

CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/SBSTTA/6/10
8 January 2000

ORIGINAL: ENGLISH

SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

Sixth meeting

Montreal, 12-16 March 2001

Item 5.2 of the provisional agenda*

THE GLOBAL TAXONOMY INITIATIVE

Draft work programme

Note by the Executive Secretary

Executive summary

The fifth meeting of the Conference of the Parties requested the Executive Secretary to draft as a component of the strategic plan for the Convention on Biological Diversity a work programme for the Global Taxonomy Initiative (GTI) defining timetables, goals, products and pilot projects, and to report on progress in the implementation of the GTI. The Executive Secretary has prepared the present note containing a draft programme of work on the Global Taxonomy Initiative (GTI). A progress report on short-term activities (including regional meetings), the synthesis of findings from previous meetings and reports, and the establishment of the Global Taxonomy Initiative Coordination Mechanism is contained in document UNEP/CBD/SBSTTA/6/INF/4

The draft work programme consists of five operational objectives designed to address the multi-faceted nature of the problems of insufficient knowledge of all components of biological diversity and the lack of taxonomic capacity, through activities at global, regional and national levels. These objectives are intended to be mutually reinforcing and to be implemented in parallel.

Suggested recommendations

As a means to promote the implementation of the Global Taxonomy Initiative (GTI) to address the taxonomic impediment to conservation and management of the world's biodiversity identified in decisions II/2, III/10, IV/I D and V/9, the Subsidiary Body on Scientific, Technical and Technological Advice may wish to recommend that the Conference of the Parties:

/...

1. Endorse the draft work programme for the Global Taxonomy Initiative;
2. Urge Parties, Governments, international and regional organizations, and other relevant organizations to promote, and, as appropriate, carry out, the programme of work; and
3. Consider the need for arrangements to provide financial resources, in accordance with Articles 20 and 21 of the Convention on Biological Diversity, for activities and capacity-building for the implementation of the programme of work.

CONTENTS

<i>Executive summary</i>	1
<i>Suggested recommendations</i>	1
I. INTRODUCTION	4
II. PROPOSED PROGRAMME OF WORK.....	4
A. Overall objectives.....	4
1. What has the Conference of the Parties asked the GTI to be?.....	4
2. What should the GTI achieve?.....	5
3. Operational objectives	6
B. Taxonomic needs assessments at the national, regional and global levels.....	8
1. Operational objective 1 - Assess taxonomic needs and capacities at national, regional and global levels for the implementation of the Convention	8
C. Targeted actions	12
2. Operational objective 2 - Provide focus to help build and maintain the systems and infrastructure needed to collate and curate the biological specimens that are the basis for taxonomic knowledge.....	12
3. Operational objective 3 - 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.....	15
4. Operational objective 4 - Within the work on crosscutting 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.....	21
5. Operational objective 5 -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.....	25
III. MONITORING AND ASSESSMENT OF THE GTI	26
<i>Annex.. WHAT IS TAXONOMY IN THE GTI?</i>	27

I. INTRODUCTION

1. Broadly understood taxonomy is the classification of life, though it is most often focused on describing species, their genetic variability, and their relationships to one another. For the purposes of the Convention taxonomy is taken in its broadest sense and is inclusive of systematics and biosystematics at the genetic, species and ecosystem levels (see the annex to the present report).

2. The Global Taxonomy Initiative (GTI) covers the taxonomic information required to support the implementation of the Convention at all three levels of biodiversity (genetic, species and ecosystem), and is concerned with all organisms, i.e. plants, animals and micro-organisms.

3. The GTI has been established under the Convention on Biological Diversity (CBD) to underpin decision-making in conservation of biological diversity, sustainable use of its components and equitable sharing of the benefits derived from the utilization of genetic resources, by addressing:

(a) The lack of taxonomic information on the identity of components of biological diversity in many parts of the world, and

(b) The need to build capacity for taxonomic activity in all regions, but especially developing countries, including reference materials, databases, and taxonomic expertise relevant to the objectives of the Convention on Biological Diversity.

4. Decision V/9 of the fifth meeting of the Conference of the Parties (COP) requests the Executive Secretary to draft as a component of the strategic plan¹ for the Convention on Biological Diversity a work programme for the GTI defining timetables, goals, products and pilot projects.

