematic programmes of work under the Convention. Furthermore, the programme of work on protected areas is centred on a set of goals and time-bound targets. A target has also been agreed for the Global Taxonomy Initiative.

4. Targets set under the Convention represent important political commitments by its Contracting Parties. They enable the authority responsible for the implementation of the Convention, in most cases the Ministries of Environment, to engage with other sectors and departments by bringing these targets to bear in domestic planning and decision-making processes. In many cases, this is done through the adaptation of globally agreed targets to national priorities and circumstances and their integration into National Biodiversity Strategies and Action Plans which, in turn, should be part of a country's development strategy. In this way, goals and targets can serve as a tool for the mainstreaming of biodiversity.

5. Targets are frequently perceived as the most visible and tangible elements of the Convention. They can be seen as the public face of the Convention and their prominence facilitates understanding and support for the objectives of the Convention. Targets thereby promote civil society engagement in policy-setting and implementation at all levels. They enable critical discussions about effective ways to further their achievement and can also be scrutinized by the scientific community.

6. A number of shortcomings related to the existing framework of goals, targets and indicators have been identified in various scientific discussions. These were discussed at the Expert Workshop on the 2010 Biodiversity Indicators and Post-2010 Indicator Development (Reading, United Kingdom, 6 - 8 July 2009), the report of which is posted at http://www.cbd.int/doc/meetings/ind/emind-02/official/emind-02-0709-10-workshop-report-en.pdf. They are also reflected in scientific publications. 1

7. Key recommendations based on the experience with the current set of goals and targets include:

(a) Place targets and indicators in a logical framework (most likely derived from the Driver-Pressure-State-Impact/Benefit-Response framework) and ensure that underlying causes of biodiversity loss are addressed;

(b) Use "SMART" (specific, measurable, ambitious, realistic and time-bound) targets;

(c) Use targets that both focus on biodiversity outcomes and enable measures.

III. VIEWS ON THE INDICATORS ADOPTED THROUGH DECISIONS VII/30 AND VIII/15

8. The Conference of the Parties adopted through decision VII/30 a suite of some 20 global headline indicators for communicating the 2010 target and assessing progress towards achievement of the target at the global level. These were further refined through decision VIII/15 which identified organizations which could coordinate delivery of indicators and which have since formed the 2010 Biodiversity Indicators Partnership coordinated by the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP-WCMC).

1 Some of the more influential publications and editorials include: Dobson, A. 2005. Monitoring global rates of biodiversity change: challenges that arise in meeting the Convention on Biological Diversity (CBD) 2010 goals. Phil. Trans. R. Soc. B 360 (1454): 229-241; Mace, G.M. & J.E.M Baillie. 2007. The 2010 Biodiversity Indicators: Challenges for Science and Policy. Conservation Biology 21 (6): 1406-1413; Mooney H. & G. Mace. 2009. Biodiversity policy challenges. Science 325 (5947): 1474; Sachs, J.D. et al. 2009. Biodiversity Conservation and the Millennium Development Goals. Science 325 (5947): 1502; and Walpole, M. et al. 2009. Tracking Progress Toward the 2010 Biodiversity Target and Beyond. Science 325 (5947): 1503-1504.

9. In accordance with guidance developed under the Convention for designing national-level monitoring programmes and indicators (UNEP/CBD/SBSTTA/9/10), an ideal indicator should be policy relevant and meaningful, biodiversity relevant, scientifically sound, accepted by a broad public, lend itself to affordable monitoring and modelling, and be sensitive enough to detect changes in systems within timeframes and on scales relevant to decision-making. The Expert Workshop on the 2010 Biodiversity Indicators and Post-2010 Indicator Development (Reading, United Kingdom, 6 - 8 July 2009) observed that there is an inherent tension between scientific rigour and communicating the results of the indicators to a variety of audiences, and that no single indicator in the current framework fulfils all these criteria. The 2010 Biodiversity Indicators Partnership has therefore developed several complementary metrics/measures (concrete indicators) under most of the headline indicators agreed through decisions VII/30 and VIII/15 which, together, facilitate communicating policy-relevant information derived from scientific monitoring information.

10. Annex III provides an overview of the headline and specific indicators (metrics/measures), an indication of the scale and time series available for the corresponding data, as well as the nature of the scientific review process for each indicator.

11. Key recommendations based on the experience with the current set of indicators include:

(a) A small set of headline indicators, clearly linked to the "SMART" targets and underscored by more specific measures/concrete indicators, should be maintained or, where necessary, further developed 2, in order to communicate the indicator set through key storylines and clear, policy-relevant messages, while providing a flexible framework that can guide the development of national/regional indicators;

(b) The current set of global indicators should be applied using a modified Driver-Pressure-State-Impact/Benefit-Response framework consistent with the new Strategic Plan of the Convention. Existing indicators should be re-aligned with the new framework, as appropriate, in order to maintain continuity and enhance their use;

(c) Some additional measures on threats to biodiversity, status of biodiversity, ecosystem extent and condition, ecosystem services and policy responses should be developed in order to provide a more complete and flexible set of indicators to monitor progress towards a post-2010 target and to clearly link actions and biodiversity outcomes to benefits for people;

(d) National capacity for framework application, indicator development, data collection and information management should be further developed and properly resourced in order to strengthen countries' ability to develop, monitor and communicate indicators in a participatory, sustained and integrated way and to link them with other processes, e.g., other multilateral environmental agreements and the Millennium Development Goals.

2 Table S1 in the Supporting Material of a paper on "Tracking Progress Toward the 2010 Biodiversity Target and Beyond" published in Science, and accessible from http://www.sciencemag.org/cgi/content/full/325/5947/1503/DC1, provides an overview of the status of the indicators used to assess progress towards the 2010 target.

IV. CONSIDERATIONS UNDERPINNING THE PROPOSED GOALS AND TARGETS OF THE NEW STRATEGIC PLAN

12. Based on the conclusions from the process described in paragraph 2 above, it is proposed that the Strategic Plan 2011-2020 will include a Vision statement, a Mission, Strategic Goals and Targets. This section provides key considerations that led to the proposed set of goals and targets in annex I and further elaborated in annex II to this note.

13. Document UNEP/CBD/WGRI/3/3 proposes a Vision along the following lines: A world of "Living in harmony with nature" where "Biodiversity is conserved, restored and wisely used, sustaining a healthy planet and delivering benefits essential for all people".

14. It is proposed that, in establishing the new Mission and/or Target(s), Parties be guided by what needs to be done under the Convention by 2020 in order to:

(a) Put the world onto a path to achieve the agreed Vision by 2050;

(b) Avoid loss of biodiversity that would be irreversible, costly to reverse or have particularly dangerous implications for human well-being;

(c) Ensure the continued provision of ecosystem services and respond to opportunities for biodiversity and ecosystem management to contribute to climate change mitigation and adaptation; and

(d) Provide the necessary enabling conditions to implement the Convention.

15. The Mission, Strategic Goals and Targets set through the Strategic Plan 2011-2020 should therefore provide the direction and pace to enable the global community to realize this Vision by 2050. The Mission, Strategic Goals and Targets should be well-founded in science and, in the experience of implementing the Convention, it is proposed that the target(s) be "SMART" (i.e. strategic, measurable, ambitious, realistic and time-bound).

16. Various elements have been proposed for the Mission. These include: to reduce or halt biodiversity loss; to restore biodiversity and ecosystem services; to prevent irreversible changes (including extinctions, ecosystem collapse associated with "tipping points"); to avoid loss of biodiversity that has dangerous implications for human well-being; to equitably share the benefits from biodiversity; to reduce the drivers of biodiversity loss; to keep economic activities within safe ecological limits (the boundaries of healthy ecosystems); to contribute to human well-being and poverty reduction; to enhance resilience and adaptation to climate change; and to overcome the "implementation deficit" by ensuring that all countries have the means to achieve the mission statement.

17. Taking into account these points, the following is proposed for the Mission: to ensure coherent implementation of the Convention on Biological Diversity and achievement of its three objectives by promoting ***"Urgent action to halt the loss of biodiversity"*** and, ***"By 2020, to: reduce the pressures on biodiversity; prevent extinctions; restore ecosystems; and enhance ecosystem services, while equitably sharing the benefits, thus contributing to human well-being and poverty eradication, and to have provided the means for all Parties to do so."***

18. Given the difficulty of identifying a single inspiring target (Mission Statement) that is also "SMART", many Parties and stakeholders have suggested that multiple "SMART" targets might complement a more general target or mission statement. Even so, the full scope of the Convention would require a large number of "specific" targets if everything were to be covered comprehensively. Since it is important to limit the number of targets (a clear message emerging from the consultations is "no more than 20, preferably fewer"), it is not practical to include targets on all aspects of the Convention's work. The targets of the Strategic Plan themselves should have a strategic focus within more general Strategic Goals. It is also important to bear in mind that the programmes of work and cross-cutting issues – which provide comprehensive guidance – are key instruments for the implementation of the Strategic Plan.

19. Deciding on the appropriate level of "ambition" and "realism" is often a challenge. The "SMART" targets proposed below have been developed with the following two considerations in mind.

These provide the boundaries within which the quantitative element of each "SMART" target should be set:

(a) It must be physically possible to achieve the targets. In addition, the targets should be consistent with other agreed major globally agreed objectives such as those embodied in the Millennium Development Goals (addressing *inter alia* reduction of hunger and poverty and promotion of health)3 as well as those addressing climate change;

(b) The targets must be sufficiently ambitious to put us onto a path to achieve the agreed long-term vision, and, in particular, to avoid passing "tipping points" that would have dangerous implications for human well-being. They should also ensure the continued provision of ecosystem services and respond to opportunities to contribute to climate change mitigation and adaptation.

