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Item 3.3 of the provisional agenda**

PROPOSED ELEMENTS OF A TOOLKIT INCLUDING A CHECKLIST TO ASSIST PARTIES IN INTEGRATING TARGETS INTO THEIR STRATEGIES, PROGRAMMES AND PLANS

I. INTRODUCTION

1. In decision VII/10, the Conference of the Parties requested the Executive Secretary, with the support of members of the Global Partnership for Plant Conservation, to elaborate proposals for a toolkit, including a checklist to assist Parties in integrating the targets into their strategies, plans and programmes, for review by the Subsidiary Body on Scientific, Technical and Technological Advice prior to the ninth meeting of the Conference of the Parties.

2. Earlier, in decision VI/9, the Conference of Parties invited relevant international and regional organizations to endorse the strategy and to contribute to its implementation, including to adopt these targets, in order to promote a common effort towards halting the loss of plant diversity and emphasized that the targets should be viewed as a flexible framework within which national and/or regional targets may be developed, according to national priorities and capacities, and taking into account differences in plant diversity between countries. The Conference of the Parties also invited Parties and Governments to develop national and/or regional targets, and, as appropriate, to incorporate them into relevant plans, programmes and initiatives, including national biodiversity strategies and action plans.

3. A preliminary draft proposal for the elements of the toolkit called for in decision VI/9 is outlined below. Delegates may wish to brainstorm on these elements and priorities for action at national level which may include the following: establishment of national targets and incorporation into relevant plans, programmes and strategies; building capacity; ensuring stakeholder engagement especially representation of local communities; facilitating refinement, dissemination and application at the national level of existing tools for implementation; options for regional strategies and targets and monitoring progress. This will provide a framework for developing the toolkit and the necessary checklist to assist Parties.

* Organized jointly by the CBD and Global Partnership for Plant.

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II. PROPOSAL FOR THE DRAFT OUTLINE FOR THE TOOLKIT ON NATIONAL IMPLEMENTATION OF THE GSPC

I. ***Purpose of the toolkit****:* To enable in-country practitioners to:

- develop national and/or regional targets
- implement the GSPC, elements of the GSPC or specific targets
- integrate the targets of the GSPC into their strategies, plans and programmes

Target audience: Policy makers, researchers, institutions, NGOs, local communities

II. ***Content****:*

Electronic version:

Section 1: Introduction:

- The GSPC background and relevant CBD documents

Section 2: Developing national and/or regional targets:

- How to develop national/regional targets: Case-studies from selected countries
- Resources – hot links to websites
- Checklist for integrating the strategy into national strategies, plans and programmes

Section 3: Implementing the sixteen outcome targets of the GSPC at national and/or regional level:

- Target
- Overview of target – a summary
- Outcomes/recommendations of the stakeholder consultation
- Tools and resources for implementing the target
- Relevant CBD documents
- Case-studies
- Hot links to related websites and other resources

Section 4: Implementing cross-cutting targets:

- Tools and resources
- Case-studies
- Hot Links to websites and other resources

Section 5: General resources for implementing the strategy at national, regional and international level

Print Version*:*

As above but summarised text version and references provided as appropriate.
(Format using the model of the CBD Protected Areas Programme of Work Toolkit)

III. SAMPLE OF PROPOSED CONTENTS OF A TOOLKIT SECTION

Target 1: A widely accessible working list of known plant species, as a step towards a complete world flora

1. Overview of the target

1. A working list of known plant species is essential for biodiversity management. It is an inventory of resources and a means of organising information in a logical and retrievable way. It also helps prevent duplication of effort and accidental oversight when planning conservation action. The name of a plant is the key to information about its uses, conservation status, relationships and place within ecosystems. The accepted name is a unique identifier for species without which it is impossible to plan the sustainable use of plants, essential resources for food, medicines, and ecosystem services. There is thus a very broad constituency of potential users of a global plant checklist.

2. Linkages to other CBD programmes of work and cross- cutting issues

2. As the key to basic information on plant diversity, an accessible working list of the accepted names of known plant species is necessary for implementing and monitoring progress of actions recommended under many of the Thematic Programmes and Cross-Cutting Issues of the Convention on Biological Diversity (see UNEP/CBD/COP/6/INF/21/App.2). It is impossible to manage and monitor plant diversity if an inventory of plant resources does not exist. For example, for mountains, SBSTTA VIII/7 states, "biological inventories of mountain ecosystems are lacking for most developing countries, and therefore the current understanding of the status of the biological diversity of mountain ecosystems is still limited"; for Forest Biodiversity, "taxonomic studies and inventories at the national level provide for a basic assessment of forest biological diversity", (decision IV/7).