5. The Conference of the Parties in establishing the GTI has done so specifically to support its work programmes in the thematic areas (marine and coastal biological diversity, agricultural biodiversity, dry and sub-humid land biological diversity, inland water biological diversity, forest biological diversity and mountain biological diversity), and in the cross-cutting issues (invasive alien species, access and benefit sharing, scientific assessments, indicators, traditional knowledge) of the Convention.

6. Section II contains a draft programme of work for the GTI. It presents successively (i) the overall objectives of the programme of work, (ii) activities addressing taxonomic needs assessments at the global, regional and national levels, and (iii) targeted actions within the broader work programmes of the CBD.

II. PROPOSED PROGRAMME OF WORK

A. Overall objectives

1. *What has the Conference of the Parties asked the GTI to be?*

7. Decision III/10 on Identification, Monitoring and Assessment, established the need for specific action under the Convention in capacity building in taxonomy, through the endorsement of recommendation II/2 of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA).

8. In decision IV/1 D, the Conference of the Parties endorsed, as initial advice, a set of Suggestions for Action to develop and implement a Global Taxonomy Initiative. The Conference

^{1/} The Strategic Plan of the Convention is currently under development within the Secretariat, and progress will be reported at the sixth meeting of the Conference of the Parties.

of the Parties stressed the urgent need for the further implementation of recommendation II/2 of the Subsidiary Body on Scientific, Technical and Technological Advice concerning capacity-building in all fields of taxonomy to assist in the implementation of the Convention, through the incorporation of targeted actions in its work plan, including promoting regional activities to set regional agendas.

9. In decision V/9 the Conference of the Parties have adopted a range of activities for the GTI, including the preparation of a work programme for the Global Taxonomy Initiative defining timetables, goals, products and pilot projects. The format adopted has taken into account that provided in decision V/20 on operations of the Convention, which specifies the following parameters:

- (a) Planned activities;
- (b) The expected products;
- (c) The timing of each of these activities and products;
- (d) The actors carrying out these activities and cooperation with relevant organizations;
- (e) The mechanisms used to realize and/or support the goals and activities, or to generate the expected products; and
- (f) Financial, human-resource and other capacity requirements.

10. In addition the Conference of the Parties has urged that "pilot projects" for the GTI be submitted to the Executive Secretary and the Global Taxonomy Initiative coordination mechanism by Parties, Governments and relevant organizations by 31 December 2001 (decision V/9).

2. *What should the GTI achieve?*

11. The GTI should seek to provide the key information required for the implementation of the Convention on Biological Diversity, particularly Article 7 on Identification and Monitoring, through increasing the fundamental biological data essential to underpin the conservation, sustainable use and equitable sharing of the benefits from the utilization of biological diversity. That is, to address the problems of insufficient knowledge of all components of biological diversity (including their classification, description, value and function) and lack of taxonomic capacity, to overcome what has been termed "the taxonomic impediment".

12. In formulating the programme of work to achieve this end the GTI should provide the global platform to help accelerate current taxonomic efforts in areas identified as high priority by countries and regional groupings of countries.

13. The proposed GTI programme of work has been designed to focus on supplying the needed taxonomic information to support the major work areas of the Convention, and the need to support capacity building to ensure the ability of countries to undertake the priority taxonomic work required to implement the Convention.

14. This programme of work is proposed to fulfil the following functions:

- (a) To contribute to the implementation of the Convention's strategic plan (in preparation).
- (b) To set operational objectives with clear expected outputs and ways and means through which to achieve the set objectives;

(c) To provide the rationale for the choice of the operational targets, with indications of opportunities for further elaboration of the programme of work; and

(d) To serve as a guide to all biodiversity stakeholders on specific objectives to which they can contribute or collectively; at the local, national or international level.

3. *Operational objectives*

15. In considering the following five operational objectives, it will be necessary to address capacity building specifically with regard to human resources, system and infrastructure needs in taxonomy, at the local, national, regional and global levels.

Operational objective 1: Assess taxonomic needs and capacities at national, regional and global levels for the implementation of the Convention.

