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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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INTERNATIONAL TARGETS AND INDICATORS FOR BIODIVERSITY FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. At its Eleventh Regular Session, the Commission on Genetic Resources for Food and Agriculture (Commission) recognised the importance of developing targets and indicators for biodiversity for food and agriculture, in order to promote policy coherence among international forums in this regard, and to reduce reporting burdens on countries. It requested that FAO continue work in this field in cooperation with other relevant organizations.¹
2. The Commission, at its last session, noted that the Tenth Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) in 2010 would address a number of matters related to targets and indicators for biodiversity for food and agriculture, and the Commission agreed to take a lead role in the development and use of biodiversity targets and indicators related to the work of the Commission.² Parties to the CBD adopted the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets. Parties to the CBD noted with appreciation the ongoing work of FAO and its Commission on Genetic Resources for Food and Agriculture in the implementation of the CBD's agricultural biodiversity programme of work, and invited FAO and its Commission on Genetic Resources for Food and Agriculture, for areas within their mandate: to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020 by refining targets for agricultural biodiversity, including at the ecosystem and genetic resources levels, and monitoring progress towards them using indicators.³
3. This document describes recent international developments on indicators that are of relevance to the Commission's work. It provides a summary overview of FAO's main work in the area of international indicators and targets for biodiversity for food and agriculture, and seeks guidance from the Commission to further work on international indicators and targets for biodiversity for food and agriculture to facilitate the review of this issue as scheduled in the Multi-Year Programme of Work (MYPOW) for the Commission's Fourteenth Regular Session, as well as in light of the COP invitation described in paragraph 2.

II. INTERNATIONAL CONTEXT

4. The Strategic Plan for Biodiversity 2011-2020 contains twenty targets - the Aichi Biodiversity Targets as contained in the Annex of the current document, organized under five strategic goals. Some targets cover areas of biodiversity relevant for food and agriculture and relevant to the work of the Commission, in particular, Target 13: *By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.*
5. Other targets are also of relevance to the work of the Commission such as: Target 7: *By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity;* and Target 16: *By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.*
6. The decision X/2 on Strategic Plan for Biodiversity urges Parties to the CBD and other governments, with support of intergovernmental and other organizations, as appropriate, to implement the Strategic Plan for Biodiversity 2011-2020 and in particular, to *inter alia*: Review, and as appropriate update and revise, their national biodiversity strategies and action plans, in line with the Strategic Plan and the guidance adopted in decision IX/9, including by integrating their

¹ CGRFA-11/07/Report, paragraph 73.

² CGRFA-12/09/Report, paragraph 98.

³ COP Decision X/34. Agricultural Biodiversity, paragraphs 2 and 3.

national targets into their national biodiversity strategies and action plans, adopted as a policy instrument, and report thereon to the Conference of the Parties at its eleventh or twelfth meeting.⁴

7. Also in 2010, the United Nations (UN) General Assembly declared 2011 – 2020 the UN-Decade on biodiversity, and in this regard, requested the UN Secretary General to coordinate the activities of the decade with the support of the secretariats of the CBD and other biodiversity-related conventions and relevant UN funds, programmes and agencies,⁵ with the aim to make a contribution to the implementation of the Strategic Plan for Biodiversity 2011–2020.

8. Parties to the CBD, during COP 10, adopted the consolidated update of the *Global Strategy for Plant Conservation (GSPC) 2011-2020*, which includes outcome-oriented global targets for 2011-2020. Parties decided that implementation of the GSPC should be pursued within the broader framework of the Strategic Plan for Biodiversity 2011- 2020.⁶

9. Parties to the CBD have established an Ad Hoc Technical Expert Group (AHTEG) to address the issues of indicators for the Strategic Plan for Biodiversity 2011-2020.⁷ Within its mandate, the AHTEG will provide advice on the further development of indicators; the development of additional indicators; and ways to strengthen linkages between global and national indicator development and reporting.⁸ FAO is represented in the AHTEG.⁹