20. The targets comprise both: (i) aspirations for achievement at the global level, and (ii) a flexible framework for setting national targets. Parties would be invited to set their own targets within this flexible framework, taking into account national needs and priorities, while also bearing in mind national contributions to the global aspirations established by the targets. Not all countries would necessarily need to develop a national target corresponding to every global target: For some countries, the global threshold set through certain targets may already have been achieved; other targets may not be relevant in the context of the country.

21. Annex I provides the set of targets proposed for the new Strategic Plan of the Convention and annex II provides for a technical rationale for each, potential means to achieve the target, including links to the programmes of work, information on indicators, baselines and possible milestones. This information is also summarized in a table format in document UNEP/CBD/WGRI/3/3. As far as possible, the recommendations derived from an examination of the effectiveness of the targets and indicators listed in paragraphs 5 and 8 above were taken into account in developing the draft Strategic Plan 2011-2020.

3 The Convention includes the following preambular statement: "Recognizing that economic and social development and poverty eradication are the first and overriding priorities of developing countries"

SUGGESTED RECOMMENDATIONS

The Subsidiary Body on Scientific, Technical and Technological Advice may wish to make a recommendation along the following lines:

The Subsidiary Body on Scientific, Technical and Technological Advice:

Having examined the scientific and technical aspects of the proposed set of targets for the Strategic Plan 2011-2020 of the Convention, including their technical rationale and proposed indicators;

Noting that, in line with Decision IX/9, the Ad Hoc Open-ended Working Group on the Review of Implementation, at its third meeting, will be drawing upon this examination of the scientific and technical aspects of the outcome-oriented goals and targets, and associated indicators, in preparing its recommendations on the revised and updated Strategic Plan, including a revised biodiversity target,

1. *Concludes* that, from a scientific and technical viewpoint, the framework of targets in Annexes 1 and 2 of this decision, combined with mechanisms for their implementation, provide a logical evolution of the framework of goals and targets adopted through decisions VII/30 and VIII/15, and respond to the key issues identified in the third edition of Global Biodiversity Outlook (UNEP/CBD/SBSTTA/14/8);

2. *Recommends* that the targets listed in Annex 1 to this note be considered in the process of finalizing the revision and updating of the Strategic Plan of the Convention for the post 2010 period, *noting* that the technical rationale provided for each target is provided in Annex 2.

3. *Notes* the outcomes of the Expert Workshop on the 2010 Biodiversity Indicators and Post-2010 Indicator Development (Reading, United Kingdom, 6 - 8 July 2009);

Recommends that *the Conference of the Parties:*

4. *Welcomes* the progress made in biodiversity monitoring since the adoption of the framework to enhance the evaluation of achievements and progress in the implementation of the Strategic Plan (decision VII/30);

5. *Recognizes* the need to continue strengthening our ability to monitor biodiversity at all levels including through *inter alia*:

(a) Building on and pursuing the work of the 2010 Biodiversity Indicators Partnership in delivering global indicators for the post-2010 period;

(b) Inviting scientific networks to contribute to the development and refinement of indicators suitable for monitoring biodiversity at the global, regional, national and local levels and encouraging science funding bodies to support such endeavours;

(c) Supporting national and regional efforts to establish or strengthen biodiversity monitoring systems to enable Parties to assess progress towards biodiversity targets established at national and/or regional level;

(d) Strengthening our capacity to mobilize and use biodiversity data, information and forecasts so that they are readily accessible to policymakers, managers, experts and other users, including through participation in, and support to, the Group on Earth Observations Biodiversity Observation Network (GEO-BON) and the Conservation Commons.

6. *Agrees* to:

(a) Pursue the use of the global headlines indicators contained in decision VIII/15 and the further development of measures (or specific indicators) in monitoring progress towards selected targets as indicated in annex II to this note and summarized in the table in document UNEP/CBD/WG-RI/3/3;

(b) Complement these global headline indicators with additional indicators which are suitable for monitoring progress towards the remaining targets; and

(c) Invite the scientific community to develop measures (or specific indicators) that could complement or substitute the existing indicators and to bring these to the attention of the Executive Secretary.

7. *Requests* the Executive Secretary, pending the availability of the necessary financial resources, to convene a meeting of an Ad hoc Technical Expert Group on Indicators for the Strategic Plan 2011-2020, which shall be established in accordance with the procedures outlined in the consolidated *modus operandi* of SBSTTA (decision VIII/10, annex III), taking into account the need to draw upon the experience of the members of the 2010 Biodiversity Indicators Partnership and other relevant international organizations, and to report to the Subsidiary Body on Scientific, Technical and Technological Advice prior to its fifteenth meeting. The Ad hoc Technical Expert Group has the following terms of reference:

(a) Provide advice on the further development of indicators agreed through decisions VII/30 and VIII/15;

(b) Suggest additional indicators that have been, or could be, developed to assess progress towards targets for which the current suite of indicators is not suited;

(c) Propose options for the establishment of mechanisms to support Parties in their efforts to develop national biodiversity monitoring systems.

Annex 1

PROPOSED MISSION, STRATEGIC GOALS AND TARGETS FOR THE POST 2010 FRAMEWORK

The Mission of this Strategic Plan is to ensure a coherent implementation of the Convention on Biological Diversity and achievement of its three objectives by promoting ***"Urgent action to halt the loss of biodiversity"*** and, ***"By 2020, to: reduce the pressures on biodiversity; prevent extinctions; restore ecosystems; and enhance ecosystem services, while equitably sharing the benefits, thus contributing to human well-being and poverty eradication, and to have provided the means for all Parties to do so."***.

Strategic Goal A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society:

Target 1: By 2020, everyone is aware of the value of biodiversity and the steps they can take to protect it.

Target 2: By 2020, the values of biodiversity are integrated by all countries in their national accounts, national and local strategies and planning processes, and by business, applying the Ecosystem Approach.

Target 3: By 2020, subsidies harmful to biodiversity are eliminated, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied.

Target 4: By 2020, Governments and stakeholders at all levels have formulated, and have begun to implement, sustainability plans to keep the use of resources within ecological limits.

Strategic Goal B. Reduce the direct pressures on biodiversity and promote sustainable use.

Target 5: By 2020, the loss and degradation of forests and other natural habitats is halved.

Target 6: By 2020, overfishing and destructive fishing practices are eliminated.

Target 7: By 2020, all areas under agriculture, aquaculture and forestry are managed sustainably.

Target 8: By 2020, pollution from excess nutrients and other sources has been brought below critical ecosystem loads.

Target 9: By 2020, pathways for the introduction and establishment of invasive alien species have been controlled, and established invasive alien species are identified, prioritised and controlled or eradicated.

Target 10: By 2020, manage the multiple pressures on coral reefs and other vulnerable ecosystems impacted by climate change and ocean acidification so as to maintain their integrity and functioning.

Strategic Goal C. Safeguard ecosystems, species and genetic diversity

Target 11: By 2020, at least 15% of land and sea areas, including the areas of particular importance for biodiversity, have been protected through representative networks of effectively managed protected areas and other means, integrated into the wider land- and seascape.

Target 12: The extinction of known threatened species has been prevented.

Target 13: By 2020, the status of crop and livestock genetic diversity in agricultural ecosystems and of wild relatives has improved.

Strategic Goal D: Enhance the benefits from biodiversity and ecosystems.

Target 14: By 2020, ecosystems that provide essential services, and contribute to local livelihoods, are safeguarded or are being restored, and adequate and equitable access to essential ecosystem services is guaranteed for all, especially for indigenous and local communities and the poor and vulnerable.

Target 15: By 2020, the contribution of biodiversity to ecosystem resilience and to carbon storage and sequestration is enhanced, through conservation and restoration, including restoration of at least 15% of degraded forest landscapes, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Strategic Goal E. Enhance implementation through planning, knowledge management and capacity development, and the fair and equitable sharing of the benefits arising from the use of genetic resources.

Target 16: By 2020, each Party has implemented an effective national biodiversity strategy, contributing to the achievement of the mission, goals and targets of the Strategic Plan.

Target 17: By 2020, access to genetic resources is enhanced, and substantial benefits are shared, consistent with the international regime on access and benefit sharing.

Target 18: By 2020, traditional knowledge, innovations and practices are protected and their contribution to the conservation and sustainable management of biodiversity is recognized and enhanced.

Target 19: By 2020, knowledge and technologies relating to biodiversity, its value and functioning, its status and trends, and the consequences of its loss, are improved and widely shared.

Target 20: By 2020, capacity (human resources and financing) for implementing the Convention has increased tenfold.

Annex II

TECHNICAL RATIONALE FOR THE STRATEGIC GOALS AND TARGETS, INCLUDING POTENTIAL INDICATORS AND MILESTONES

Strategic Goal A. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society:

Introduction: The Millennium Ecosystem Assessment identified the following indirect drivers of change: economic, demographic, socio-political, cultural and religious, and science and technology. While drivers such as population increase or patterns of consumption (for example, of meat, energy, water and raw materials) are generally not susceptible to rapid reversal, ultimately total consumption must be brought within ecological limits if the 2050 Vision is to be achieved. Therefore, strategic actions should be initiated immediately to address, over a longer term, these underlying causes of biodiversity loss. This requires policy coherence and the integration of biodiversity into all national development policies and strategies and economic sectors at all levels of government. Key strategic approaches to achieve this include communication, education and public awareness, appropriate pricing and incentives, and the broader use of tools such as strategic environmental assessment. Stakeholders across all sectors of government, society and the economy including business, will need to be engaged as partners to implement these actions. Consumers and citizens must also be mobilized to contribute to biodiversity conservation and sustainable use, to reduce their ecological footprints and to support action by governments. At the international level, action to implement the Convention could be strengthened through synergies among intergovernmental bodies.

