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GLOBAL STRATEGY FOR PLANT CONSERVATION

Draft Outline for the Paper

Background paper for the implementation of Target 6 of the GSPC

TARGET 6
"At least 30 per cent of production lands managed consistent with the conservation of plant diversity."

1 Introduction

Target 6 "At least 30 per cent of production lands managed consistent with the conservation of plant diversity" recognizes that all terrestrial areas are valuable for global plant diversity, not just semi-natural or natural habitats and protected areas. Primarily production land is essential to the maintenance of global plant diversity for the following reasons:

- It ensures the continuous distribution of many common and widespread plant species. Whilst these species might be more abundant in other habitats, they must maintain their presence in production land in order to avoid unnatural isolation and fragmentation that can, on occasions, be detrimental to the conservation of the species.
- The survival of some threatened plant species have, over time, become completely dependant on production land. This means that for these species production lands have to be managed to ensure their continued existence.
- Production land brings people into everyday contact with plant diversity and provides a range of benefits to people, particularly in the rural areas. For these reasons it is extremely important to raise awareness of biodiversity issues and for making tenable links between biodiversity issues and rural development.

Production land also has an impact on adjacent natural or semi-natural ecosystems and habitats through the intrusive direct or secondary effects of intensive management practices. By managing production land consistent with plant diversity the negative impacts on adjacent ecosystems would also be reduced.

To achieve this target many different activities by a range of stakeholders will be needed. Agroecosystems, for example, are highly managed and it is in the specific detail of how they are managed that determines impacts on biological diversity, and this is a result of many socio-economic factors and is influenced by the needs of the farmer, characteristics of the market, and the conditions of the environment.

1.1 Objective of the paper

This document will serve as the background paper to be used for an electronic (email) stakeholder consultation facilitated by the FAO, at the invitation of the Secretariat to the Convention on Biological Diversity (CBD), and undertaken in collaboration with the International Plant Genetic Resources Institute (IPGRI).

The background paper does not attempt a comprehensive review of the many initiatives and achievements in this area over the past decade. The paper aims to facilitate the measurement of progress towards Target 6. Discussions pertain to: clarifying the scope of the target; establishing

baselines; and establishing sub-targets, milestones and indicators of progress towards the target over time. Also addressed are the desirability of a flexible co-ordination mechanism and the relationship to crosscutting targets (3, 14, 15 and 16). The paper ends with an attempt to provide recommendations to the relevant stakeholders.

1.2 Current instruments that can be used towards the implementation of this target

There are a number of existing international instruments on agricultural and forest biodiversity that can provide a framework or support implementation of the target, using processes and reporting mechanisms to which countries already have committed themselves.

The special nature of agricultural biodiversity, its distinctive features and problems needing distinctive solutions was recognized in decision II/15 of the CBD. In this decision the COP took note of the Global System for the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture developed by member countries of the Food and Agriculture Organization of the United Nations (FAO) through the FAO Commission on Plant Genetic Resources (now called the Commission on Genetic Resources for Food and Agriculture), and the recommendation for strengthening it expressed in chapter 14 of Agenda 21.

The special nature of forest biodiversity, its distinctive features and problems, and the specific international and national approaches to forestry and forest issues has different related instruments that are listed below (see section 1.2 B).

A. Instruments of relevance to agricultural production lands

1. Supporting components of the International Treaty on Plant Genetic Resources for Food and Agriculture:

The FAO Conference (through Resolution 3/2001) adopted the **International Treaty on Plant Genetic Resources for Food and Agriculture**, in November 2001 that covers all plant genetic resources relevant for food and agriculture. The Treaty contains four supporting components which are relevant to management aspects of this target:

1) The Global Plan of Action on the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (GPA);
2) Ex-situ collections of Plant Genetic Resources for Food and Agriculture held by the International Agricultural Research Centres of the Consultative Group on International Agricultural Research and other International Institutions;
3) International Plant Genetic Resources Networks; and
4) the Global Information System on Plant Genetic Resources for Food and Agriculture . This System has two important supporting components: a) The World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture; and b) the Report on the State of the World's Plant Genetic Resources for Food and Agriculture.