III. FAO'S WORK ON TARGETS AND INDICATORS FOR BIODIVERSITY FOR FOOD AND AGRICULTURE

10. FAO has long been active in the development of indicators related to biodiversity for food and agriculture. FAO is a partner in the 2010 Biodiversity Indicator Partnership (BIP), a global partnership established to assist in the development of indicators to measure progress towards achieving the 2010 target.¹⁰ Under a project funded by the Global Environment Facility (GEF) and coordinated by the UNEP-WCMC,¹¹ involving more than 40 partners of UN agencies, scientific research institutions, non-governmental organizations and international initiatives, FAO developed several indicators in cooperation with other partners, some of which are being used as indicated below in Table 1.¹² The 2010 BIP GEF funded project ended in March 2011. In light of the adoption of the Strategic Plan for Biodiversity 2011-2020 and its Aichi Targets, the partnership (BIP) will continue.

11. The indicators in Table 1 are being reviewed for their application by the CBD'S AHTEG on Indicators for the Strategic Plan for Biodiversity 2011-2020. The following sections provide an overview of work on indicators by FAO on genetic resources for food and agriculture.

⁴ COP Decision X/2, paragraph 3 and 3 (c).

⁵ UN General Assembly, Resolution 65/161, paragraph 19.

⁶ CBD COP Decision X/17, paragraph 1 and *Annex*

⁷ CBD Notification AHTEG on indicators for the Strategic Plan for Biodiversity 2011-2020: 30 March 2011.

⁸ The Terms of Reference of the AHTEG COP Decision X/7, paragraph 5.

⁹ <http://www.cbd.int/notifications/2011>.

¹⁰ In 2002, the 2010 target was adopted by the Conference of the Parties to the CBD and further endorsed by world leaders during the World Summit on Sustainable Development and the United Nations General Assembly. It was also incorporated into one of the Millennium Development Goals. With the 2010 target Parties to the CBD committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth.

¹¹ UNEP-WCMC: United Nations Environment Programme – World Conservation Monitoring Centre.

¹² Detailed indicator synopses, metadata and methodologies: CBD Technical Series Number 53 Outputs, experiences and lessons learnt from the 2010 Biodiversity Indicator Partnership", Annex 1.

Table 1

Indicator	Headline indicator	Key indicator partner/s:	Development status
Extent of forests and forest types	Trends in extent of selected biomes, ecosystems and habitats	FAO	Ready for global use
Extent of marine habitats	Trends in extent of selected biomes, ecosystems and habitats	UNEP-WCMC, FAO	Ready for global and national use
<i>Ex situ</i> crop collections	Trends in genetic diversity	FAO in cooperation with Bioversity International and CIRAD	Methodology under review
Genetic diversity of terrestrial domesticated animals	Trends in genetic diversity	FAO	Methodology under review
Area of forest under sustainable management: certification	Areas under sustainable management	FAO	Ready for global use
Area of forest under sustainable management: degradation and deforestation	Areas under sustainable management	FAO	Methodology under review
Area of agricultural ecosystems under sustainable management	Areas under sustainable management	FAO	Ready for sub-global use
Nutrition indicators for biodiversity	Biodiversity for food	FAO in cooperation with Bioversity International	Ready for global, regional and national use

12. The FAO Medium Term Plan 2010-13¹³ including its strategic framework for Organizational Results, endorsed by the FAO Conference in 2009, includes, *inter alia*, targets related to FAO's work on genetic resources and biodiversity for food and agriculture. In line with the new programming and budgeting system, the proposed Medium Term Plan 2012-13 (*Reviewed*) and Programme of Work and Budget 2012-2013¹⁴ will guide the work of the Organization during 2012-13. The preparation of the Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13 started from the results frameworks approved in the Medium Term Plan 2010-13. It followed the guiding principles in the reformed programming system and took into account, to the extent possible, the recommendations of the Programme Committee and FAO Council.¹⁵

Plant Genetic Resources

13. In the area of plant genetic resources for food and agriculture, a list of indicators has been developed by FAO in collaboration with IPGRI (now Bioversity International)¹⁶ for monitoring

¹³ C 2009/15.