Target 1. By 2020, everyone is aware of the value of biodiversity and the steps they can take to protect it.

Technical rationale: Addressing the drivers of biodiversity loss requires behavioural change by individuals (e.g., to reduce waste or consumption) and by governments (e.g., to change regulations or incentives). Understanding, awareness and appreciation of the value of biodiversity are necessary to underpin the ability and willingness for individuals to make such changes and to create the "political will" for governments to act[4,5]. Nearly all Parties indicate in their fourth national reports that they are undertaking actions related to education and public awareness. The target covers the three objectives of the Convention.

Implementation: Learning occurs in formal contexts of learning, such as in schools and universities, as well as in informal contexts, such as through the guidance of elders regarding the natural environment, as well as in museums and parks, and through films, television and literature. Where possible, awareness and learning about biodiversity should be linked to and mainstreamed into the principles and messages of education for sustainable development. The United Nations Educational, Scientific and Cultural Organization (UNESCO) could be one key partner in carrying out work towards this target. The key audiences for such communication, education and public awareness activities will vary nationally, but generally could focus on international agencies, national and local governments, business, non-governmental organizations and civil society groups. Information campaigns can, not only promote awareness, but behavioural change and concrete actions as well. The Communication, Education and Public Awareness programme is the main instrument under the Convention for this target.

Indicators and baseline information: Possible indicators could include the number of visits to museums and parks, participation of volunteers in relevant activities, number of school biodiversity education programmes or materials, the demand for or consumption of biodiversity-friendly products, and the development of lists of recommended citizen actions. Progress could also be monitored through surveys on awareness and attitudes. such as the *eurobarometer* survey conducted in 2007 which provides a baseline for the European region.

Milestones: Possible milestones for this target include:

4 Miller, JR (2005). Biodiversity conservation and the extinction of experience. Trends in Ecology & Evolution, 20(8), 430-434.
5 Balmford, A et al. (2009). A Global Perspective on Trends in Nature-Based Tourism. PLoS Biol, 7(6),

- By 2011, basic public awareness campaigns about biodiversity and steps people can take to protect it are initiated;
- By 2014, national baseline surveys are carried out and comprehensive national strategies to promote awareness of the value of biodiversity are prepared and adopted.

Target 2. By 2020, the values of biodiversity are integrated by all countries in their national accounts, national and local strategies and planning processes, and by business, applying the Ecosystem Approach.

Technical rationale: The target implies that the opportunities derived from the conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits arising from the use of genetic resources, are recognized and reflected in all relevant public and private decision-making. Though numerous studies at various scales have illustrated the economic value of biodiversity and the ecosystem services it underpins, [6,7] many Parties report that the absence of economic valuations of biodiversity is an obstacle to its conservation and sustainable use. Including the value of biodiversity in national accounts, including accounts of inclusive wealth, would give it greater visibility amongst policy-makers and contribute to the "mainstreaming" of biodiversity issues in decision-making processes. Reflecting the values of biodiversity in the planning processes of governments at all levels, including economic, financial, spatial planning, and the application of strategic environmental assessment as a tool to identify and quantify tradeoffs, would be particularly effective in the long term. Values of biodiversity and ecosystem services are not limited to financial values.

Implementation: Integration of biodiversity into national accounts, strategies and planning processes will require increased coordination among government ministries and levels of government. Tools to assess the value of biodiversity are now being made more widely available, including the Convention's work on economic, trade and incentive measures, as well as through the Economics of Ecosystems and Biodiversity (TEEB) study. The UN System of Economic and Environmental Accounting (SEEA) and the World Bank's experience in integrating natural capital (e.g., forests) into national accounts could be further developed and built upon to incorporate the value of biodiversity and ecosystem services. Tools are also available for integrating biodiversity into spatial planning exercises through the mapping of biodiversity ecosystem services and systematic conservation planning. Strategic environmental assessment, that incorporates biodiversity (and integrated ecosystem assessment), is a useful approach. Payment for ecosystem services mechanisms, as well as the development of private sector guidelines for the appropriate reflection of the value of biodiversity, are additional implementation mechanisms which could be used to meet this target.

Indicators and baseline information: Possible indicators for this target include the number of countries with biophysical inventories of biodiversity and ecosystem services; the number of countries with national accounts reflecting the state of biodiversity and ecosystem services; the number of countries with poverty reduction strategies and national development plans which incorporate biodiversity and the number of companies (or their market share) with polices for biodiversity-friendly practices. Baseline information for 2010 could be obtained through desk studies and from TEEB study.

6 Dasgupta, P. (2010). Nature's role in sustaining economic development. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences, 365(1537), 5-11.

7 The Economics of Ecosystems and Biodiversity (TEEB) Project (http://www.teebweb.org/)

Milestones: Possible milestones for this target include:

- By 2012, work on bio-physical inventories of biodiversity and associated ecosystem services is initiated and, by 2014, a work programme for reflecting biodiversity and ecosystem values in national accounts is developed;
- By 2014, the opportunities derived from the conservation and sustainable use of biodiversity, and the fair and equitable sharing of benefits arising from the use of genetic resources, are integrated into PRSPs and other national development plans, and are routinely included in environmental impact assessment, strategic environmental assessment and spatial planning;
- By 2018, the most important aspects of biodiversity and ecosystem services are reflected in national statistics.

Target 3. By 2020, subsidies harmful to biodiversity are eliminated, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied

Technical rationale: Substantial and widespread changes to economic incentives are required to ensure sustainability. Ending or reforming subsidies harmful to biodiversity is a critical and necessary first step that would also generate net socio-economic benefits. At the global level, the removal of capacity-enhancing or effort-enhancing fisheries subsidies and the continued and deepened reform of production-inducing agricultural subsidies, still prevalent in most Organisation for Economic Co-operation and Development (OECD) countries, are priority areas for reform for better conservation of ecosystems and biodiversity[8]. Bearing in mind the principle of common but differentiated responsibilities, this target would not imply a need for developing countries to remove subsidies that are necessary for poverty reduction programmes.

Implementation: Current negotiations under the Doha Trade Round aim to clarify and improve World Trade Organization (WTO) disciplines on fisheries, taking into account the importance of this sector to developing countries, and to achieve substantial reductions in trade-distorting agricultural subsidies, with special and differential treatment for developing countries being an integral part of the negotiations. These negotiations have the potential to generate high synergies with this target, and are therefore a key vehicle for achieving the target. In addition, countries or regional groups may take their own initiatives to phase out and/or reform environmentally harmful subsidies, bearing in mind the principle of common but differentiated responsibilities. The recent decision of the G20 to phase out energy subsidies by 2020 could be taken as an example, and would also contribute to the target. A more effective use of strategic environmental assessment could also be one mechanism to help implement effective policies and actions towards this target. The Convention's work on economic, trade and incentive measures and on impact assessment are relevant to this target.

Indicators and baseline information: Estimates of the value of harmful subsidies, using criteria developed by WTO and OECD, would be an indicator. Baseline data is already published. Process indicators might include the successful conclusion of WTO negotiations on fisheries subsidies and on agricultural domestic support.

Milestones: Possible milestones for this target include:

- By 2012, transparent and comprehensive subsidy inventories are established by all OECD countries, and an assessment of their effectiveness against stated objectives, of their cost-efficiency, and of their impacts on biodiversity, is being initiated;
- By 2014, prioritized plans of action for subsidy removal or reform are prepared and adopted;
- By 2016, subsidy programmes identified in the plans of actions are being effectively phased out by 2020, and freed funds, in accordance with national priorities, are redirected towards positive incentive measures for the conservation and sustainable use of biodiversity.

8 The Economics of Ecosystems and Biodiversity. (2009) TEEB for Policy Makers, Summary, Chapter 6.

Target 4. By 2020, Governments and stakeholders, at all levels, have formulated, and begun to implement, sustainability plans to keep the use of resources within ecological limits.

Technical rationale: Most Parties indicated in their fourth national reports that the unsustainable use or overexploitation of resources was a threat to biodiversity. Bringing the use of natural resources within ecological limits is an integral part of the Vision, thus steps towards this must be taken by 2020. Reducing total demand and increasing efficiency contribute to the target which can be pursued through government regulations or incentives, education, and social and corporate responsibility. This target will build upon, and contribute to, the achievement of the target established in the Johannesburg Plan of Implementation (para. 26) to develop integrated water resources management and water efficiency plans by 2005.

Implementation: Currently, many individuals, businesses and countries are making efforts to substantially reduce their use of fossil fuels, with a view to mitigating climate change. Similar efforts are needed to ensure that the use of other natural resources are within sustainable limits. Early action would involve each production- and consumption-related sector developing and implementing plans for this purpose. The target will be achieved through dialogue among sectors and stakeholders, supported by planning tools such as strategic environmental assessment and economic tools such as incentive measures that integrate biodiversity issues. The creation of inter-ministerial committees, nationally developed guidelines, sectoral guidelines and the promotion of ecosystem management in city districts and other local authorities could be used to help reach this target. The programme of work on the sustainable use of biodiversity, the business and biodiversity initiative as well as the work on impact assessment would be particularly relevant to this target.

Indicators and baseline information: Initially, process indicators, such as the establishment of plans with clear and measurable targets, would be the main indicators. Other process indicators include the presence of strategic environmental impact assessment or similar assessment tools, and their application at multiple levels of government. One relevant outcome indicator is the ecological footprint (and related concepts) for which baseline data is available . Other possible indicators could include the total demand for natural resources and the proportion of products derived from sustainable sources.