2. International certification mechanisms of organic agricultural products

- International Federation of Organic Agriculture Movements (IFOAM)
- IFOAM/ International Organic Accreditation Service (IOAS)

3. The Programme of Work on Agricultural Biodiversity of the CBD (COP decision V/5)

B. Instruments related to Forests

Countries have adopted, are involved and/or are committed to the implementation of the following instruments:

1. **FAO's Forest Resources Assessment (FRA)**

2. Processes of **Criteria & Indicators for Sustainable Forest Management**

3. Recommendations made by the **Intergovernmental Panel on Forests** (IPF) and the **Intergovernmental Forum on Forests** (IFF)

4. **International certification of sustainable forest management and certified forest products1:**

   The list below includes only international initiatives and not national and private initiatives.

   - Certification Information service by the European Forest Institute
   - Certified Forests Products Council
   - Forest Certification Jump Point
   - Forestry Stewardship Council
   - International Tropical Timber Organization
   - Pan European Forest Certification
   - Sustainable Forestry &Certification Watch
   - Certified Wood Products Market
   - Forest management certification schemes like the Forest Stewardship Council (FSC)

5. **The Expanded Programme of Work on Forest Biological Diversity of the CBD (Decision VI/22)**

C. Instruments related to pastures and range

1. **FAO's Grasslands and Pasture Crops Working Group; Networks of Working Groups**

2. **FAO/ International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) Inter-Regional Cooperative Research and Development Network on Pastures and Fodder Crops**

2 Scope of target 6 "At least 30 per cent of production lands managed consistent with the conservation of plant diversity"

A. Is the estimated 30 per cent of production lands managed consistent with the conservation of plant diversity realistic?

"*30% would appear to be a realistic, and for some subdivisions of production lands perhaps, an unambitious figure. (The target can be considered appropriate if "production lands" is limited to farms, grazing land and production forests as suggested below.) At the same time, it must be recognized that production systems will take time to respond to incentives and other policy changes, even if such changes are introduced quickly. Therefore to be credible the target must not be over-ambitious. In the longer term, continued improvement should be expected and a higher target might be set for subsequent periods. In this decade substantial progress in measurement, and in indicator development is expected. This target, and those for subsequent periods, can be revised in the light of this emerging information.*" 2

1 UNECE Timber Committee website: http://www.unece.org/trade/timber/welcome.htm

2 Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

Stakeholders are invited to place comments and provide input concerning the estimated 30% figure.

B. What issues need to be addressed to ensure the implementation of the target?

Identified issues that need to be addressed to ensure the implementation of the target:

Three major issues are raised 3:

1) Definition of "*production lands"*

- What definition or classification of production lands is most suitable for the purpose of this target?
- Which types of production or products should be included in the scope of this target, and why?
- Does the definition of production lands need to encompass other benefits besides products, like services?

2) Definition of "*consistent with conservation of plant diversity"*

- What criteria can be applied to define management consistent with conservation of plant diversity?
- Would a single definition of management consistent with conservation of plant diversity be possible or desirable?
- What is the importance of the evolution or changes in management (for example intensification) to the definition of "*consistent with conservation of plant diversity"*?

3) Relationship between land management and plant diversity

- What is known about the intricate relationship between land use, management and plant diversity?
- What are the interactions between (production) lands and their impact on production land?

1) "Production lands"

For the purpose of this target, "*Production lands"* can be described as lands where the primary purpose is agriculture (including horticulture), grazing, or wood production. Production lands are also lands next to agricultural fields including pastures and rangelands, and forest plantations. Production land can also usefully be defined as land used primarily for commercial purposes.4

FAO defines the following terms that are related to the definition of production land5:

- *Arable land:*
  "Land under temporary crops (double-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens and temporarily fallow land (less than five years). The abandoned land resulting from shifting cultivation is not included in this category".
- *Permanent crops*

3 These issues were raised during an informal meeting with IPGRI in FAO headquarters on the 25th of June 2003

4 Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

5 FAOSTAT WEB site & discussion

Land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee and rubber; this category includes land under flowering shrubs, fruit trees, nut trees and vines, but excludes land under trees grown for wood or timber. This does not include woodland and forests.