¹⁴ C 2011/3 Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13.

¹⁵ CL 140/REP paragraph 11, CL 140/8 paragraphs 5-12.

¹⁶ The International Plant Genetic Resources Institute (IPGRI).

the implementation of the *Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (Global Plan of Action)*, adopted in 1996, at the country level. The indicators were developed on the basis of experience acquired in monitoring the implementation of the *Global Plan of Action* in 1998 and 2000. After pilot testing and further revision and refinement through an Expert Consultation and Evaluation Meetings, 83 core indicators and a reporting format for monitoring the 20 priority activity areas of the 1996 *Global Plan of Action*, were adopted by the Commission in 2004.¹⁷

14. As indicated in Table 1, FAO together with IRD (Institut de Recherche pour le Développement) and Bioversity International have elaborated, within the 2010 BIP GEF funded project, an enrichment index for *ex situ* crop collections. The index measures the dynamics of the bio- and geographical diversity contained within *ex-situ* collections over time. It is currently under development and being tested against individual and aggregated *ex situ* collection datasets.¹⁸ The indicator could be used to assist in assessing progress toward Target 13 of the Aichi Biodiversity Targets.

15. Efforts to measure genetic diversity within production systems have ranged from the evaluation of plant phenotypes using morphological characters, to the use of new molecular biology tools.¹⁹ Bioversity International, together with numerous scientists working worldwide, and with the support from different institutions, is advancing indicators for on-farm diversity of Plant Genetic Resources for Food and Agriculture (PGRFA). Through a global collaboration on five continents, genetic diversity of 27 different crops have been measured in farmers' fields, and datasets have been collated into a small number of globally applicable diversity indices.²⁰

16. The Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture, at its Fifth Session, noted the need for higher-order indicators for the *updated Global Plan of Action*, and that in the development and adoption of such indicators, cooperation should continue with the International Treaty on Plant Genetic Resources and the CBD.²¹ In light of the updated *Global Plan of Action* and the recently adopted Aichi Biodiversity Target 13, identification of higher-order indicators or indices, would be timely.

17. The FAO Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-2013,²² contains a number of indicators and targets for the better management of plant genetic resources for food and agriculture, including: Indicator A4.2, *Number of Countries that have developed national PGRFA strategies/policies and national information sharing mechanisms (NISM) to reinforce the links among conservation, plant breeding and seed systems, in conformity with the GPA-PGRFA and its associated targets for 2013: 17 developing countries with national strategies/policies and 73 countries with updated NISMs for monitoring GPA implementation.*²³

Animal Genetic Resources

18. The Commission, at its Twelfth Regular Session, agreed to a timetable and methodology for monitoring implementation of the *Global Plan of Action for Animal Genetic Resources (GPA-AnGR)*, and for monitoring the status and trends of animal genetic resources.²⁴ Implementation at the country level is to be monitored via Country Progress Reports, based on the flexible use of a

¹⁷ CGRFA-10/04/REP paragraph 26.

¹⁸ For more information, please visit: <http://www.bipindicators.net/cropcollections>.

¹⁹ The Second Report on *The State of the World's Plant Genetic Resources for Food and Agriculture*; chapter 2.3.1.

²⁰ Devra I. Jarvis *et al.* (2008), A global perspective of the richness and evenness of traditional crop-variety diversity maintained by farming communities, PNAS Early Edition .

²¹ CGRFA/WG-PGR-5/11/DR.

²² C 2011/3 Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13.

²³ C 2011/3 Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13 Organizational Result A4.2.

²⁴ CGRFA-12/09/Report, paragraphs 38–39.

questionnaire²⁵ prepared by FAO. Country Progress Reports are to be complemented by FAO Progress Reports and International Organization Progress Reports.²⁶ The questionnaire includes a set of 16 core indicators of progress in the implementation of the GPA-AnGR. At its Sixth Session, the Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture recommended that FAO and its Commission take the lead in the development of targets and indicators to measure progress made in the implementation of the *Global Plan of Action for Animal Genetic Resources*.²⁷

19. With regard to the status and trends of animal genetic resources, FAO is requested to prepare every two years, status and trend reports on animal genetic resources following an agreed format,²⁸ that is to include the CBD headline indicator on “trends in genetic diversity of domesticated animal species of major socioeconomic importance” once it has been developed.²⁹ Status and trends reports were prepared for 2008 and 2010,³⁰ based on data from the Domestic Animal Diversity Information System (DAD-IS). DAD-IS has global coverage and contains a standardized set of data fields for recording the size and structure of breed populations.