Milestones: Possible milestones for this target include:

- By 2014, Governments and major private sector actors, at sector or company level, have developed assessments of their ecological footprint, and have developed sustainability plans to reduce their footprint;
- By 2018, Governments and major private sector actors can demonstrate progress towards sustainability.

Strategic Goal B. Reduce the direct pressures on biodiversity and promote sustainable use.

Introduction: It is only possible to reduce or halt the loss of biodiversity if the drivers and pressures on biodiversity are themselves reduced or eliminated. With rising human population and income, the demand for biological resources is increasing, and without action this will translate into increased pressures on biodiversity. Thus, efforts are needed to decouple the indirect and direct drivers of biodiversity loss by means of technical improvements and more efficient use of land, sea and other resources, through better spatial planning. This way, the inevitable tradeoffs between production on the one hand and maintaining ecosystem functions and resilience on the other can be minimized, easing the process of securing the necessary political support and engagement of stakeholders and helping to meet legitimate human development objectives. Further, such efforts can help to identify those situations where significant biodiversity gains can be made for relatively little cost. Where multiple pressures are combining to weaken ecosystem structure, functioning and resilience, decisive action to reduce those pressures most amenable to rapid intervention should be prioritized, while longer-term efforts continue to moderate more intractable pressures, such as climate change and ocean acidification. Targeting drivers and pressures over which we have more immediate control will help ecosystems to maintain the resilience needed to prevent some dangerous “tipping points” from being reached and allow us to better cope with those impacts of climate change we cannot prevent in the short term. Stakeholders in each of the economic sectors will

need to be engaged. Government ministries can take a leading role in their sectors while city and other local authorities can play a decisive role, especially in terms of local land use planning.

Target 5. By 2020, the loss and degradation of forests and other natural habitats is halved.

Technical rationale: Nearly all Parties report that habitat loss is the most important factor driving biodiversity loss. While demographic, economic and social pressures are likely to mean continued land use change beyond 2020, the rate of change needs to be substantially reduced. Ultimately, there must be limits to the conversion or degradation of natural habitats. This is particularly the case for some ecosystems, where continued loss risks passing "tipping points" that could lead to large scale negative effects on human well-being.[9],[10] The target refers to gross loss, and should be regarded as a step towards halting deforestation and the loss of other natural habitats. Emphasis should be on preventing loss of primary forests and other high-biodiversity value habitats, including many wetlands. Recent evidence suggests that the global rate of deforestation is already decreasing.

Implementation: Reduction in the loss and degradation of natural habitats through land use change could be achieved through improvements in production efficiency and land use planning, combined with recognition of the economic and social value of ecosystem services provided by natural habitats.[11] In particular, the value of carbon sequestration by forests and wetlands, and other ecosystem services (such as denitrification by wetlands) provide contemporary incentives for reducing the net loss of these habitats, and reversing their decline. The programmes of work on forest, marine and coastal, inland water and dry and sub-humid lands biodiversity and the Convention's work on sustainable use are particularly relevant to this target.

Indicators and baseline information: Relevant indicators include trends in the extent of selected biomes, ecosystems, and habitats (forest area; mangroves), trends in the abundance and distribution of selected species and the connectivity/fragmentation of ecosystems. Reasonably good data is available for some habitats, such as forests, while for other habitats improvements in data would be needed.

Milestones: Possible milestones for this target include:

- By 2014, national legislation and land use plans or zonation maps have been reviewed and updated in relation to national targets for the maintenance of natural habitats, and spatial planning tools are made available for wide use;
- By 2014, additional measures are taken, as necessary, including for example enhanced law enforcement and use of incentive measures.

Target 6. By 2020, overfishing is ended and destructive fishing practices are eliminated.

Technical rationale: Overexploitation is the main pressure on marine fisheries globally leading to loss of biodiversity and ecosystem structure[12]. Global marine capture fisheries are yielding lower harvest and contributing less to the global economy than they could do under stronger policies to manage fish stocks. The World Bank estimates that this situation represents a lost profitability of some $50 billion pa. and puts at risk some 27 million jobs directly and the well-being of more than one billion people.[13] A reduction in fishing intensity is needed to reduce pressure on ecosystems. Models suggest that, for some fisheries, on average, modest (~10%) reductions in catch could halve pressure on marine ecosystems while also contributing to the long term profitability and sustainability of fishing.[14] (Where fisheries are already managed sustainably, no further reductions in fishing pressure may be needed, while in some areas greater reductions might be warranted.) Such a reduction in fishing pressure would substantially diminish the likelihood of fishery collapses.

9 Rockstrom, J., et al. (2009). A safe operating space for humanity. Nature, 461(7263), 472-475.
10 Assessment of the Risk of Amazon Dieback. World Bank Climate and clean energy initiative. January 2010.
11 Nelson, E., etal (2009). Modelling multiple ecosystem services, biodiversity conservation, commodity production, and tradeoffs at landscape scales. Frontiers in Ecology and Environment 2009; 7(1): 4–11
12 Worm, B., et al. (2006). Impacts of Biodiversity Loss on Ocean Ecosystem Services. Science, 314(5800), 787-790.
13 The Economics of Ecosystems and Biodiversity. (2009) TEEB for Policy Makers, Summary, Chapter 4.
14 Worm, B., et al. (2009). Rebuilding Global Fisheries. Science, 325(5940), 578-585.

Implementation: The specific target should be regarded as a step towards ensuring that all fisheries are sustainable while building upon existing initiatives such as the Code of Conduct for Responsible Fishing. Actions taken to reach this target would also contribute to fisheries targets set during the 2002 World Summit on Sustainable Development[15] and build upon the diverse approaches and tools agreed upon there: the Ecosystem Approach; the elimination of destructive fishing practices; the establishment of representative networks of marine protected areas; and time/area closures for the protection of nursery grounds. In situations where fisheries are shared by several countries in a region, mechanisms may need to be developed to allow for a coordinated approach to resource management. The programmes of work on marine and coastal biodiversity are the most relevant to this target, along with the sustainable use cross-cutting issue.

Indicators and baseline information: Indicators to measure progress towards this target include the Marine Trophic Index, the proportion of products derived from sustainable sources and trends in abundance and distribution of selected species. Other possible indicators include the proportion of collapsed species, fisheries catch, catch per unit effort, and the proportion of stocks overexploited. Baseline information for several of these indicators is available from the work conducted by the Food and Agriculture Organization of the United Nations. [16]

Milestones: Possible milestones for this target include:

- By 2012, Parties should have taken steps to address the management of fishing capacity for international fisheries requiring urgent attention, with priority being given to those harvesting transboundary, straddling, highly migratory and high seas stocks which are significantly overfished;
- By 2012, Parties should have eliminated destructive fishing practices;
- By 2012, Parties should develop or update national assessments of fishing capacity and national plans for the management of fishing capacity, in line with the Ecosystem Approach, in order to halve the pressure on marine ecosystems by 2015 and end overfishing in both domestic and foreign waters by 2020;
- By 2015, Parties should have restored stocks to levels that can produce maximum sustainable yield; [17]
- By 2015, pressure on marine ecosystems from fishing is halved, globally.

Target 7. By 2020, all areas under agriculture, aquaculture, forestry are managed sustainably.

Technical rationale: The ecologically unsustainable consumption of water, the use and run-off of pesticides and excess fertilizers, and the conversion of natural habitats to uniform monocultures, amongst other factors, have major negative impacts on biodiversity inside and outside of agricultural areas, as well as on forest, inland water and coastal ecosystems. The increasing demand for food, fibre and fuel will lead to increasing losses of biodiversity and ecosystem services if issues related to sustainable management are not addressed[18,19]. On the other hand, sustainable management not only contributes to biodiversity conservation but can also deliver benefits to the production systems in terms of services such as soil fertility, erosion control, enhanced pollination and reduced pest outbreaks.

Implementation: Criteria for sustainable forest management have been adopted by the forest sector and there are many efforts by governments, NGOs and the private sector to promote good agricultural, aquaculture and forestry practices and to apply law and governance mechanisms. While, as yet, there are

15 Targets adopted in the Johannesburg Plan of Implementation include: the application by 2010 of the ecosystem approach; to establish representative networks of marine protected areas by 2012; to put into effect the international plans of action of the FAO, in particular the International Plan of Action for the Management of Fishing Capacity by 2005 and the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing by 2004

16 Food and Agriculture Organization (2009). The State of World Fisheries and Aquaculture 2008. FAO Fisheries and Aquaculture Department, Rome Italy.

17 Johannesburg Plan of Implementation paragraphs. 30-32

18 Tilman, D., etal., 2001. Forecasting agriculturally driven global environmental change. Science 292, 281–284.

19 Steinfeld, H. et al. (2006) Livestock's Long Shadow: Environmental Issues and Options. Food and Agricultural Organization of the United Nations. Rome.

no universally agreed sustainability criteria, given the diversity of production systems and environmental conditions, each sector and many initiatives have developed their own criteria which could be used pending the development of a more common approach. In addition, customary use of biodiversity by indigenous and local communities can often offer lessons of wider applicability. Similarly, the use of certification and labelling systems or standards could be promoted as part of this target. The Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity developed under the Convention on Biological Diversity could serve as a framework for developing further sustainability criteria. The programmes of work on agricultural, forest, inland water, marine and coastal, dry and sub-humid lands biodiversity, and the Convention's work on sustainable use, as well as the International Initiatives on Soil Biodiversity and on Pollinators are particularly relevant to this target.