- *Cultivated land*
  Sum of arable land and land under permanent crops.
- *Forests designated for wood production*
  Forest specifically designated for production of forest goods i.e. where the extraction of forest products, usually wood and fibre, is the predominant management objective. It includes both wood and non wood forest products.6
  For forests the proposed terminology is that production land under forest includes those forests that have been designated for wood production.7
- *Pastureland 8*
  Land devoted to the production of indigenous or introduced forage for harvest primarily for grazing. Pastureland generally must be managed to arrest successional processes.
- *Range*
  Land supporting indigenous vegetation that is grazed or that has the potential to be grazed, and is managed as a natural ecosystem. Range includes grazable forestland and rangeland:

  1) Grazable forestland
     Forestland that produces, at least periodically, sufficient understory vegetation that can be grazed. Forage is indigenous or, if introduced, it is managed as though it were indigenous (Syn: grazable woodland, woodland range, forest range).
  2) Rangeland
     Land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem. If plants are introduced, they are managed as indigenous species. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundras, alpine communities, marshes and meadows.

Services:
Next to products, land also provides additional services. Current trends in land management are putting increasing emphasis on these services. Plant diversity can be considered one of the services provided by land.

Question 1: What would be a consistent and comprehensive definition of production land?

2) Management consistent with conservation of plant diversity

"Consistent with conservation of plant diversity"9 implies that a number of objectives are integrated into the management of production lands:

- Conservation of plant diversity which is an integral part of the production system itself (i.e. crop, pasture or tree species and genetic diversity)10;

6 The term is mainly related to FRA 2005 global Table 3

7 This is a relatively narrow view and excludes many areas where forests are managed for multiple purposes. However, it seems more realistic to focus on intensively managed forests for this target.

8 Terminology for grazing lands and grazing animals
http://www.forages.css.orst.edu/Topics/Pastures/Grazing/Terminology/grazterm_body.html#Grazing

9 Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1)

- Protection of other plant species in the production landscape (neighbouring ecosystems that are linked to the agro-, rangeland or forest plantation ecosystems of the production land) that are unique, threatened, or of particular socio-economic value;
- Use of management practices that avoids significant adverse impacts on plant diversity in surrounding ecosystems, for example by avoiding excessive release of agro-chemicals and preventing unsustainable soil erosion; and[11]
- Local knowledge and capacity to conserve plant biodiversity is maintained or improved.

Question 2: Can we agree with the management objectives that define production lands that are managed "consistent with conservation of plant diversity" that are listed above?

At first approximation it is suggested that the area of production lands consistent with the conservation of plant diversity might be estimated by summing the areas devoted to the following [12]:

- Extensive, low-intensity-use pasture land.
- Low-input cropping systems, including many subsistence cropping systems, excepting those where soil or soil nutrients are being eroded.
- Intensive agricultural and horticultural systems practicing organic production methods or integrated production methods (i.e. a combination of integrated pest management, integrated plant nutrient management, and conservation agriculture, implying zero or low pesticide and herbicide use; controlled use of fertilizers; and soil conservation, including where appropriate, the incorporation of on-farm conservation of plant genetic resources).
- Forests managed by humans through logging that meet the criteria for sustainable forest management.

Question 3: Do we agree with the area of production lands consistent with conservation of plant diversity that are suggested here?

3) Relationship between management and plant diversity

It is proposed that the concepts and implementation themes and framework for cases of **Sustainable Agriculture and Rural Development (SARD)[13] as defined in Agenda 21[14]** should be the basis of the methodology to study the relationship between land management and plant diversity.

3 Sub-targets and milestones and coordinating mechanism

In order to further develop the target and to achieve progress towards implementation of the target clear time bound quantifiable sub-targets need to be developed. The direction towards achieving these sub-targets can be set out by identifying milestones for each of the sub-targets and making recommendations for a flexible coordinating mechanism for this target.

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[10] But note, consistent with principle 9 of the Ecosystem Approach, that this does not imply no change in the crops and varieties grown.

[11] Consistent with principle 3 of the Ecosystem Approach.