20. In February 2010, FAO organized an expert workshop within the framework of the 2010 BIP GEF funded project to discuss options for the development of the headline indicator for animal genetic resources. The workshop proposed three indicators, each to be calculated – based on data from DAD-IS – at national, regional and global levels, for 14 different species or species groups (17 species in total). They proposed to add to the indicators currently reflected in the “Status and Trends Report” the number of native breeds and the proportion of the total population accounted for by native and non-native breeds, assuming that imported populations are likely to be less diverse than native populations. This would require distinction between native and non-native breeds within each country. At its Sixth Session in 2010, the Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture recommended that the Commission invite FAO to continue to further develop, through regionally balanced consultations, the CBD’s headline indicator for trends in genetic diversity of domesticated animal species of major socioeconomic importance.³¹

21. The FAO Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-2013, contains indicators and targets for the better management of natural resources, including animal genetic resources, in livestock production, including Indicator B3.3, *Number of developing and transition countries implementing national strategies and action plans (based on the Global Plan of Action) for improved management and conservation of animal genetic resources*, and its associated target, which is 40 countries by the end of 2013.³²

Forest Genetic Resources

22. Criteria and indicators processes have helped to promote a better understanding of the concept of sustainable forest management (SFM) and its application. FAO has contributed to the development of SFM indicators under the BIP, as indicated in Table 1. Currently, countries use different frequencies, classification systems and assessment methods when monitoring their forests, making it difficult to obtain consistent data on major forest types that span national borders. There have been increased efforts to develop indicators on forest biodiversity to enhance

²⁵ CGRFA-12/09/Inf.9.

²⁶ CGRFA-12/09/Report, Appendix G.

²⁷ CGRFA/WG-AnGR-6/10/Report, paragraph 40.

²⁸ CGRFA-12/09/Report paragraph 39.

²⁹ CGRFA/WG-AnGR-5/09/3.2 Appendix A.

³⁰ CGRFA/WG-AnGR-5/09/Inf. 7; CGRFA/WG-AnGR-6/10/Inf. 3.

³¹ CGRFA/WG-AnGR-6/10/REPORT.

³² C 2011/3 Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13 Organizational Result B3.3.

FAO's Global Forest Resources Assessment (FRA). The FRA 2010 includes the following variables of forest biological diversity:

- Area of primary forests;
- Forest area designated primarily for conservation of biological diversity;
- Area of forests in protected areas; and
- Tree species composition of forests.

23. Information on growing stock composition from forestry inventories is a useful proxy indicator of species richness and abundance. Other indicators are being tested and used in qualitative assessments, which are necessary to monitor forest biodiversity, and countries are investing in improving inventories of forest biodiversity. Preparation of the first report on *The State of the World's Forest Genetic Resources* will provide additional data and information that will assist in developing indicators for monitoring forest biodiversity. A thematic study on *Indicators of forest genetic diversity, erosion and vulnerability* is being prepared by FAO in collaboration with Bioversity International, as a contribution to the first report on *The State of the World's Forest Genetic Resources*.