Indicators and baseline information: Relevant indicators for this target include the area of forest, agricultural and aquaculture ecosystems under sustainable management, the proportion of products derived from sustainable sources, and trends in genetic diversity of domesticated animals, cultivated plants and fish species of major socioeconomic importance. Other possible indicators could include the ecological footprint and related concepts, the extent of the use of good agricultural practices and the proportion of products derived from sustainable sources. Existing sustainability certification schemes could provide baseline information for some ecosystems and sectors.

Milestones: Possible milestones for this target include::

- By 2012, all Parties have identified or developed and promoted sustainability criteria and/or good practices for agriculture, aquaculture and forestry;
- By 2015, the area of agriculture, aquaculture and forestry managed according to sustainability criteria has doubled.

Target 8. By 2020, pollution from excess nutrients and other sources has been brought below critical ecosystem loads.

Technical rationale: Nearly all Parties indicated in their fourth national reports that pollution was posing a threat to biodiversity. Nutrient loading, primarily of nitrogen and phosphorus, is a major and increasing cause of biodiversity loss and ecosystem dysfunction, particularly in wetland, coastal and dryland areas, including through eutrophication and the creation of hypoxic "dead zones" associated with severe losses of valuable ecosystem services.[20],[21],[22],[23]. Humans have already more than doubled the amount of "reactive nitrogen" in the biosphere, and business-as-usual trends would suggest a further increase of the same magnitude by 2050. This target is consistent with, and complementary to, work under the Rotterdam and Stockholm Conventions and the target established in the Johannesburg Plan of Implementation (para. 23) to achieve, by 2020, a situation where chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment.

Implementation: The better control of sources of pollution, including efficiency in fertilizer use and the better management of animal wastes, coupled with the strategic use of wetlands, can be used to bring nutrient levels below levels that are critical for ecosystem functioning, while also allowing for increased fertilizer use in areas where it is necessary to meet soil fertility and food security needs. The EU has successfully promoted regulations to this end, and the evidence suggests that similar approaches are feasible in other developed and emerging economies[24],[25]. Similarly, the development of national water quality guidelines could help to limit pollution and excess nutrients from entering freshwater and marine ecosystems. This target is relevant to several programmes of work but, in particular, to those dealing with

[20] Diaz, R. J., & Rosenberg, R. (2008). Spreading Dead Zones and Consequences for Marine Ecosystems. Science, 321(5891), 926-929. doi: 10.1126/science.1156401.

[21] Phoenix, G. K., et al. (2006). Atmospheric nitrogen deposition in world biodiversity hotspots: the need for a greater global perspective in assessing N deposition impacts. Global Change Biology, 12(3), 470-476.

[22] Hicks, K., et al. (2009). Global Assessment of Nitrogen Deposition Effects on Terrestrial Plant Diversity: a synthesis.

[23] Galloway, J. N., et al. (2008). Transformation of the Nitrogen Cycle: Recent Trends, Questions, and Potential Solutions. Science, 320(5878), 889-892.

[24] Bobbink, R., (in press) Global Assessment of Nitrogen Deposition Effects on Terrestrial Plant Diversity: a synthesis. Ecological Applications.

[25] Ju, X., et al. (2009). Reducing environmental risk by improving N management in intensive Chinese agricultural systems. Proceedings of the National Academy of Sciences of the United States of America, 106(9), 3041-3046.

inland water biodiversity and marine and coastal biodiversity and the Convention's work on impact assessment.

Indicators and baseline information: Relevant indicators include nitrogen deposition and water quality in freshwater ecosystems. Other possible indicators could be the ecological footprint and related concepts, total nutrient use, nutrient loading in freshwater and marine environments, and the incidence of hypoxic zones and algal blooms. Data which could provide baseline information already exists for several of these indicators, including the incidence of marine dead zones (an example of human-induced ecosystem failure) and the global aerial deposition of reactive nitrogen.

Milestones: Options for milestones for this target include:

- By 2014, Parties have developed national assessments of the impact of nutrient loading and other pollution on ecosystems and have developed strategies and polices to reduce such pollution;
- By 2015, most ecosystems show declining nutrient loads and levels of other pollutants.

Target 9. By 2020, pathways for the introduction and establishment of invasive alien species have been controlled, and established invasive alien species are identified, prioritised and controlled or eradicated.

Technical rationale: Invasive alien species are those alien species which threaten ecosystems, habitats or species (Article 8(h)). They are a major threat to biodiversity and ecosystem services, as identified by most Parties in their fourth national reports. In some ecosystems, such as many islands, invasive alien species are the leading cause of biodiversity loss. In addition, invasive alien species can pose a threat to food security, human health and economic development. Increasing trade and travel means the threat is likely to increase unless additional action is taken[26].

Implementation: Pathways for the introduction of invasive alien species can be addressed through improved border controls and quarantine, including through better coordination with national and regional bodies responsible for plant and animal health. Work initiated by the International Plant Protection Convention, the International Organization for Animal Health (OIE), and the World Trade Organization's Committee on the Agreement for the Application of Sanitary and Phytosanitary Measures and its Standards and Trade Development Facility, could also be built upon when taking actions to meet this target. The Global Invasive Species Programme has developed several tools. Of the Convention's programmes of work, that dealing with invasive alien species is the most relevant to this target however, given the particularly acute impact of invasive alien species on island ecosystems, the programme of work on island biodiversity is also relevant.

Indicators and baseline information: Process indicators for this target could include the number of countries with national invasive species policies, strategies and action plans and the number of countries which have ratified international agreements and standards related to the prevention and control of invasive alien species. One outcome-oriented indicator is trends in invasive alien species while other possible indicators could include the status of alien species invasion, and the Red List Index for impacts of invasive alien species. While well-developed and, globally-applicable indicators are lacking, some basic methodologies do exist which can serve as a starting point for further monitoring or provide baseline information[27]. The work undertaken by the Global Invasive Species Programme, as well as by IUCN's Invasive Species Specialist Group, could be useful starting points in this regard. Further, many countries do have data on invasions and pest outbreaks and therefore national-level targets might be developed.

Milestones: Options for milestones for this target include:

26 Hulme, P. E. (2009). Trade, transport and trouble: managing invasive species pathways in an era of globalization. Journal of Applied Ecology, 46(1), 10-18.

27 McGeoch, M. A., et al. (2010). Global indicators of biological invasion: species numbers, biodiversity impact and policy responses. Diversity and Distributions, 16(1), 95-108.

- By 2014, potential pathways for invasive alien species are identified using a risk assessment framework, lists of the most harmful invasive species are developed, action plans are developed and relevant legislation is reviewed;
- By 2016, actions have been taken to address the most important introduction pathways and the most serious invasions.

Target 10. By 2020, manage the multiple pressures on coral reefs and other vulnerable species and ecosystems impacted by climate change and ocean acidification so as to maintain their integrity and functioning.

Technical rationale: In addition to warming caused by the greenhouse effect, increased atmospheric CO_2 leads to ocean acidification.28,29. Both pressures need to be considered in elaborating policy response options to climate change. Carbonate- and aragonite-based biota that underpin marine food webs and coral reef ecosystems are sensitive to certain pH and temperature thresholds. However, given ecological and policy inertias, it is important to urgently reduce other pressures on these vulnerable ecosystems, such as land-based pollution/sedimentation, unsustainable fishing and physical pressures, as so as to increase their resilience to climate change and ocean acidification.

Implementation: By addressing those pressures which are most amenable to rapid positive changes, it may be possible to give vulnerable ecosystems time to cope with the pressures caused by climate change. This would include activities such as reducing pollution and overexploitation and harvesting practices which have negative consequences on ecosystems. Multiple programmes of work, including climate change and biodiversity and marine and coastal biodiversity, are relevant to this target.

Indicators and baselines: Indicators for this target include the Marine Trophic Index, the incidence of human-induced ecosystem failure and the health and well-being of communities who depend directly on local ecosystem goods and services. Other possible indicators include the ecological footprint and related concepts.

Milestones: Options for milestones for this target include:

- By 2012, assess the integrity of coral reefs and pressures arising from land-based pollution/sedimentation as well as from unsustainable fishing and recreational and other activities, and develop a strategy to minimize these;
- By 2014, fully implement the strategy to minimize pressures on coral reefs arising from land-based pollution/sedimentation as well as from unsustainable fishing and recreational activities.

Strategic Goal C. Safeguard ecosystems, species and genetic diversity

*Introduction***:** Whilst longer term actions to reduce the underlying causes of biodiversity are taking effect, immediate actions, such as protected areas, species recovery programmes, land use planning approaches, and other targeted conservation interventions in the broader land- and seascape, can help conserve biodiversity and critical ecosystems. These might focus on culturally-valued species and key ecosystem services, particularly those of importance to the poor, as well as on threatened species. For example, carefully sited protected areas could prevent the extinction of endangered species by protecting their habitats, allowing for future recovery.

Target 11. By 2020, at least 15% of land, freshwater and sea areas, including the areas of particular importance for biodiversity, have been protected through representative networks of effectively managed protected areas and other means, and integrated into the wider land- and seascape.

Technical rationale: Well managed protected areas are a proven method for safeguarding both habitats and populations of species and for delivering important ecosystem services30,31,32,33. Currently, some

28 Hoegh-Guldberg, O., et al. (2007). Coral Reefs Under Rapid Climate Change and Ocean Acidification. Science, 318(5857), 1737-1742.
29 Secretariat of the Convention on Biological Diversity (2009). Scientific Synthesis of the Impacts of Ocean Acidification on Marine Biodiversity. Montreal, Technical Series No. 46.
30 Ervin, J., etal. 2010. Making Protected Areas Relevant: A guide to integrating protected areas into wider landscapes, seascapes and sectoral plans and strategies. CBD Technical Series No. 44.