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

Operational objective 3: 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 4: 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.

Operational objective 5: 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.

16. Diagram 1 summarizes the rationale and linkages between the above operational objectives.

17. It is important to note that the planned activities described in sections B and C below are designed to be mutually reinforcing in achieving the overall objective of the GTI, and outputs from one objective will help facilitate greater achievement of the other activities.

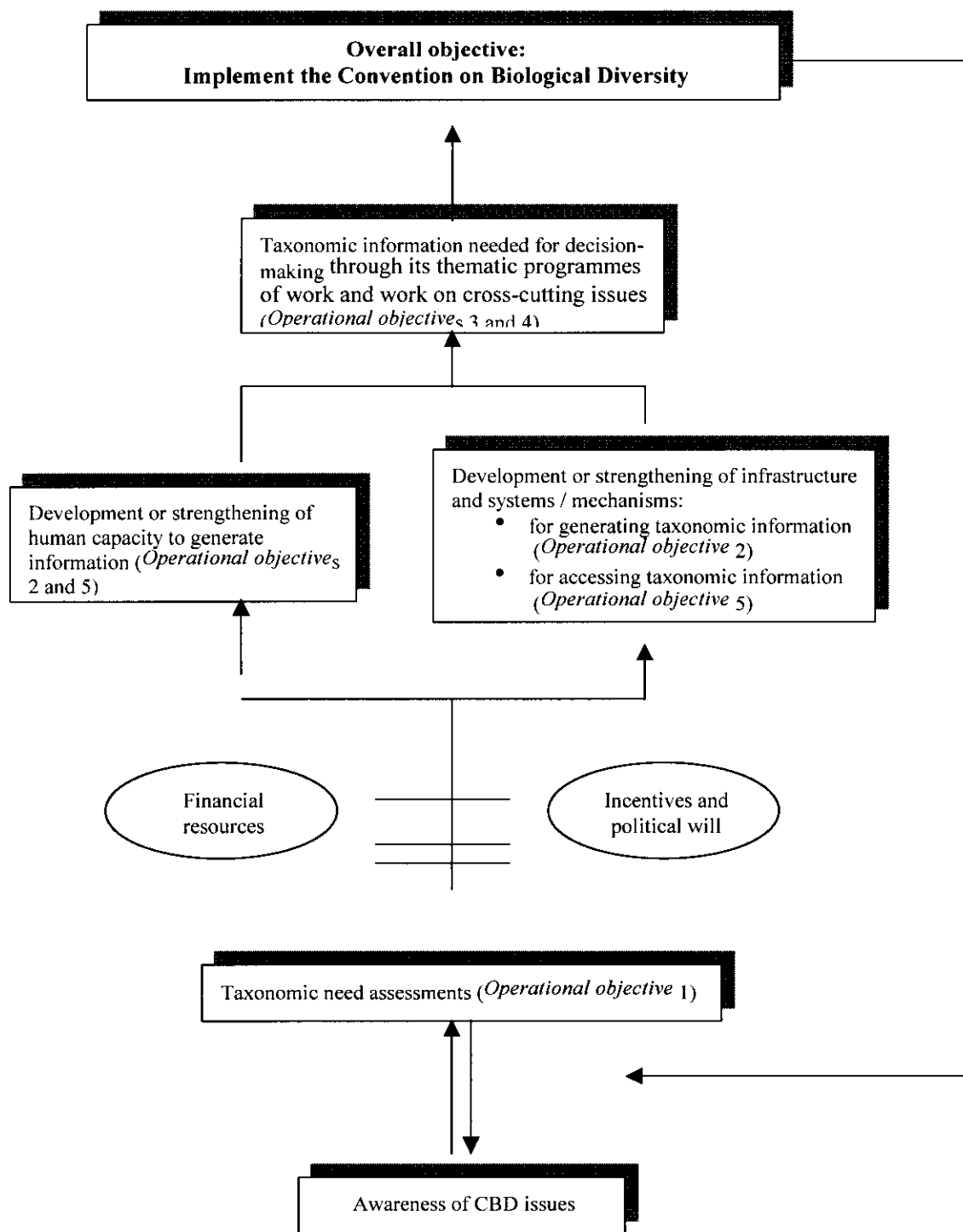


Diagram 1. Rationale and linkages between the five operational objectives of the proposed programme of work