24. The Intergovernmental Technical Working Group on Forest Genetic Resources recommended that the Commission invite countries to integrate the preparation of Country Reports for Genetic Resources, as well as any follow-up activities, into their National Biodiversity Strategy and Action Plans.³³

25. The FAO Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-2013, contains targets and indicators on strategies for conservation of forest biodiversity and genetic resources, including Indicator E6.1, *Number of countries that are using FAO guidelines, tools and expertise for improved policies and field implementation in conservation and sustainable use of forest biodiversity, watershed management, arid zone forest management and agro-forestry*, and its associated target, which is 60 countries by the end of 2013.³⁴ Indicator E6.2, *Number of countries that provide reports on the State of the World's Forest Genetic Resources (to be completed by 2013)*, and its associated target, which is 150 countries by the end of 2013.³⁵

Aquatic Genetic Resources

26. In 1999, the Department of Agriculture, Fisheries and Forestry, Australia (AFFA), in collaboration with FAO, developed guidelines for developing a meaningful set of indicators for the sustainable development of marine capture fisheries in support of the implementation process of the Code of Conduct for Responsible Fisheries. Numerous lists of candidate indicators have subsequently been developed. Indicators in the context of the requirements of the Ecosystem Approach to Fisheries, understood as a condition in which the ecosystem maintains its diversity, quality and its potential to adapt to change, were reviewed during an FAO EAF-Nansen Expert Meeting in 2009.³⁶

27. FAO is currently working towards indicators related to the genetic diversity of domesticated aquatic species and aquatic species of major importance for fisheries, which can be

³³ CGRFA/WG-FGR-1/11/REPORT, CGRFA-13/11/12.

³⁴ C 2011/3 Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13 Organizational Result E6.1.

³⁵ C 2011/3 Medium Term Plan 2010-13 (*Reviewed*) and Programme of Work and Budget 2012-13 Organizational Result E6.2.

³⁶ Several indicators such as catch, population size, and fishing mortality address the impact of fisheries on target species. Others, such as population depletion for keystone prey and keystone predator species, Marine trophic Index, and ratios of indicator groups are useful to detect fishing induced changes in trophic interactions and community structure as described in the concept of 'fishing down the food chain'; EAF-Nansen Project Report No. 7. Report of the Expert Workshop on the Development and Use of Indicators for an Ecosystem Approach to Fisheries Rome, 20-24 April 2009, (FAO 2009, in press).

applied on a routine basis. The development of these indicators is challenging due to the lack of genetic data on many species relevant for fisheries and aquaculture. For this reason, efforts are being made to include genetic data in established databases and information systems and to develop a suite of “species descriptors”, which are easily accessible and correlated to genetic diversity and could be used to estimate genetic diversity in the absence of adequate genetic studies. This work will contribute to the future preparation of a first report on the *State of the World’s Aquatic Genetic Resources*.³⁷ Once developed, such indicators could also contribute to assessing progress toward the Aichi Biodiversity Targets.

Nutrition Indicators for Biodiversity

28. An international collaborative process on the identification and monitoring of nutrition indicators for biodiversity is being led by FAO in collaboration with Bioversity International and other partners, as a contribution to the Initiative on Biodiversity for Food and Nutrition under the CBD programme of work on agricultural biodiversity. In order to monitor biodiversity and nutrition, two indicators have been developed, based on the advice from two Expert Consultations held in 2007 and in 2009.³⁸ The Food Composition Indicator relates to nutrients and bioactive non-nutrients provided by biodiversity. It serves to measure changes in food nutrient diversity by counting the number of foods with a sufficiently detailed description to identify genus, species, subspecies and variety/cultivar/breed; and with at least one value for a nutrient or other bioactive component. Yearly reporting is foreseen for this indicator.³⁹

29. The Nutrition Indicator For Biodiversity on food consumption relates to the dietary intakes of food biodiversity. It serves to show that food biodiversity can be supported by the sustainable use of neglected species and varieties, and livelihoods are improved and nutrients intakes are enhanced.

30. During the expert consultation on the food consumption indicator, the following definition for “food biodiversity” was developed and agreed: *Food biodiversity: the diversity of plants, animals and other organisms used for food, covering the genetic resources within species, between species, and provided by ecosystems.*⁴⁰

31. The nutrition indicators for biodiversity may prove useful to promote awareness of the importance of food biodiversity, including wild, indigenous and traditional foods, while contributing to nutritional security and the conservation and sustainable use of food biodiversity. Both indicators were developed within the 2010 BIP GEF funded project.