[12] Extracted from UNEP/CBD/COP/6/INF/21 (see Annex 1) and modified by comments made by FAO and IPGRI experts

[13] FAO, 2002. *Compendium of land and SARD cases*. http://www.gm-unccd.org/FIELD/Multi/FAO/FAOsard.pdf

[14] http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htm

3.1 Sub-targets

A. What sub-targets can be developed for the target?

Sub-targets can be defined as the different production lands that are consistent with the conservation of plant diversity that are defined under the scope of the target, such as:

Sub-target 1: Cultivated land
Sub-target 2: Forests designated for wood production
Sub-target 3: Pastureland and range

Sub-targets can also be related to the base-line data, e.g. for crop lands - for example, a sub-target can be 10% certified and 30% "managed consistent with plant diversity".

Stakeholders are invited to both comment and provide input to the sub-targets

The necessary next step to develop subplots is to develop a list of criteria to define production lands that are managed consistent with the conservation of plant diversity.

3.2 Milestones:

B. What milestones can be identified to achieve each sub-target?

Stakeholders are invited to provide input on possible milestones

3.3 Coordinating mechanism

C. What flexible coordinating mechanism can be used to achieve this target?

A flexible national coordinating mechanism should:

i. involve stakeholders involved in the implementation of national commitments related to production lands (such as forests, agriculture, rangelands, etc.); and
ii. expand on regional existing cooperation and networks
iii. include commitments made by countries at the international level on food and agriculture and the environment (e.g. the International Treaty on PGRFA, the GPA, the Global Information System on PGRFA, global and regional crop related networks and working groups etc.)

Stakeholders are invited to provide possible national coordinating mechanisms

4 Review and assessment of existing baseline and indicators

A compilation of available baseline data needs to be compiled. In order to monitor progress towards achieving the target, baseline data and a series of indicators need to be reviewed and assessed – ideally, this would draw upon relevant national and international existing data sets. Gaps in the baseline data need to be identified and as a consequence further baseline data and indicators may need to be developed to ensure the monitoring of progress towards achieving the target. ***Stakeholder inputs are sought on the issues below.***

4.1 Baseline

A. What baseline data do we have available for this target? (Existing/possible baseline)

The following information sources were proposed to provide baseline information for this target:

- Forest Resources Assessment (FRA)
- Criteria and indicators for sustainable forest management
- State of the world's PGRFA
- World of Organic Agriculture 2003 – Statistics and Future Prospects
- Forest Certification processes:
  - Certification Information service by the European Forest Institute
  - Certified Forests Products Council
  - Forest Certification Jump Point
  - Forestry Stewardship Council
  - International Tropical Timber Organization
  - Pan European Forest Certification
  - Sustainable Forestry &Certification Watch
  - Certified Wood Products Market
- FAO's Agro-Ecological Zoning (AEZ) database
- FAO's TERRASAT (land resource potential and constraints statistics at country and regional level)
- FAO UNEP GEF Land Degradation Assessment in Drylands (LADA) project
- FAO's Ecocrop I & II databases
- FAO's Agri-LUM Meta-data Listings; a global database of sub-national statistics on crop production, land use and livestock production
- FAO's Land Suitability Maps for Rainfed Cropping

Stakeholders are invited to both comment and provide input to this list of available baseline data.

4.2 Indicators

B. What indicators could we use to monitor the implementation of this target?

- Proportion of certified area of forests designated for wood production
- Standards for organic agricultural production
- Agri-environmental indicators (e.g. OECD)
- Sustainable agriculture indicators (e.g. Unilever)
- Indicators for genetic diversity, erosion and vulnerability
- Criteria and indicators for sustainable forest management

Stakeholders are invited to both comment and provide input to this list.

5 Relationship and cross-sectoral relevance of the target

Others targets of the GSPC such as target 3 (models), target 14 (education and awareness), target 15 (capacity building and resources) and target 16 (networks) should be considered as cross-cutting targets related to the achievement of all the other targets.

A. Cross- cutting targets

Stakeholders are invited to provide input on the relationship with the following cross-cutting targets of the GSPC

1) **TARGET 3. "Development of models with protocols for plant conservation and sustainable use, based on research and practical experience"**

2) **TARGET 14. "The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes"**

3) **TARGET 15. "The number of trained people working with appropriate facilities in plant conservation increased, according to national needs, to achieve the targets of this strategy"**

4) **TARGET 16. "Networks for plant conservation activities established or strengthened at national, regional and international levels"**

6 Recommendations, proposals and suggested timetable for action

A. What recommendations, proposals and suggested timetables for action can be formulated for parties, international/regional agencies, regional initiatives and the CBD?