B. Taxonomic needs assessments at the national, regional and global levels

1. Operational objective 1 - Assess taxonomic needs and capacities at national, regional and global levels for the implementation of the Convention

1.1. Planned activity 1: Country-based taxonomic needs assessments and identification of priorities

(i) Rationale

The COP in Decision IV/1 D recognized the need for each country to conduct a national taxonomic needs assessment. Furthermore in Decision V/9 the COP urged Parties, Governments and relevant organizations to undertake as a priority activity, assessments of national taxonomic capacity to identify and, where possible, quantify national and regional-level taxonomic impediments and needs. Assessments should be undertaken within the framework of undertaking the necessary planning to produce or update national biodiversity strategies and action plans under the Convention. To this end the needs assessments will be required to clearly articulate how the lack of taxonomic information and/or capacity is an impediment to the implementation of national biodiversity strategies and action plans.

The GEF has been requested to support developing countries in undertaking the necessary needs assessments upon which to base action (Decision III/5 provides additional guidance to the GEF to provide financial resources to developing countries for country-driven activities and programmes, targeting capacity-building, including taxonomy, to enable developing countries to develop and carry out an initial assessment for designing, implementing and monitoring programmes. Dec V/9 urges eligible Parties and consortia of eligible Parties to seek resources for the agreed priority actions, including needs assessments through the financial mechanism).

(ii) Outputs

Each country would provide through their national biodiversity strategies and action plans, as well as through national reports to the COP, a report on their taxonomic capacity and priority needs, which would then be disseminated through the Convention's clearing-house mechanism.

(iii) Timing

Decision V/9 the COP urged Parties, Governments and relevant organizations to undertake this priority activity but did not set a specific timeframe. As this is a fundamental part of the process of clearly identifying solutions to current lack of capacity it is very important, where possible, for all countries to complete their needs assessment by October 2001 for compilation by the Executive Secretary for consideration by the sixth meeting of the Conference of the Parties.

(iv) Actors

National Governments with the support of national and international organizations and institutions as needed, would take primary carriage of this activity. The Executive Secretary would compile completed assessments into an information paper for the sixth meeting of the Conference of the Parties.

(v) Mechanisms

The GEF was requested to provide funds for countries to undertake their needs assessments as part of a broader biodiversity information requirements process. An approach for the development of a standardised framework and instruments will facilitate compilation and comparison of information for baseline assessments and ongoing monitoring. As initial advice a list of issues to be addressed has been developed by DIVERSITAS, and was provided to the fourth meeting of SBSTTA (UNEP/CBD/SBSTTA/4/INF/7).

(vi) *Financial, human resources and other capacity requirements*

National Governments will be required to fund this activity, potentially with additional support from the GEF and donors.

(vii) *Pilot projects*

The development of guidelines for the preparation of country-based taxonomic needs assessments, with specific advice on the integration within the overall implementation of national biodiversity strategies and action plans, is proposed as a pilot project to be undertaken by a relevant international organization or consortium of organizations.

1.2. *Planned activity 2: Regional taxonomic needs assessments and identification of priorities*

(i) *Rationale*

Ideally country level needs assessments provide the core input into the development of an assessment of regional capacity, the gaps in capacity across the region, and finally the setting of priority actions to fill the gaps. In many regions of the world it will be advantageous to pool resources and to act cooperatively in building taxonomic capacity to support conservation and decision-making. Regional activities in taxonomy have been supported by COP in decisions III/10, IV/1/D and V/9, which all identify regional level activities as a major activity for the GTI. Decision III/10 endorsed recommendation II/2 of the SBSTTA which sought to prioritise strengthening of regional and sub-regional networks for taxonomy, regional collaboration and regional and sub-regional training programmes. Decision IV/1/D stressed the urgent need for the further implementation of recommendation II/2 of the SBSTTA concerning capacity-building in all fields of taxonomy to assist in the implementation of the Convention, through the incorporation of targeted actions in its work plan, including promoting regional activities to set regional agendas. Decision V/9 urged for the identification of national and regional priority taxonomic information requirements. Furthermore Decision V/9 called for short-term activities, including regional meetings of scientists, managers and policy makers to prioritize the most urgent global taxonomic needs and facilitate the formulation of specific regional and national projects to meet the needs identified.