3. The implementation of several of the Articles of the Convention on Biological Diversity (CBD), particularly Articles 6 (General Measures for Conservation and Sustainable Use), 7 (Identification and Monitoring), 8 (*In-situ* Conservation), 10 (Sustainable Use) & 17 (Exchange of Information) depends on knowing the correct names for plants and using them and their synonyms to access the relevant information.

4. A working list of the accepted names of known plant species is an important step in implementing the Global Taxonomy Initiative (GTI). Such a list directly addresses four of the five operational objectives of the GTI work plan (decision VI/8).

Operational objective 2 - Provide focus to help build and maintain the systems and infrastructure needed to obtain, collate and curate the biological specimens that are the basis for taxonomic knowledge.

Operational objective 3 - Facilitate an improved and effective infrastructure/system for access to taxonomic information; with priority on ensuring countries of origin gain access to information concerning elements of their biodiversity.

Operational objective 4 - Within the major thematic work programmes of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components.

Operational objective 5 - Within the work on cross-cutting issues of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components

5. In the absence of a working list of the accepted names of known plant species, completing or even measuring progress towards the other 15 targets of the Global Strategy for Plant Conservation strategy is extremely difficult or impossible. Target 2, "to measure and achieve a preliminary assessment of the conservation status of all known plant species", can be tackled on the basis of current knowledge but a comprehensive assessment cannot be achieved without a backbone list of

those species to be assessed. Likewise, target 7, "to conserve 60 percent of the world's threatened species in situ", and Target 8, "to conserve 60 percent of threatened plant species in accessible ex situ collections, preferably in the country of origin, and 10 percent of them included in recovery and restoration programs", also depend on having a checklist of accepted names as a robust baseline. Concerted action is needed to produce the checklist quickly to facilitate progress with the other, more applied targets in the strategy, all of which are focused on the year 2010.

3. Clarification of the scope of the target

6. The strategy addresses the Plant Kingdom with focus on vascular plants (flowering plants and ferns) and Bryophytes (mosses and allies). It excludes algae, lichens and fungi with the proviso that parties may choose on a national basis to include lower taxa (COP Decision VI/9).

7. The aim is to produce a working list which represents a summary of current knowledge. This list will be more definitive for some groups than for others, reflecting different levels of understanding. For all groups, the list will continue to be enhanced as new species are discovered and understanding of plant diversity develops. The list of accepted names will reflect a consensus view wherever this is possible. However, where differences in taxonomic opinion cannot be resolved, a pragmatic decision must be taken in order to provide a unique identifier for each species recognized. As species can have several names, it is important that the accepted name is established and linked to other names for the same species (synonyms), so that all information pertaining to one species can be found. Thus users searching the list for a name not listed as accepted will still be able to find the appropriate species and the associated information.

8. Important initiatives are underway to provide lists of accepted names for some of these groups not currently included in the main focus of the GSPC. In particular, considerable progress has been made on producing a working list for algae (www.algaebase.org). Stakeholders recommend that the importance of algae be recognised within the remit of Target 1 and that a completion date for a list of algae be discussed at subsequent stakeholder meetings. Parties may consider the inclusion of algae in national targets where possible.

9. The past decade has seen much international discussion on the minimum elements required for a working list of known plant species (TDWG, IOPI, Species 2000, GBIF-see Final Report of the GBIF Scientific and Technical Group (STAG) Workshop on An Electronic Catalogue of Names of Known Organisms Sydney, Australia, 2002). Most recent initiatives treat the following core data as essential:

- Accepted Name (including reference citation);
- Synonyms (including reference citation) with link to Accepted Name;
- Latest Taxonomic Scrutiny (the name of the taxonomist who last scrutinized the species record, and the date);
- Geographic Distribution by country (includes reference citation).
- Source (acknowledgement of the provider(s) of the data.)

10. Stakeholders recommend that these data are included. Other possible additional data elements may be considered for inclusion in the global working list in the light of an analysis of how the list will support and underpin the completion of the other targets.

11. More detailed geographic distribution data (underpinned by literature and/or specimen citations where possible) are considered essential by some stakeholder groups and optional by others. Some stakeholders emphasised the need to underpin geographic distribution statements with verifiable literature or specimen records. It was also noted that detailed geographic data would be essential for progress on Target 2.