Stakeholders are invited to provide their recommendations, proposals and suggested timetable on how to implement the target. Suggestions can be provided under the following headings:

1. **ACTIONS BY PARTIES.**

2. **ACTIONS BY INTERNATIONAL/REGIONAL AGENCIES CHARGED WITH BIODIVERSITY CONSERVATION AND SUSTAINABLE USE OF NATURAL RESOURCES, IN RELATION TO THEIR RESPONSIBILITIES UNDER INTERNATIONAL CONVENTIONS AND OTHER RELEVANT INTERNATIONAL/REGIONAL INITIATIVES.**

3. **ACTIONS IN RELATION TO REGIONAL INITIATIVES FOR PLANT CONSERVATION.**

4. **ACTIONS BY CBD INCLUDING THE SECRETARIAT (EXECUTIVE SECRETARY), ADVISORY BODIES (e.g. SBSTTA) AND COP.**

Annex 1

1. Extract from UNEP/CBD/COP/6/INF/21/ADD1
A review of the scope, terminology, base-line information, technical and scientific rationale of the 16 draft targets included in the proposed Global Strategy for Plant Conservation, with particular reference to the quantitative elements they contain:

Draft Target 6: At least [30 per cent] of production lands managed consistent with the conservation of plant diversity.

Revised Target 6: At least 30 per cent of production lands managed consistent with the conservation of plant diversity.

6.1. Explanation

The Convention, in Article 8, "*In situ* conservation", requires Parties to "regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use" and to "endeavour to provide the conditions needed for compatibility between present uses and the conservation of biological diversity and the sustainable use of its components".15

Further, in considering agricultural biodiversity at its third meeting in 1996, the Conference of the Parties, encouraged Parties to promote "The transformation of unsustainable agricultural practices into sustainable production practices adapted to local biotic and abiotic conditions, in conformity with the ecosystem or integrated land use approach" and "The use of farming practices that not only increase productivity, but also arrest degradation as well as reclaim, rehabilitate, restore and enhance biological diversity".16 The International Treaty on Plant Genetic Resources for Food and Agriculture, developed in harmony with the Convention includes provisions for the conservation and sustainable use of plant diversity.17 An expanded programme of work for the conservation and sustainable use of forest biological diversity is to be considered by the Conference of the Parties at its sixth meeting.

Target 6 provides a globally accepted target consistent with the aims expressed in these agreements. In focussing on production lands, this target complements targets 4 and 5.

For the purpose of this target, *Production lands* might be described as lands where the primary purpose is agriculture (including horticulture), grazing, or wood production.

Consistent with conservation of plant diversity implies that a number of objectives are integrated into the management of such production lands:

- Conservation of plant diversity which is an integral part of the production system itself (i.e. crop, pasture or tree species and genetic diversity)18;
- Protection of other plant species in the production landscape that are unique, threatened, or of particular socio-economic value;

15 CBD Article 8 subparas (c), (i). See page s 7-8 of the CBD Handbook

16 COP Decision III/11, para 17 9 (a), (b). See page 393 of the CBD Handbook.

17 IT/PGRFA Articles 5.1(c); 5.2; 6.2(a),(b).

18 But note, consistent with principle 9 of the Ecosystem Approach, that this does not imply nochange in the crops and varieties grown.