(ii) *Outputs*

Combined with best available information on national taxonomic needs (if possible national taxonomic needs assessments), regionally agreed plans of action, that provide identified priorities, will provide a clear focus for activities under the GTI. To develop such plans of action regional workshops will be held, under the general guidance of the Executive Secretary and the GTI coordination mechanism. The challenge of the workshops will be to blend academic advice and perspective with country needs to fulfil its obligations under the Convention.

(iii) *Timing*

Two regional workshops, one in Africa and one in Central America, are currently planned for 2001 funded by the Swedish International Development Agency (SIDA). Planning for a workshop in Asia and North America hopefully to also be held in 2001 has begun.

Ideally the GTI should endeavour to hold all regional workshops by the end of 2001, preferably by October 2001 as input to discussion in COP-6.

(iv) *Actors*

National governments, taxonomic institutions and global, regional and bilateral funding agencies are the main actors in the development of regional taxonomic needs assessments and priorities.

(v) Mechanisms

Existing or proposed regional biodiversity projects, as well as national biodiversity strategies and action plans will provide a key mechanism for identification of the most urgent taxonomic information requirements at the regional level. The development of regional taxonomic needs assessments and priorities is best facilitated through regional workshops supported by prior research into country level capacity, compiled into regional syntheses. Active regional networks of taxonomists would be best placed to facilitate the compilation of national needs assessments into cohesive regional syntheses.

(vi) Financial, human resources and other capacity requirements

The government of Sweden has agreed to fund two regional workshops in 2001. Additional workshops in Asia, North America and Europe are being actively discussed, though no identified sources of funding have been agreed at this stage.

(vii) Pilot projects

Existing or proposed activities (or elements of activities) in some regions could be considered as pilot studies in the preparation of regional based taxonomic needs assessments, such as SABONET and SAFRINET in southern Africa, and BOZONET in Eastern Africa. However these existing activities need to be broadened to include all taxa, as well as input from the full range of biodiversity stakeholders needing taxonomic information. It is intended that the outputs from each regional workshop will be shared with all future workshops in order to facilitate clear and unambiguous, readily achievable pilot projects.

*1.3. Planned activity 3: Global taxonomic needs assessment**(i) Rationale*

Given the nature of taxonomic activity, and the lack of knowledge of key groups of organisms with global distributions of importance to humankind and biodiversity concerns, a global dimension is critical. It is widely recognized that generally there is very little data available on global diversity and distribution patterns, and where it does exist it is usually in non-standardised formats that may restrict its usefulness. Agreed global cooperation to finalise taxonomic work on globally important groups should involve both developed and developing countries, and will provide a major input into development of capacity building initiatives. The global taxonomic needs assessment can result from a compilation of the regional taxonomic needs assessments, with activity to provide some agreed priority actions that can be undertaken at the global level.

(ii) Outputs

A concise global plan of action using the outputs from the regional workshops, with the advice and support of international organizations and the GTI Coordination Mechanism.

(iii) Timing

A draft global plan of action on priority groups for study should be finalized by October 2001, as input to discussions at the sixth meeting of the Conference of the Parties.

(iv) Actors

National governments, taxonomic institutions and global, regional and bilateral funding agencies are the main actors in the development of global taxonomic needs assessments and priorities. At the global level organisations such as but not limited to, FAO, IUCN, UNEP-WCMC, UNESCO, the Ecosystem Conservation Group (ECG), and programmes such as BioNET INTERNATIONAL,

DIVERSITAS, GBIF, Species 2000, and Systematics Agenda 2000 International among others, will also have key roles to play.

(v) *Mechanisms*

A workshop focusing on global level taxonomic priorities should be organized, perhaps through the Ecosystem Conservation Group and GBIF. The taxonomic requirements of the Millennium Ecosystem Assessment should be a significant focus of setting global priorities. Such a workshop could be held in a developing country to highlight their special needs.