12. Common names were considered important by some stakeholders, but many were concerned that the complexities of handling such information would divert time and resources from the gathering of the essential data specified in 10 above.

13. Life form was considered by some stakeholders to be important additional information and should be included if it can be compiled easily.

14. A global working list of accepted names is needed for two main classes of use - as a resource in its own right, and as an indexing tool for referencing, searching, locating and accessing other information (see also GBIF STAG report 2002 as cited above). Both of these functions are increasingly realised through electronic means on the Internet. Stakeholders recommend that the list should be an electronic product available on the Internet, free at the point of access for non-commercial users. To ensure maximum accessibility, especially in developing countries, the list should also be available in other digital and non-digital forms (e.g. CD-ROMs, hard copy of subsets of data).

15. In compiling a global working list of the accepted names of known plant species the approach should maximize consensus and make use of and acknowledge existing datasets, data standards and infrastructures for dissemination such as the Global Biodiversity Information Facility (GBIF), Species 2000/ITIS consortium, International Organization for Plant Information (IOPI), clearing-house mechanism and other national and regional initiatives.

16. While the production of a working list is a worthwhile and challenging target, it must be understood that it is simply a first step in documenting plant diversity and not the final chapter for global taxonomic work. Even when a comprehensive list is in place, much work will remain to be done on completing the inventory of all plant species on earth, and improving understanding of their origin, relationships, status and potential uses. Thus the production of the working list must be seen within the context of a broader taxonomic enterprise ranging from 'pure' to applied aspects and including training and capacity building (see GTI, Decision VI/8). The Species Plantarum Programme goes some way towards addressing these broader needs, by means of a World Flora.

4. Baseline data

17. Of the estimated 280,000-425,000 species of vascular plants and 25,000 species of bryophytes, global lists of accepted names are known to exist for c. 110,000 species, 25-40% of the total. However, fewer than 50% of these records are widely accessible in published form, the others being stored as individual or institutional databases. Species 2000 holds an unpublished metadatabase summarizing much of this information. Stakeholders recommend that the metadatabase on accepted name lists be updated and made widely accessible by April 2004 (Species 2000/ITIS; ECAT-GBIF).

18. The majority of the baseline data available has been prepared on a national or regional rather than a global basis. Regional baselines exist for some areas e.g. *Euro + Med Checklist*, *List of East African Plants*, *Vascular Plants of Russia and adjacent countries, Moss Flora of Central America*. There are significant gaps in coverage of biodiverse tropical areas. Large Flora projects such as *Flora Neotropica, Flora Malesiana, Flora Zambesiaca, Flora of Tropical East Africa, Flore de Madagascar et des Comores,* and *Flora Mesoamericana* and large botanical institutes with a regional or global outlook are important mechanisms for stimulating the production of regional checklists.

19. At national level, comprehensive accepted name checklists are available for some countries, for example, Catalogue of the Flowering Plants and Gymnosperms of Peru, Catalogue of the Vascular Plants of Ecuador, Checklist of the Plants of the Guianas, Flora of China, A Catalogue of the Vascular Plants of Malaya, Flore de Senegal, Flora de Hepaticas e Antoceros do Brasil. The Southern African Botanical Diversity Network (SABONET) has stimulated national and regional checklists within Southern Africa. National botanical institutes play an important role in producing national checklists.

20. The following provides a source of baseline data on the status of national and regional plant inventories: Frodin, D.G. (2001). Guide to standard floras of the world : an annotated, geographically arranged systematic bibliography of the principal floras, enumerations, checklists and chorological atlases of different areas. Cambridge University Press.

21. Such national and regional checklists are an important resource providing information of great value for the compilation of a global working list of the accepted names of known plant species.

22. A global approach is essential because many of the challenges associated with developing a working list of the accepted names of known plant species cross-national and regional boundaries and can only be addressed within a global context. These include: broadening access to literature and expertise, resolving problems of species delimitation over the whole range of the species in question,

and clarifying differences in species delimitation and nomenclature used between different countries and regions.

23. A global working list of the accepted names of known plant species will in turn greatly facilitate the production and refinement of regional and national lists. Additional information relevant to particular ecosystems or countries can be added to those regional and national lists.

24. Organizations such as IOPI, the ECAT programme (Electronic Catalogue of Names of Known Organisms) of GBIF and the Species 2000/ITIS consortium have become important sources for an overview of activity in these areas and are well placed to identify key taxonomic and geographic gaps in coverage. However, active coordination of checklisting activities is limited and ad hoc at present, and is likely to remain so in the absence of secure funding for data compilation and maintenance.