Summary

32. In summary, FAO is advancing work in relation to indicators on biodiversity and genetic resources across the food and agriculture sectors. Such work will contribute to assisting in assessing achievement of the work of FAO and the Commission, as well as contribute in advancing the Aichi Biodiversity Targets, and in particular, Target 13. Accordingly, the Commission may wish to take into account FAO’s indicator development work as outlined in this document, as well as the partnerships that have been established to advance efforts to develop, test and use indicators for biodiversity and genetic resources for food and agriculture, in considering any future work on indicators, as well as in responding to the invitation by the CBD to refine targets for agricultural biodiversity within the Commission’s mandate, and monitor progress toward them using indicators.

33. The Commission may wish to acknowledge that the review and updating of National Biodiversity Strategies and Action Plans presents an opportunity for its Members to ensure that genetic resources for food and agriculture are adequately considered, especially in light of the

³⁷ CGRFA-13/11/11.

³⁸ http://www.fao.org/infoods/biodiversity/index_en.stm.

³⁹ http://www.fao.org/infoods/biodiversity/index_en.stm.

⁴⁰ Expert Consultation on Nutrition Indicators for Biodiversity 2. Food consumption. FAO 2010.

availability of data and information in the State of the World assessments of genetic resources and agreements on priorities for action as contained in *Global Plans of Action* for animal and plant genetic resources.

IV. GUIDANCE SOUGHT

34. The Commission may wish to:
- i. Welcome FAO's work in the development and use of international indicators for biodiversity for food and agriculture as part of the Biodiversity Indicator Partnership (BIP);
 - ii. Encourage FAO to continue to develop, test and apply indicators on biodiversity, which will contribute to the Strategic Plan for Biodiversity 2011-2020;
 - iii. Encourage FAO to continue to establish genetic resources and biodiversity indicators and targets within its Medium Term Plans;
 - iv. Request FAO to:
 - identify or refine targets and indicators to measure progress made in the implementation of the *Global Plan of Action for Animal Genetic Resources* and to continue to further develop, through regionally balanced consultations, the CBD's headline indicator for trends in genetic diversity of domesticated animal species of major socioeconomic importance, as recommended by the Intergovernmental Technical Working Group on Animal Genetic Resources;
 - review existing indicators and identify higher-order indicators in light of the updated *Global Plan of Action for Conservation and the Sustainable Utilization of Plant Genetic Resources*;
 - identify targets and indicators within the planned or on-going processes of global assessments or action plans in other sectors under the mandate of the Commission; and
 - continue efforts to develop indicators and associated targets at the genetic level, to facilitate status and trends reporting on animal, plant, forest and aquatic genetic diversity for food and agriculture at regular sessions of the Commission, which can also contribute to other biodiversity reporting requirements.
 - v. Request its Intergovernmental Technical Working Groups to continue to review targets and indicators of genetic diversity and biodiversity within their respective sectors, and to provide recommendations on their further development; and
 - vi. Request its Secretary to identify a small number of draft indicators and associated targets for consideration by the Commission at its next regular session, that would provide a basis to assess overall progress in the work of the Commission as well as to assist countries to assess the progress towards the relevant Aichi Biodiversity Targets, in particular Target 13.

ANNEX: STRATEGIC GOALS AND THE AICHI BIODIVERSITY TARGETS⁴¹

The Strategic Plan includes 20 headline targets for 2015 or 2020 (the “Aichi Biodiversity Targets”), organized under five strategic goals. The goals and targets comprise both: (i) aspirations for achievement at the global level; and (ii) a flexible framework for the establishment of national or regional targets. Parties are 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 achievement of the global targets. Not all countries necessarily need to develop a national target for each and every global target. For some countries, the global threshold set through certain targets may already have been achieved. Others targets may not be relevant in the country context.

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

Target 1: By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 2: By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Target 3: By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio-economic conditions.

Target 4: By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

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

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Target 9: By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.

Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

⁴¹ CBD COP Decision X/2, Annex

Strategic goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Strategic goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Strategic goal E. Enhance implementation through participatory planning, knowledge management and capacity building

Target 17: By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

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

Target 20: By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.