(vi) *Financial, human resources and other capacity requirements*

Funding should be sought for this activity from Parties, the GEF and key intergovernmental and non-governmental science based institutions interested in this activity.

(vii) *Pilot projects*

Some pilot projects already exist that address some elements of this activity, such as ECOPORT, Species 2000, and the developing GBIF projects.

1.4. Planned activity 4: Public awareness and education

(i) *Rationale*

The need to raise awareness and to educate on the importance of taxonomy to underpin the Convention is critical to the success of the Global Taxonomy Initiative, and within the programme of work it is necessary to identify and target those groups who would benefit from increased awareness and education. In developing a public awareness and education package it will be necessary to balance between the needs for formal education as well as the need for wider public awareness raising. This activity will best be developed in conjunction with the activity underway following decision V/17 on education and public awareness, jointly by the CBD and UNESCO. This joint activity will provide the focus for public awareness and education on taxonomy within the Convention through the development of a specific module on taxonomy. The module would trial techniques to develop regionally appropriate public awareness tools to help remove the taxonomic impediment, which would be refined in the later stages of the education and public awareness activity under the Convention, and should focus on educational materials for training to facilitate implementation of the Convention.

(ii) *Outputs*

A package of materials and activities aimed at broadening public understanding of the importance of taxonomy in achieving the objectives of the Convention. Examples could include a brochure on GTI, enhancement of Web pages, tutorials for education managers, popular scientific films etc. A special focus on using the Public awareness activity to acquire new levels of taxonomic information, *inter alia* through public involvement in parataxonomic activity, should form part of these initiatives.

(iii) *Timing*

Activities will be planned in 2000, and executed in 2001.

(iv) *Actors*

At the global level this activity could be jointly executed by the CBD Secretariat and UNESCO, but with prime carriage for this project by regional networks in conjunction with key taxonomic institutions that already have considerable experience in public awareness programs, and have indicated willingness to participate in GTI activities.

(v) Mechanisms

Toolkits addressing particular taxonomic issues will be developed by the lead agencies for trial in selected regions of developing and developed countries. A key mechanism will involve participatory activity by local communities to strengthen the training and awareness raising for para-taxonomists.

(vi) Financial, human resources and other capacity requirements

This work element will be undertaken by the joint CBD/UNESCO public awareness activity, with resources added from participating taxonomic institutions.

(vii) Pilot projects

Pilot projects should be developed within the joint CBD/UNESCO public awareness activity. The recent activities of Systematics Agenda 2000 International and BioNET INTERNATIONAL in this area could also be expanded into pilot projects under the GTI.

C. Targeted actions

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

2.1. Planned activity 5: Global and regional capacity building to support access to taxonomic information

(i) Rationale

A significant impediment to majorly increasing the world's taxonomic base for the implementation of the Convention, and indeed more effectively utilizing the current taxonomic knowledge lies in the limited capacity in many nations, and the decreasing taxonomic capacity world-wide. A key objective of the GTI should thus be to address the global and regional capacity building needs, particularly of developing countries. There are two main areas of concern that need to be addressed simultaneously:

- Human capacity building
- Infrastructure capacity building.

Human capacity building requires major increases in training programmes for taxonomists and para-taxonomists throughout the world, for it is now well established that the "taxasphere", the world's global taxonomic expertise is currently shrinking just at the time when we need it to rapidly advance our knowledge base.

Maintaining and improving the existing taxonomic infrastructure can only be achieved through adequate funding, and new strategies are required to make optimal use of our past investments, while minimising the costs and maximizing the benefits of future investments. Decisions IV/1/D and V/9 of the Conference of the Parties have urged countries to establish or consolidate regional and national taxonomic reference centres. There is a need to explore globally how the best possible outcomes for improving taxonomic capacity can be achieved. The GTI should address at the global and regional levels the coordination of collections infrastructure within countries and regions leading to improvements of long-term infrastructure regionally. Furthermore such strategic planning should therefore encourage the creation or strengthening of national and regional taxonomic reference centres.

(ii) *Outputs*

Increased human and institutional taxonomic capacity directed at meeting the needs of implementing the Convention.