13% of terrestrial areas and 5% of coastal areas are protected, while very little of the open oceans is protected. The current target of 10% protection for each ecological region has been achieved in approximately 55% of all terrestrial eco-regions, and it is proposed that this target be retained for the remaining eco-regions. Reaching the proposed target implies a modest increase in terrestrial protected areas globally, with an increased focus on representivity and management effectiveness, together with major efforts to expand marine protected areas. Particular emphasis is needed to protect critical ecosystems such as tropical coral reefs, sea-grass beds, deepwater cold coral reefs, seamounts, tropical forests, peat lands, freshwater ecosystems and coastal wetlands.

Implementation: Protected areas should be integrated into the wider land- and seascape, and relevant sectors, bearing mind the importance of complimentarity and spatial configuration. In doing so, the Ecosystem Approach should be applied taking into account ecological connectivity and the concept of ecological networks, including connectivity for migratory species (through, for example, "fly-ways" for migratory birds). Protected areas should also be established and managed in close collaboration with indigenous and local communities, with these communities equitably sharing in the benefits arising from protected areas. Work towards this target could also be linked to the more specific targets under the programme of work on protected areas and the Global Strategy for Plant Conservation. The World Parks Congress is a further resource which can be drawn upon when taking actions towards this target. Protected areas could be complemented by limits to processes and activities harmful to biodiversity that are under the jurisdiction or control of Parties, including in areas beyond national jurisdiction.

*Indicator and baseline information***:** Relevant indicators to measure progress towards this target are the coverage of protected areas and the connectivity/fragmentation of ecosystems. Other possible indicators include the trends in extent of selected biomes, ecosystems, and habitats, the Marine Trophic Index, the overlay of protected areas with ecoregions, the management effectiveness of protected areas, trends in the extent of selected biomes, ecosystems and habitats, water quality in aquatic ecosystems, and connectivity/fragmentation of ecosystems. Strong baseline information, from sources such as the World Database of Protected Areas and IUCN's World Commission on Protected Areas, already exists for many of these indicators.

Milestones: Milestones for this target included in the Programme of Work on Protected Areas are:

- By 2012, in the marine area, a global network of comprehensive, representative and effectively managed national and regional protected area system is established;
- By 2012, all protected areas have effective management in existence, using participatory and science-based site planning processes that incorporate clear biodiversity objectives, targets, management strategies and monitoring programmes, drawing upon existing methodologies and a long-term management plan with active stakeholder involvement;
- By 2015, all protected areas and protected area systems are integrated into the wider land- and seascape, and relevant sectors, by applying the Ecosystem Approach and taking into account ecological connectivity and the concept, where appropriate, of ecological networks.

Target 12. **The extinction of known threatened species has been prevented.**

Technical rationale: Current rates of extinction are some 100 to 1000 times the background extinction rate. While reducing the threat of human-induced extinction requires action to address the direct and indirect drivers of change, imminent extinctions of known threatened species (these are mostly vertebrates and higher plants) can in many cases be prevented by protecting the sites where such threatened species (identified in the IUCN Red List of Threatened Species) are located. There would be additional

31 Secretariat of the Convention on Biological Diversity (2008). Synthesis and Review of the Best Available Scientific Studies on Priority Areas for Biodiversity Conservation in Marine Areas beyond the Limits of National Jurisdiction. Technical Series No. 37.

32 Secretariat of the Convention on Biological Diversity (2008). Protected Areas in Today's World: Their Values and Benefits for the Welfare of the Planet. Technical Series No. 36.

33 Secretariat of the Convention on Biological Diversity (2008). Implementation of the CBD Programme of Work on Protected Areas: Progress and Perspectives. Abstracts of Poster Presentations at the Second Meeting of the Ad Hoc Open-ended Working Group on Protected Areas, 11–15 February, 2008 in Rome, Italy Technical Series no. 35.

biodiversity benefits from the protection of the habitats and other species contained therein. *Ex situ* measures could complement *in situ* protection.

Implementation: Numerous types of actions can be taken to implement this target. Sites already identified through the Alliance for Zero Extinction could be protected, supplemented by additional work to identify, locate and protect threatened species. Additional actions which directly focus on species include the implementation of species recovery and conservation programmes, *ex-situ* conservation measures as well as the re-introduction of species to habitats from which they have been extirpated. Actions taken under CITES to ensure that no species is threatened by international trade also contribute to the achievement of this target. This target is relevant to most of the Convention's programme of work on Protected Areas and is in line with the Global Strategy for Plant Conservation as well as with the Global Taxonomy Initiative.

Indicators and baseline information: One relevant indicator for this target is the change in status of threatened species. The IUCN Red List provides strong baseline information for this target.

Milestones: Options for milestones for this target include:

- By 2012, information on the occurrence and distribution of globally threatened species has been reviewed and, where necessary, updated and the status of ecosystems in which they occur has been assessed;
- By 2012, conservation measures have been taken to prevent imminent extinctions;
- By 2014, preliminary national Red List assessments have been conducted;
- By 2016, a strategy for the prevention of extinctions of all nationally threatened species is in place.

Target 13. By 2020, the status of crop and livestock genetic diversity in agricultural ecosystems and of wild relatives has improved.

Technical rationale: The genetic diversity of crop and livestock diversity on farms is in decline. While substantial progress has been made in safeguarding many varieties and breeds through *ex situ* storage in genebanks, less progress has been made *in situ*. *In situ* conservation, including through continued cultivation on farms, allow for ongoing adaptation to changing conditions (such as climate change) and agricultural practices. In addition, *in situ* conservation of wild relatives of crop plants could be improved inside and outside protected areas

Implementation: The programme of work on agricultural biodiversity as well as the FAO Global Plan of Action for the conservation and sustainable use of plant genetic resources for food and agriculture, the FAO Global Plan of Action for animal genetic resources and the International Initiative on Biodiversity for Food and Nutrition provide guidance on the types of actions which can be taken to reach this target..

Indicators and baseline information: Indicators for this target are *ex situ* crop collections, and the genetic diversity of terrestrial domestic animals. Other indicators could include trends in the genetic diversity of cultivated plants, and fish species of major socio-economic importance and the number of genebank accessions. Assessments carried out by the Food and Agriculture Organization[34] could serve as baselines for assessments towards this target.

Milestones: Options for milestones for this target include:

- By 2014, programmes for *in situ* conservation of crop and livestock genetic diversity are included in national biodiversity strategies and action plans.

Strategic Goal D. Enhance the benefits from biodiversity and ecosystems.

Biodiversity underpins the services provided by ecosystems to humankind. This includes essential services such as the provision of food, clean water, the removal of wastes and the mitigation of the impacts of extreme events. While all people benefit from ecosystem services, some are more directly dependent for their livelihoods and well-being. Biodiversity and ecosystems also play an increasingly

[34] Food and Agriculture Organization (2007). The State of the World's Animal and Genetic Resource for Food and Agriculture. Commission on Genetic Resources for Food and Agriculture of the United Nations. Rome, Italy.

important role in combating climate change and its impacts. Ecosystems are being modified often to increase the proportion of provisioning services delivered in a given time (e.g., for food, wood, etc.) or to make them more suitable for human requirements (e.g., water regulation for transport, irrigation), thereby typically decreasing their potential to deliver other services (regulating, cultural). Wise management of ecosystems aims to ensure the continuous delivery of a range of services or co-benefits. The potential for the delivery of ecosystem services in degraded systems is small and hence the benefits for human societies limited. This Strategic Goal aims to enhance the delivery of ecosystem services through the promotion of management for multiple ecosystem services and the restoration of degraded systems. Efforts should focus on maintaining and, wherever possible, restoring terrestrial, freshwater and marine ecosystems to ensure the provision of valuable ecosystem services, contributing to the achievement of the Millennium Development Goals and to climate change mitigation and adaptation.

Target 14. By 2020, ecosystems that provide essential services, and contribute to local livelihoods, are identified and safeguarded or are being restored, and adequate and equitable access to essential ecosystem services is guaranteed for all, especially indigenous and local communities and the poor and vulnerable.

Technical rationale: All terrestrial, freshwater and marine ecosystems provide multiple ecosystem services. Some ecosystems however are particularly important in that they provide services that are important in providing services essential for the lives and livelihoods of indigenous and local communities, including poor people. Accordingly, priority should be given to safeguarding, or restoring such ecosystems, and to ensuring that people, especially indigenous and local communities and the poor and vulnerable, have adequate and equitable access to these services.

Implementation: Ecosystems which provide essential services and that contribute to local livelihoods should be identified through participatory processes at local, national and global levels. Tools for mapping ecosystem services and for the valuation of ecosystem services are now available or are being tested. The resulting information should be integrated into development plans to ensure that these ecosystems receive the necessary protection and investments. Sound distribution and recognition of property rights, including traditional rights, can contribute to ensuring adequate and equitable access to ecosystem services.[35]

Indicators and baseline information: Indicators for this target include the health and well-being of communities who depend directly on local ecosystem goods and services and biodiversity for food and medicine. Other possible indicators could include the status and trends of linguistic diversity, numbers of speakers of indigenous languages, and other indicators of the status of indigenous and traditional knowledge.

35 The Economics of Ecosystems and Biodiversity. (2009) TEEB for Policy Makers, Summary, Chapter 4.

Milestones: Options for milestones for this target include:

- By 2012, information on the services provided by ecosystems and the benefits received by local and indigenous communities is compiled and reviewed;
- By 2014, national strategies or polices for enhanced provision of and access to essential ecosystem services are developed as a contribution to poverty reduction and sustainable development strategies.