5. Stakeholder recommendations

Recommendations, proposals and suggested timetable for action

Action by Parties

- Parties may consider providing support for national checklists, including the necessary capacity-building in taxonomic infrastructure. Stakeholders recommend that all Parties, Governments, international and national organisations, and other relevant bodies and institutions support measures to increase the rate of production of draft working lists of plant species, at all appropriate levels. These measures should include building taxonomic capacity to levels where national checklist production and updating is possible.
- Parties may consider making national checklists of known plant species, including summary of where knowledge is insufficient, available on the Web (including the clearing-house mechanism), as CD-ROM and/or printed versions by 2005.
- Parties may consider support of collaborations and networks to provide regional checklists and to contribute to global efforts.
- Parties may identify in-country taxonomic expertise which could usefully be applied at global, regional and national levels to compile, refine or review relevant sections of the working list. Parties may also highlight priorities for training and capacity-building and to identify gaps in coverage and resources.

Actions by international/regional agencies charged with biodiversity conservation:

- Seek funding to support the achievement of target 1.
- Disseminate current and updated progress on target 1, including current activity, percentage completion, status of gaps in coverage. Stakeholders recommend that the metadatabase on accepted name lists be updated and published by April 2004 (Species 2000/ITIS; ECAT-GBIF). Stakeholders further recommend that a meeting be convened in mid-2004 to (i) agree a flexible co-ordination mechanism which reflects a consensus view and (ii) identify gaps in coverage and appropriate funding targets to address them.
- Present report on progress towards target 1 at an appropriate symposium during the International Botanical Congress 2005. The aim is for 50% completion by 2005, and demonstrable progress to address the gaps previously identified in 2004.
- Encourage networking to maximize collaboration in pursuit of target 1.

Actions by International NGOs:

- Encourage networking to maximize collaboration in pursuit of target 1.
- Where possible help lever funding for achievement of target 1.
- Where possible include opportunities for workshops and other meetings on the achievement of target 1 in relevant international meetings.

Actions in relation to regional initiatives for plant conservation:

- Seek funding for completion of regional checklists
- Encourage networking to maximise collaboration in pursuit of target 1.

6. Existing databases and tools

Global Biodiversity Information Facility

25. A gap analysis of the electronic catalogue of plants and status of taxonomic checklists is available on the GBIF website (http://circa.gbif.net/irc/gbif/ecat/info/data/plantae.html).

26. GBIF's activities are organized around six integrated thematic areas:

- Data Access and Database Interoperability, designed to facilitate the full use of biodiversity and other databases by facilitating "data-mining;"
- Digitisation of Natural History Collections Data, in order to expand biodiversity knowledge on the Internet;
- Electronic Catalogue of the Names of Known Organisms, to improve searching of biodiversity data and enable combining of data from different disciplines;
- Outreach and Capacity Building, to ensure that people in every country have access to and can easily and freely use the world's biodiversity information
- SpeciesBank, to provide a complete compendium of knowledge about particular species drawn from online information sources; and
- Digital Biodiversity Literature Resources, to open up Web access to digitised versions of the published literature.

27. The scope of GBIF's activities includes working toward making it possible to draw information from molecular, species, and ecological databases all at the same time. However, for the first few years, GBIF has focused on bringing species- and specimen-level data to the Web. Further, a compilation of resources and workshop reports on data access, IPR issues in datasharing, digitisation and development of taxonomic standards are available on the website (http://www.gbif.org).

*International Plant Names Index (IPNI) (**http://www.ipni.org**)*

28. The International Plant Names Index (IPNI) is a database of the names and associated basic bibliographical details of all seed plants, ferns and fern allies. Its goal is to eliminate the need for repeated reference to primary sources for basic bibliographic information about plant names. The data are freely available and are gradually being standardized and checked. IPNI is a dynamic resource, depending on direct contributions by all members of the botanical community. IPNI is the product of collaboration between The Royal Botanic Gardens, Kew, The Harvard University Herbaria, and the Australian National Herbarium.

International Organization for Plant Information

29. The International Organization for Plant Information (IOPI) manages a series of cooperative international projects that aim to create and link databases of plant taxonomic information. IOPI is a Commission of the International Union of Biological Sciences (IUBS) and a member of Species 2000.

30. The Global Plant Checklist Project, encompassing about 300,000 vascular plant species and over 1,000,000 names, is being implemented by IOPI with vascular plants as a priority . Eventually, the Checklist will include nonvascular plants (mosses, lichens, algae, and liverworts)(http://plantnet.rbgsyd.gov.au/iopi/iopigpc1.html).