(iii) *Timing*

Activities need to begin immediately, and be included in all work elements throughout the programme of work, with priority in covering the major upcoming work areas of the Convention in a timely manner, such that increases in capacity are achieved prior to the major element of work being undertaken.

(iv) *Actors*

All governments, international and national funding agencies, biosystematic institutions and taxonomic organizations have a role to play. Within Planned activities 1 and 2 above, the development of national and regional taxonomic priorities, detailed regional priorities for capacity building, both human and institutional, should be addressed.

(v) *Mechanisms*

Decision III/ 10 endorsed the recommendation II/2 of the SBSTTA concerning capacity-building for taxonomy, in which the GEF has been requested to provide funds for training programmes, strengthening reference collections, making information housed in collections available to countries of origin, producing and distributing taxonomic guides, strengthening infrastructure, disseminating taxonomic information *inter alia* through the CHM. The GEF will consider financing strategic components of demonstration projects consistent with the GEF's mandate, Operational Strategy, and Operational Programs. Therefore in GEF projects, capacity building in taxonomy should be a component of a larger intervention aimed at the conservation and sustainable uses of biodiversity.

(vi) *Financial, human resources and other capacity requirements*

The financial and human resources requirements of this activity are substantial. However, through national and regional priority setting it will be possible to take a staged approach to undertaking the work required.

(vii) *Pilot projects*

Consortia of major institutions should participate in the development of pilot projects to identify priority capacity building activities, through facilitating regional conferences to document existing holdings and by designating lead agencies in a collegiate process to maximizing taxonomic effort across all groups.

SABONET and BioNET INTERNATIONAL are two existing examples of projects that could be considered pilots of a regional and global approach, respectively that could be strengthened to provide greater capacity building activities. The Smithsonian Institution has submitted a potential pilot project on neo-tropical moths that could also be considered for regional capacity building.

2.2 *Planned activity 6: Strengthening of existing networks for regional cooperation in taxonomy*

(i) *Rationale*

To facilitate the development of cooperative programmes that increase taxonomic capacity in developing countries through fostering North-South and South-South collaboration.

Taxonomic capacity in terms of both human and institutional capacity varies widely between countries and regions. Although many developed countries have relatively comprehensive

reference collections and a number of experts, no single country has a complete taxonomic inventory of national biodiversity, nor experts in all relevant taxonomic groups. In many cases, developing countries have very little or no physical reference collections of local biodiversity, nor trained personnel. Much of the existing reference material from developing countries resides in the expert institutions of the developed world, as do the experts in particular taxonomic groups. However, even in developed countries taxonomy has been under-resourced for many years, leading to a general decline in infrastructure, and a dearth of younger professionals.

In order to facilitate taxonomic capacity building to underpin the CBD, cooperative programmes need to be established and/or strengthened between countries with the expertise and reference materials, and those without. A number of regional networks that facilitate cooperation between countries in building taxonomic capacity in certain taxonomic groups currently exist, e.g. SABONET, a cooperative network between 10 countries in southern Africa focussed on flowering plants. The most comprehensive network currently in existence is BioNET-INTERNATIONAL, the Global Network for Taxonomy. This initiative currently has seven extant sub-regional networks covering some 120 countries, with another four under development, and a further five planned. It is envisaged that these sixteen networks will provide a global coverage of collaborative North-South and South-South networks for taxonomic capacity building. The Global Network for Taxonomy is a donor-funded programme and the rate of network establishment is dependent on adequate continued funding. In establishing sub-regional cooperative networks BioNET-INTERNATIONAL works through official governmental endorsement and comprehensive needs assessment activities to establish regional and national priorities.

(ii) Outputs

A global network ideally comprised of increasingly self-sufficient sub-regional networks that covers all taxa. Whilst the actual capacity building initiatives should have a finite project-based life, ideally the networks themselves would remain in perpetuity once established and underpinned by member country governments.

(iii) Timing

Given that the lack of taxonomic capacity is a severe impediment to countries' abilities to meet their obligations under the Convention on Biological Diversity, and that most taxonomic capacity can readily be shared and utilised across institutional and national boundaries, it follows that building of taxonomic capacity can best be facilitated by sub-regional cooperative networks. Therefore the strengthening and/or building of regional networks should be completed by December 2001, particularly ensuring that existing relevant networks become fully operational across the full spectrum of taxonomic groups, and strategies in place to complete the global coverage.