- Use of management practices that avoid significant adverse impacts on plant diversity in surrounding ecosystems, for example by avoiding excessive release of agro-chemicals and preventing unsustainable soil erosion.19

6.2. Background and Baseline

To achieve this target many different activities by a range of stakeholders will be needed. Agroecosystems, for example, are highly managed and it is in the specific detail of how they are managed that determines impacts on biological diversity, and this is a result of many socio-economic factors and is influenced by the needs of the farmer, characteristics of the market, and the conditions of the environment. Fostering the development of agroecosystems that exhibit high productivity and contribute positively to plant diversity conservation will require appropriate policy support.20 Much of the appropriate policy has already been agreed under the Convention and the International Treaty and is reflected in the Convention's programme of work on agricultural biodiversity21 and the Global Plan of Action for the Conservation and Sustainable Use of PGRFA.22 For OECD countries there is much scope for the conservation of plant diversity (and other components of biodiversity) to be taken into account during agricultural policy reforms carried out in the light of the WTO Agreement on Agriculture. Developing countries face the twin challenges of ensuring that agricultural intensification is sustainable while also protecting the resource base in marginal areas, especially where this is necessary to support sustainable livelihoods (see target 14). There are a number of initiatives to promote sustainable forest management. For example, the International Tropical Timber Organizations Year 2000 Objective promotes sustainable forest management in countries that produce and consume tropical timber.

Given the complex and multidimensional issues involved, there is no single readily available indicator to measure progress towards this target. Since countries have varying priorities and there are different conditions among farming systems and ecosystems, targets would, in any case need to be tailored to the needs of each country and region. The 12 principles and 5 points of operation guidance of the Ecosystem Approach provide useful guidance in this respect.23

Substantial progress has been made by the OECD in developing agri-environmental indicators which cover the range of issues referred to in the previous section (including for example, use of pesticides and fertilizers, and impacts on soil, water and biodiversity at genetic, species and habitat levels),24 and further development is foreseen in order to "provide information on the adoption of sustainable management practices by 2003".25 Criteria and indicators for sustainable forest management have been developed on a regional or biome-specific basis.26

A framework for national indicators on biodiversity is being developed under the Convention. Specifically the programme of work on agricultural biodiversity provides for "Criteria and guidelines

19 Consistent with principle 3 of the Ecosystem Approach.

20 See also, Wood at al (2001), at pages 10, 11.

21 COP Decision V/5, annex. See page 554ff of the CBD Handbook

22 Adopted by 150 countries at the Leipzig Conference, 1996 and subsequently endorsed by CBD COP (Decision III/11 para 19. See page 393 of the CBD Handbook).

23 CBD Decision V/6 (2000). See page 565ff of the CBD Handbook.

24 OECD (2001); OECD (2002).

25 The OECD Environmental Strategy for the first decade of the 21st Century, agreed by Environment Ministers in May 2001, noted the need to "further develop and use the core set of OECD agri-environmnental indicators, and provide information on the adoption of sustainable management practices by 2003".

26 More than 150 countries are participating nine eco-regional processes to develop and implement criteria and indicators for sustainable forest management, all of which include conservation of biodiversity. As most of these processes have begun only in the last few years, it is anticipated that much more information will be available on sustainable forest management in future. Currently there are no globally agreed criteria and indicators, but FAO is facilitating a process to harmonize the various sets.

for developing indicators to facilitate monitoring and assessment of the status and trends of biodiversity in different production systems and environments, and the impacts of various practices (…)",27 and the draft expanded programme of work on forest biodiversity provides for the advancement of criteria and indicators for sustainable forest management.28

An alternative approach to the use of comprehensive sets of indicators, as described above, it to use various proxies for "management consistent with the conservation of plant diversity". These could include use of, *inter alia,* organic farming methods, integrated pest management and other approaches to integrated production system management, and conservation agriculture.29

Information on the extent of such practices is increasingly available (for example, through registration of various schemes providing certification of organic production for agriculture, and the numerous certification schemes for the sustainable production of timber and other forest products, and information on the adoption of IPM practices etc.). Nevertheless, on the one hand, these represent only a subset of the area that might be considered to be managed sustainably, and, on the other hand, do not necessarily include criteria that are specifically related to the conservation of plant diversity. However there are examples of the use of "intermediate" standards, less stringent that those used in, for example, organic agriculture, but possibly of much wider application. For example, about 15% of commercial export-oriented banana plantations are managed according to independently verified standards that *inter alia* specify requirements for good management of pesticides and fertilizers, prohibit encroachment on surroundign areas of natural forest, and promote restoration of lands taken out of production.30 Broader approaches are also underway. FAO, for example, is considering the development of a code of practice, or framework for guidelines, on "good agricultural practices."31. In forestry, FAO has already developed the Model Code of Forest Harvesting Practices (1996) and regional codes are now being prepared.