31. A provisional checklist is available and its aim is to serve as a taxonomic backbone on which users can append their more specialized information. IOPI's broad strategy in preparing the Checklist is to merge data sources held by member organizations (e.g. databases, floras, monographic treatments, and herbarium data) into a computer-accessible format.

32. The Species Plantarum Programme is a long term project to record essential taxonomic information on vascular plants worldwide: accepted names and synonyms with places of publication and types, short descriptions of all taxa from family to infra-specific rank, keys, distributions, maps, illustrations, references to literature comments, etc. It is being published in hardcopy as 'Flora of the

World'; it will also be available electronically. Nomenclatural and distributional data from this is being made available in the Global Plant Checklist.

SPECIES 2000

33. Species 2000 is a "Federation" of database organisations working closely with users, taxonomists and sponsoring agencies. The thrust of the Species 2000 plan is to create an array of participant global species databases covering each of the major groups of organisms. Each such database will cover all known species in the group, using a consistent taxonomic system. Relevant priority groups include the Fungi, Cacti, Palms, Legumes, Umbellifers and Fossil Plants. The current initiatives include: Index Fungorum (www.indexfungorum.org); ILDIS - World Legume Database (www.ildis.org); LIAS Database (lichens), Botanische Staatsammlung München, Germany (www.lias.net); Martin Ryan Marine Institute, National University of Ireland, Galway, Ireland AlgaeBase (www.algaebase.org);

34. The Index of Mosses database, also known as W³MOST, provides current information on bryophyte names from the TROPICOS MOST database compiled by the The Index of Mosses project. MOST currently contains information on over 90,000 bryophyte names, a bibliography of 16,000 titles, and almost 37,000 specimen records. Early in the project it was decided to restrict coverage to nomenclature because of the lack of stability of taxonomic opinions over short periods of time. This database extraction unlike the Index of Mosses includes taxonomic opinions of numerous authors, as well as our interpretation of the Code of Botanical Nomenclature. (http://www.mobot.org/MOBOT/tropicos/most/iom.shtml).

35. (The International Legume Database & Information Service (ILDIS) is an international project which aims to document and catalogue the world's legume species diversity in a readily accessible form. Research groups in many countries are participating on a co-operative basis to pool information in the ILDIS World Database of Legumes, which is used to provide a worldwide information service through publications, electronic access and enquiry services.

Integrated Taxonomic Information Systems (ITIS) **(www.itis.org)**

36. The ITIS includes documented taxonomic information of flora and fauna from both aquatic and terrestrial habitats based on a partnership of U.S., Canadian, and Mexican agencies (ITIS-North America); other organizations; and taxonomic specialists. ITIS is also a partner of Species 2000 and the Global Biodiversity Information Facility (GBIF). The goal is to create an easily accessible database with reliable information on species names and their hierarchical classification. The database is reviewed periodically to ensure high quality with valid classifications, revisions, and additions of newly described species.

7. Relevant CBD documents

The following documents are available on www.biodiv.org/cross-cutting/strategy and www.plants2010.org:

UNEP/CBD/ COP/6/INF/21/Add.1	A review of the scope, terminology, base-line information, technical and scientific rationale of the 16 targets included in the proposed Global Strategy for Plant Conservation, with particular reference to the quantitative elements they contain
UNEP/CBD/ COP/6/INF/21/Add.2	Opportunities for the implementation of the Global Strategy for Plant Conservation through the thematic and cross-cutting programmes of work of the Convention on Biological Diversity
UNEP/CBD/ COP/6/INF/21/Add.3	Nationally based initiatives that can contribute to the implementation of the Strategy
UNEP/CBD/ COP/6/INF/21/Add.4	Examples of regional and international initiatives relevant to the 16 targets

UNEP/CBD/ COP/6/INF/22 European Plant Conservation Strategy

The Programme of Work of the Global Taxonomy Initiative (www.biodiv.org/cross-cutting/GTI).

8. Case-studies

Examples:

The Southern African Botanical Network – SABONET (www.sabonet.org)

The African Plants Checklist Project

The Flora of China – www.mobot.org

IABIN - www.iabin.org etc.

9. Summary of progress in implementation at the global level

37. In this section, relevant links will be provided to elaborate the current status of implementation at global level, based on data available, as proposed by UNEP-WCMC (agenda item 3.4). Where possible and needed, regional links could be included such as to the European Strategy for Plant Conservation and other national initiatives.