Target 15. By 2020, the contribution of biodiversity to ecosystem resilience and to carbon storage and sequestration are enhanced, through conservation and restoration, including restoration of at least 15% of degraded lands, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Technical rationale: The conservation, restoration and sustainable management of forests, soils (especially peatlands), freshwater and coastal wetlands and other ecosystems is a proven, cost-effective, safe and immediately-available means to sequester carbon dioxide and prevent the loss of other greenhouse gases[36,37]. Deforestation, wetland drainage and other habitat change lead to the emission of carbon dioxide, methane and other greenhouse gases. For example, the world loses annually approximately 13 million hectares of forests, including 6 million hectares of primary forests and, in the process, biodiversity is reduced, greenhouse gases are released and the livelihoods of millions of people, including indigenous peoples and local communities, are threatened[38]. However, in many countries, degraded landscapes represent immense opportunity for both biodiversity restoration and carbon sequestration. For example, the World Resources Institute and IUCN recently estimated the global potential for forest landscape restoration to be at 1 billion hectares, or about 25% of the current global forest area. Recent scientific analyses indicate that the biodiversity potential of restored secondary forest is substantial[39,40]. Forest landscape restoration, including of carbon-rich tropical peatlands, would also have significant co-benefits for climate change mitigation and adaptation. Preliminary analysis indicates that, by 2030, the restoration of degraded forest lands will make the same (or perhaps as much as double) contribution to the reduction of greenhouse gases as that which could be expected from avoided deforestation (70 Gt of CO_2 emissions). Restored forest landscapes improve resilience of ecosystems and societies, with benefits for people in particular for the rural poor.

Implementation: Forest landscape restoration is already underway in many parts of the world. Upscaling these efforts could contribute significantly to the achievement of the objectives of the Convention, and generate significant synergies with the UNFCCC, the UNCCD and the UNFF. Appropriate incentive schemes (such as the "REDD-plus" schemes under discussion in the context of the climate change negotiations, and additional schemes for other terrestrial, freshwater and coastal ecosystems) could reduce, or even reverse, these land use changes and, with appropriate safeguards, could also deliver substantial co-benefits for biodiversity[41] and local livelihoods. Monitoring is being developed as an integral part of these schemes. The Convention's work on biodiversity and climate change is particularly relevant to this target as are many of the programmes of work.

Indicators and baseline information: Relevant indicators include the ecological footprint and related concepts as well as trophic integrity of other ecosystems. Other possible indicators could include the storage of carbon and other GHG (using UNFCCC inventories supplemented by scientific assessments).

Milestones: Options for milestones for this target include:

36 Campbell, A., etal. (2009). Review of the Literature on the Links between Biodiversity and Climate Change: Impacts, Adaptation and Mitigation. Secretariat of the Convention on Biological Diversity. Technical Series No. 42.

37 Secretariat of the Convention on Biological Diversity (2009). Connecting Biodiversity and Climate Change Mitigation and Adaptation: Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. Technical Series No. 41.

38 Food and Agriculture Organization of the United Nations (2006). Global Forest Resources Assessment 2005: Progress towards sustainable forest management. FAO, Rome, Italy.

39 Edwards, D., etal (2009). The Value of Rehabilitating Logged Rainforest for Birds. Conservation Biology, 23(6), 1628-1633.

40 Thompson, I., etal. (2009). Forest Resilience, Biodiversity, and Climate Change. A synthesis of the biodiversity/resilience/stability relationship in forest ecosystems. Secretariat of the Convention on Biological Diversity, Montreal. Technical Series No. 43.

41 Venter, O., etal (2009). Harnessing Carbon Payments to Protect Biodiversity. Science, 326(5958), 1368.

- By 2014, information on the potential contribution of all ecosystems to carbon storage and sequestration is compiled and reviewed and a national strategy for the enhancement of the contribution of biodiversity to ecosystem resilience and carbon storage has been prepared and adopted, taking into account provisions under the United Nations Framework Convention on Climate Change and its Kyoto Protocol, as well as the United Nations Convention to Combat Desertification and its 10-year strategic plan and framework to enhance the implementation of the Convention (2008–2018);
- By 2014, a national plan for ecosystem restoration is in place and being implemented.

Strategic Goal E. Enhance implementation through planning, knowledge management and capacity development, and the fair and equitable sharing of the benefits arising from the use of genetic resources.

Introduction. Most actions under the Convention are initiated and carried out at the national or sub-national levels, and will be delivered through the implementation of national biodiversity strategies and action plans. National strategies need to integrate new national targets consistent with this Strategic Plan and implemented through action plans involving all sectors of government, society and the economy. This will also require improvements in knowledge and how it is disseminated, as well as substantial increases in capacity in all countries, especially developing countries and countries with economies in transition and, particularly, in least developed countries and small island developing states. The new international regime on access and benefit sharing is expected to enhance implementation of the Convention through its third objective, by facilitating both access to genetic resources and the fair and equitable sharing of benefits arising from their use. This will contribute to both basic and applied research and the development of commercial products which can, in turn, bring about a number of benefits to the provider countries, including a better understanding of the value of their natural resources through the sharing of research results, transfer of technologies and the training of local scientists, as well as benefits arising out of the commercialization of products based on genetic resources they provide.

Target 16: By 2020, each Party has implemented an effective national biodiversity strategy, contributing to the achievement of the mission, goals and targets of the Strategic Plan.

Technical rationale: National biodiversity strategies and action plans (NBSAPs) are the key instrument for translating the Convention and decisions of the Conference of the Parties into national action. Over 160 countries have prepared national biodiversity strategies. COP has adopted consolidated guidance for the development, updating and revision of NBSAPs (Decision IX/8). In line with this decision, NBSAPs should catalyze a number of strategic actions in countries including: Integration of biodiversity in broader national strategies (see target 2); CEPA; ensuring availability of information and knowledge for action, including through national CHM nodes; ensuring availability of appropriate tools for implementation; providing capacity building and facilitating access to financial resources; and ensuring monitoring, reporting and review, including identification and use of indicators as appropriate.

Implementation: The planning process would of necessity involve dialogue with all sectors of society and all levels of government. A revised NBSAP should not be a static planning document but a dynamic process that allows individual Parties to identify their needs, priorities and opportunities for biodiversity in light of their broader national goals. Where appropriate, regional and sub-national strategies should be developed. The target for 2020 implies that, not only are NBSAPs developed, but that they are used as effective tools for mainstreaming biodiversity across government and society. As all programmes of work, cross-cutting issues and initiatives developed under the Convention provide guidance on how the three objectives of the Convention can be implemented, they are all relevant to this target.

Indicators and baseline information: Indicators to measure progress towards this goal could include the number of countries with revised NBSAPs, national assessments of NBSAP implementation, the number of countries with national CHM websites, the number of visitors/per year to national CHM websites and the quality of content and on-line services they offer, as well as web user feedback. Most of this information can be easily gathered through the existing national reporting process.

Milestones: Consistent with the proposed multi-year programme of action, possible milestones for this target include:

- By 2012, each Party has adopted a set of national targets to contribute to the global targets of this Strategic Plan and has begun to incorporate these into its national biodiversity strategy;
- By 2014, each Party has adopted an up-to-date, effective and operational national biodiversity strategy which contributes to the Strategic Plan with responsibilities allocated among sectors, levels of government, and other stakeholders, and has coordination mechanisms in place to ensure implementation of the actions needed.

Target 17. By 2020, access to genetic resources is enhanced, and substantial benefits are shared, consistent with the international regime on access and benefit sharing.

Technical rationale: The third objective of the Convention provides for "the fair and equitable sharing of the benefits arising out of the utilization of genetic resources…". Genetic resources, whether from plant, animal or micro-organisms, are used for a variety of purposes ranging from basic research to the development of products. Users of genetic resources may include research institutes, universities and private companies operating in various sectors such as pharmaceuticals, agriculture, horticulture, cosmetics and biotechnology. The Convention, in its Article 15, sets out principles and obligations of Parties related to access to genetic resources and the fair and equitable sharing of benefits arising out of the utilization of genetic resources, on the basis of prior informed consent and mutually agreed terms.

Implementation: The Bonn Guidelines on access to genetic resources and the fair and equitable sharing of the benefits arising from their utilization, adopted in 2002, guide both the providers and users of genetic resources in the application of the access and benefit-sharing provisions of the Convention. They were adopted to assist Parties when establishing administrative, legislative or policy measures on access and benefit-sharing and/or when negotiating contractual arrangements for access to genetic resources and benefit-sharing. COP-10 is expected to adopt an international regime on access and benefit sharing. If a legally-binding regime is agreed, interim targets could be set for its ratification and entry into force.

Indicators and baseline information: An indicator of access and benefit sharing is under development. Possible measures could include the number of countries Party to the international regime, the number of countries with national ABS frameworks/legislation; the number of ABS agreements; the number of technical assistance programmes for strengthening national ABS programmes; and, potentially, the value of benefits shared.

Milestones: Options for milestones for this target include:

- By 2012, the international regime on access and benefit sharing enters into force;
- By 2014, all countries have developed the domestic policies and initiated relevant measures in line with the Convention, and the international regime on access and benefit sharing, as appropriate.

Target 18. By 2020, traditional knowledge, innovations and practices are protected and their contribution to the conservation and sustainable management of biodiversity is recognized and enhanced.

Technical rationale: In line with Article 8(j) of the Convention, traditional knowledge, innovations and practices should be respected, protected, maintained and promoted, and used in local ecosystem management, drawing upon experiences of customary use, with the approval of relevant communities. The rights of indigenous and local communities over their traditional knowledge, innovations, practices and related biological resources, along with their rights to practice and pass on traditional knowledge, innovations and practices should be respected.