As a first approximation, it is suggested, that the area of production lands managed consistent with the conservation of plant diversity might be estimated by summing the areas devoted to the following:

- Extensive, low-intensity-use pasture land.
- Low-input cropping systems, including many subsistence cropping systems, excepting those where soil or soil nutrients are being eroded.
- Intensive agricultural and horticultural systems practicing organic production methods or integrated production methods (i.e. a combination of integrated pest management, integrated plant nutrient management, and conservation agriculture, implying zero or low pesticide and herbicide use; controlled use of fertilizers; and soil conservation, also, where appropriate incorporating on-farm conservation of plant genetic resources).
- Forests disturbed by humans through logging, and semi-natural managed forests, modified by humans through sylviculture and assisted regeneration, that meet the criteria for sustainable forest management.

Some preliminary estimates of baseline figures are provided in Table 1.

In promoting management consistent with the conservation of plant diversity it is important to bear in mind that in many agro-ecosystems, current plant diversity is dependent on management practices, including, for example, controlled grazing, the maintenance of disturbance regimes (fire, flooding/irrigation), and, of course, on farm management, and improvement, through selection, of crop

27 CBD COP Decision V/5, Annex, activity 1.5(a). See page 557 of the CBD Handbook

28 CBD SBSTTA Recommendation VII/6, annex, Programme Element 3, Goal 2, Objective 1.

29 See also COP Decision III/11, para 15 (e), page 391-2 of the CBD Handbook.

30 The "Better Banana Project". See Courville, Sasha (2001)

31 See http://www.fao.org/prods/pract.asp

and livestock genetic resources. The inherent dynamic nature of ecosystems, especially agro-ecosystems, and the need for their adaptive management must also be acknowledged.

6.3. Rationale and Conclusions

The scope of this target is multidimensional and the means of measurement of its achievement cannot be precise. However this is not a reason for non-action. As indicated above, the conservation of plant diversity in production lands is considered important in reaching the objectives of the Convention. Furthermore progress towards sustainable management has shown to be possible, for example:

- FAO's Forest Resources Assessment reports progress towards wider use of sustainable forest management practices32;
- The OECD reports improvements in some aspects of the environmental impacts of agriculture;
- There is a growing number of examples of sustainable agriculture in developing countries.33

In this decade substantial progress in measurement, and in indicator development is expected. This target, and those for subsequent periods, can be revised in the light of this emerging information. During implementation, it may also be desirable to develop sub-targets for particular subdivisions of production lands, as proposed in table 1.

Based on the foregoing, 30% would appear to be a realistic, and for some subdivisions of production lands perhaps, an unambitous figure. (The target can be considered appropriate if "production lands" is limited to farms, grazing land and production forests as suggested above.34) At the same time, it must be recognized that production systems will take time to respond to incentives and other policy changes, even if such changes are introduced quickly. Therefore to be credible the target must not be over-ambitious. In the longer term, continued improvement should be expected and a higher target might be set for subsequent periods.35

Table 1: Possible sub-targets for implementation (for illustration only)

"production lands" as included in the target ?	Sub-section	Baseline Estimate (2000)		Target (2010)		Ultimate target (2050 or 2100 ?)
		certified area	Total "consistent with plant diversity"	certified area	total "consistent with plant diversity"	
YES	Crop lands	2%(C)	? (E)	10%(G)	30%	to be defined
YES	Managed forest production lands (A)	2%(D)	? (F)	5 -10%	30%	to be defined

32 FAO (2001) FRA 2000, Chapter 6 page 59

33 Pretty and Hine (2001)

34 Clearly, if broader definition of production lands is used (for example, if all types of forests were included, if the whole agricultural landscape were included) then the target would be much too low. This needs to be clearly reflected in the notes accompanying the target. Alternatively, Parties may wish to reflect the necessary specification in the title of the target itself viz: "At least [30 per cent] of farming lands and production forests managed consistent with the conservation of plant diversity."

35 Note that the analysis does not deal with land-use change (eg conversion of agricultural land to urban land, or the expansion of agriculture into previously uncultivated areas, since these are expected to be relatively small over the time period to 2010 compared to the target itself, as well as compared to "errors" arising from definitional problems. However, tsuch land use change would need to be factored in to longer-term considerations.

NO	"Undisturbed natural" forest	not applicable	?	not applicable	90% ?	100%
YES	Managed pasture lands (B)	1 – 3%	25%	10%	50%	to be defined
NO	"Natural" grasslands	not applicable	?	not applicable	90% ?	100%

Notes:
(A) Managed forest production lands are estimated to be about 25% of total forests, the remainder is classified as "undisturbed"
(B) Managed pasture lands are estimated to be about 50% of total pasture lands (Batello, p.c.)
(C) About 15 to 18 million hectacres were estimated to be under certified organic production in 1998, SW Pacific, Europe and the Americas. There is very little certified organic production in Africa or Asia (Willer and Yuseffi, 2001).
(D) This ranges from near 100% (Finland), to zero for most countries. Areas certified in developing countries reach 9% in Africa (South Africa), 0.7% in Asia (Sri Lanka) and 7% in Latin America (Belize).Except for the US (12%), rates in countries with the largest forest areas are low. See FAO (2001) FRA 2000, Chapter 6
(E) Case studies of 208 sustainable agriculture initiatives cover c. 30 million hectares amounting to some 3% of developing country cropland (Pretty and Hines, 2001). This is additional to certified land. Given the relatively small sample of this project, a much larger area could be estimated to be under sustainable production, perhaps of the order of 10 – 20%.
(F) About 90% of forests in developed countries, and 6% in developing countries are managed according to a management plan. These do not necessarily ensure sustainable management, but they do provide a tool that could be applied for this purpose.. Further, six tropical countries with a combined forest area of over 200 million hectares appear to have established all the conditions needed to enable them to manage their forests sustainably in the near future (Poore and Thang, quoted in FAO (2001) FRA 2000 Chapter 6, page 58).
(G) The European Union has set a target of 30% organic production by 2010. Lower amounts are expected in other regions however.

6.4. Key references

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Pretty, Jules and Rachel Hine (2001). Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence. Occasional Paper, Centre for Environment and Society, University of Essex, Colchester, UK.
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Willer, Hella and Minou Yussefi (2001) Organic Agriculture Worldwide 2001: Statistics and Future Prospects. BIOFACH/IFOAM/Stiftung Ökologie & Landbau, Germany

2. Extract from the draft report from working groups constituted during the liaison group meeting on the global strategy for plant conservation of the convention on biological diversity

Clarification of the scope of activities of the 16 targets, development of sub-targets and milestones for each target and development of base-line data and a series of indicators for monitoring progress towards achieving the targets:

TARGET 6. At least 30 per cent of production lands managed consistent with the conservation of plant diversity

Scope	Need for a definition/classification of the production lands included in Target 6. Need to be clear what is meant by "managed consistent with the conservation of plant diversity" under different management systems.
Base-line data	Further elaboration of base-line data development as outlined in document UNEP/CBD/COP/6/IND/21/Add.1 E.g. Managed forest production – 2% Crop plants – 2% Managed pasture lands 1-3%
Suggested sub-targets/milestones	Some sub-targets proposed/suggested in UNEP/CBD/COP/6/IND/21/Add.1 need further elaboration. Sub-targets can be related to the base-line data above, e.g. for crop lands a sub-target can be 10% certified and 30% "managed consistent with plant diversity".
Indicators	There is no single readily available indicator for this target and so a series needs to be developed through stakeholder consultations.
Lead institution(s)	FAO, with IPGRI
Major partners may include:	Organisations implementing certification schemes developed for forest products, organic agriculture etc. International Centre for Integrated Mountain Development (ICIMOD) International programmes for integrated agriculture, e.g. Global Integrated Pest Management Programme (IPM) UNEP Collaborative Partnership on Forests (CPF) (including United Nations Forum on Forests (UNFF), FAO, International Tropical Timber Organization (ITTO), Centre for International Forestry Research (CIFOR), etc.) CGIAR Integrated Natural Resources Management Programme UNEP/Global Environment Facility (GEF) Project on the Conservation of Crop Wild Relatives (IPGRI and partners)
Stakeholder consultations	FAO lead