Implementation: The guidance developed as part of the Convention's cross-cutting issue on traditional knowledge, innovations and practices (Article 8(j) and related provisions) provides advice on how this target can be implemented.

Indicators and baseline information: Indicators include the status and trends of linguistic diversity and numbers of speakers of indigenous languages. Other indicators for the status of indigenous and traditional knowledge are under development. While information on indigenous languages is limited, some national information is available and the work being conducted by UNESCO on endangered languages could serve as a starting point in developing an information baseline. The open-ended Working Group on Article 8(j) is also investigating two additional indicators on changes in traditional land use and changes in traditional occupations.

Milestones: Options for milestones for this target include:

- By 2012, a review of the use of traditional knowledge, innovations and practices, as it relates to the conservation and sustainable management of biodiversity, has been carried out in collaboration with indigenous and local communities;
- By 2014, adequate measures to protect traditional knowledge and the rights of indigenous and local communities to practice their traditional knowledge, innovations and practices have been put in place;
- By 2016, a strategy to promote traditional knowledge, innovations and practices, with the approval of the knowledge holders, as it relates to the conservation and sustainable management of biodiversity, has been developed and put in place.

Target 19. By 2020, knowledge and technologies relating to biodiversity, its value and functioning, its status and trends, and the consequences of its loss, are improved and widely shared.

Technical rationale: Each country needs access to information to identify threats to biodiversity and determine priorities for conservation and sustainable use. While nearly all Parties report that they are taking actions related to monitoring and research, most also indicate that the absence or difficulty in accessing scientific information is an obstacle to the implementation of the goals of the Convention. Action taken to reach this target will also benefit the other targets of the Strategic Plan by encouraging new research, the development of new technologies and improved monitoring. Such actions will strengthen the policy-science interface and will contribute to the fulfilment of the other elements of the Strategic Plan.

Implementation: For knowledge that is already available, access could be improved through the further development of the Clearing-House Mechanism at national and global levels. Relevant information includes biodiversity-related data as well as tools and methodologies for biodiversity conservation, sustainable use and benefit sharing, and case studies of their use. Further efforts are also needed, at multiple scales, to improve biodiversity-related knowledge and reduce uncertainties around the relationship between biodiversity change, ecosystem services and impacts on human well-being. This requires substantial investment in global and national biodiversity observation networks, implementation of the Global Taxonomy Initiative, and further investment in research, including modelling. Improvements are also needed in the science-policy interface.

Indicators and baseline information: An indicator for technology transfer is under development. Possible process indicators include the number of countries with national clearing-house mechanisms; visitors/per

year at each national CHM website; a globally agreed set of status and trends metrics; extent of data coverage for global biodiversity indicators and measures; and the use biodiversity-related information in the fifth and sixth national reports.

Milestones: Options for milestones for this target include:

- By 2012, a review of the relevant knowledge and technologies potential available in-country and of the gaps in knowledge and technologies necessary to implement the Convention, has been carried out;
- By 2014, a national clearing-house mechanism is established, together with a strategy to improve access to knowledge and technologies.

Target 20. By 2020, capacity (human resources and financing) for implementing the Convention has increased tenfold.

Technical rationale: Most countries indicate in their fourth national reports that limited capacity, both financial and human, is a major obstacle to the implementation of one or more of the three goals of the Convention. The capacity for implementing the Convention in terms of trained staff and financial resources is limited in most countries, especially in developing countries, and in particular the least developed countries and small island developing states.

Implementation: The capacity which currently exists in countries must be safeguarded and further built upon so that it can be increased by about an order of magnitude to meet the challenges of implementing this Strategic Plan. This represents an approximate overall figure and does not imply a tenfold increase in every country. This target should be seen as a common commitment by donors and recipient countries to take action as appropriate to both increase development cooperation funds available for biodiversity relevant activities, consistent with the Paris Declaration, and also to give appropriate priority in the use of those funds. It does not necessarily require the earmarking of funds by those donors which provide budget-wide support to developing countries. It assumes that developed countries will comply with their commitments under the Monterey Consensus. In accordance with the Convention, financing will be from both domestic and international sources, including innovative financing mechanisms, in line with the Convention's Strategy for Resource Mobilization adopted at COP-9. Currently, it is estimated that international financing for biodiversity is approximately US $2 billion per year. Financing that is envisaged to become available for reducing emissions from deforestation and forest degradation is expected to include substantial biodiversity co-benefits. Financing envisaged for adaptation also has a potential to become available for biodiversity-friendly ecosystem-based adaptation. Funds already committed for these purposes, as part of the Copenhagen Accord, are at least an order of magnitude higher than funds currently committed for biodiversity.

Indicator and baseline information: Official development assistance provided in support of the Convention is one indicator for this target. Another possible indicator includes the number of officials and experts qualified on biodiversity-related matters. Data related to official development assistance is already available and could serve as a baseline for gauging progress towards this goal.

Annex III: Characteristics of indicators agreed through decisions VII/15 and VIII/30

Headline Indicator	Specific Indicator developed through 2010 BIP	Number of data points	Years of baseline & subsequent points	Scale	Type of review[42]
Trends in extent of selected biomes, ecosystems, and habitats	Trends in extent of forest area	11 (12)	1948-2005 (2010)	Global, regional, national	3
	Trends in extent of mangroves	4	1980-2005	Global, regional	1
	Trends in extent of corals	36	1968 (Indo-Pacific); 1971 (Caribbean)	Global, regional	1
	Trends in extent of seagrass beds	8	1930-2005	Global with regional case studies	3
Trends in abundance and distribution of selected species	Living Planet Index	38	1970-2007 (annual)	Global; system; biome; habitat; regional; thematic subset	1
	Global Wild Bird Index	27	1980-2006 (annual)	Regional; pilot studies	1
Coverage of protected areas	Coverage of protected areas	138	1872-2009 (annual)	Global; regional; national; biome; IUCN category; system (marine, coastal, terrestrial)	3
	Overlays with biodiversity	20	1990-2009 (annual)	Global; regional; national; biome; IUCN category	1, 2
	Management effectiveness	variable (7000 sites; 3000 with accessible data)	1991-2009 (variable)	30% of IBA area protected in 77 countries (70% still need protection)	2
Change in status of threatened species	Red List Index	Birds = 5 Mammals = 2 Amphibians = 3 Reptiles = 3 Fishes = 2 9 invert groups 3 plant groups	variable	Global; regional; habitat; convention	1
Trends in genetic diversity of domesticated animals, cultivated plants, and fish species of major socioeconomic importance	*Ex situ* crop collections	3	1996-2008	Global - 3 datasets (FAO SWR) Regional - EURISCO	3
	Genetic diversity of domesticated animals				3

[42] 1= Peer review through existing journal publication; 2 = Manuscript in preparation for publication in peer reviewed journal; 3 = Institutional review process undergone; 4 = No formalized review process

Headline Indicator	Specific Indicator developed through 2010 BIP	Number of data points	Years of baseline & subsequent points	Scale	Type of review[43]
Area of forest, agricultural and aquaculture ecosystems under sustainable management	Area of forest under sustainable management: certification	multiple	Since the start of certification	global	4
	Area of forest under sustainable management: degradation & deforestation				4
	Agricultural ecosystems under sustainable management				4
Proportion of products derived from sustainable sources	Status of species in trade	3	1990, 2000, 2008	global	1
	Sustainable fisheries	multiple	1950's to 2006	global	
	Wild Commodities index	3	1990, 2000, 2008	global	4
Ecological footprint and related concepts	Ecological Footprint and Biocapacity	150+ (nations) and global	1961 - 2005	Global and national (subnational Footprints being developed))	1
Nitrogen deposition	Nitrogen deposition	Annual	1860-2050	Global, regional, ecosystem type	3
Trends in invasive alien species	Invasive Species (IAS)	Baseline	1850 onwards for some, under collection for others	Some global, others national	1, 2
Marine Trophic Index	Marine Trophic Index				1
Water quality of freshwater ecosystems	Water quality				3
Trophic integrity of other ecosystems					

43 1= Peer review through existing journal publication; 2 = Manuscript in preparation for publication in peer reviewed journal; 3 = Institutional review process undergone; 4 = No formalized review process

Connectivity / fragmentation of ecosystems	River fragmentation	Single snapshot	2005	Global, by river basin (292 larger river basins)	1
	Forest fragmentation	Baseline	2005, plus potential earlier points from remote sensing	Global	4
Headline Indicator	**Specific Indicator developed through 2010 BIP**	**Number of data points**	**Years of baseline & subsequent points**	**Scale**	**Type of review[44]**
Incidence of human-induced ecosystem failure					
Health and well-being of communities who depend directly on local ecosystem goods and services	Health & well-being	Baseline for some metrics, better developed for others	Not yet known	Regional case studies	4
Biodiversity for food and medicine	Nutritional status of biodiversity	Not known	Not known	Not known	4
	Biodiversity for food & medicine	Baseline	2008-9, with some backcasting	Global	4
				National, across all regions	
Status and trends of linguistic diversity and numbers of speakers of indigenous languages	Status & trends of linguistic diversity				4
Other indicator of the status of indigenous and traditional knowledge					
Indicator of access and benefit-sharing					
Official development assistance provided in support of the Convention	Official development assistance				4
Indicator of technology transfer					

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[44] 1= Peer review through existing journal publication; 2 = Manuscript in preparation for publication in peer reviewed journal; 3 = Institutional review process undergone; 4 = No formalized review process