(iv) Actors

Existing regional and sub-regional networks, with assistance from BioNet INTERNATIONAL and UNESCO could be utilized to build a more complete coverage. These networks should play the role of implementing mechanisms, such that the GTI has access to, and interaction with all relevant taxonomic institutions within a sub-region.

To facilitate this development the expert institutions of the developed world which house the relevant sub-regional taxonomic reference materials and information, and the professional staff with expertise in taxonomic groups from these sub-regions, should be actively involved.

(v) Mechanisms

An agreed strategy on strengthening and building networks to ensure global coverage both geographically and by taxon group is a huge undertaking. Different countries and regions have different levels of capacity, and different taxonomic needs and priorities. Existing sub-regional networks can serve as implementing mechanisms for improving taxonomic capacity in developing

countries. These existing networks need to be broadened in scope, and the establishment of the remaining networks currently under development or in the planning stages needs to be undertaken as soon as possible. This will require completion of needs assessments and priority setting for each network, where these do not exist or need updating and/or expansion. Regional taxonomic reference centres that house network reference materials and host the network's Information and Communications System provide a useful mechanism to prevent duplication of infrastructure, but they require sound means of communication to enable all countries involved equal access to the information.

(vi) *Financial, human resources and other capacity requirements*

Funding will be required to support the work programmes of the individual networks, but the countries themselves need to endorse the operations and specifically the human resource and institutional costs of maintaining, operating and developing such collaborative networks. These costs will depend on the status of each country's capacity and the scope of the work programmes. Such collaborative networks can be cost-savings mechanisms in certain taxonomic groups/areas because of the 'economies of scale' produced by the sharing of taxonomic capacity, and reduce the need for each country to individually attempt to build the needed capacity.

Ideally the networks should have a dedicated full-time secretariat, but depending on needs, they can be operated on a part-time basis by staff already employed within relevant institutions.

Capacity-building in taxonomy necessarily includes the infrastructure capacity to house reference material, together with all of the reference material and equipment to enable identifications.

(vii) *Pilot projects*

Three pilot projects can be proposed. The first pilot project would work with one of the existing BioNET-INTERNATIONAL networks and evaluate the current structure, mechanisms and operations of the network to assess its ability to expand to fully meet the objectives of the GTI in underpinning the CBD. Currently many of the existing BioNET-INTERNATIONAL networks are focussed on micro-organisms and invertebrates often with an agricultural orientation, and as such would need to be expanded to include all taxon groups and relevant institutions. The second pilot project would be undertaken in partnership with BioNET-INTERNATIONAL in the establishment of new networks designed to meet the requirements of the Convention. The third project is currently under formulation under the name BOZONET, and is an eastern African taxonomic capacity building project for botany and zoology.

3. Operational objective 3 - 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.

It is recognized that taxonomy is fundamental to the thematic areas of the CBD through discovery, identification, and documentation of biological diversity. Because there are inadequate global taxonomic resources to meet all demands, it is important to indicate taxonomic priorities within each of the thematic areas of the CBD. [Within existing thematic work programs, workshops should be conducted in appropriate regions, involving taxonomic experts to identify key taxa for inventory and monitoring programs].

3.1 Planned activity 7: Forest biological diversity

(i) *Rationale*

In the annex to decision IV/7 on forest biological diversity containing the Work Programme on forest biological diversity, under programme element 3 on criteria and indicators for forest biological diversity, the following activity is identified: *Taxonomic studies and inventories at the national level, which provide for a basic assessment of forest biological diversity.*

(ii) *Outputs*

An increased knowledge of the species composition of forests, through national taxonomic studies and inventories. Using this increased knowledge base facilitates selection of criteria and indicators for forest biological diversity and may guide in the selection of sites to be protected and in the valuation of resources.

(iii) *Timing*

As this activity is carried out at the national level there will be variable timetables globally. The 2nd round of national reports for the implementation of the Convention are due in June 2001, and will provide an opportunity for countries to report on taxonomic studies and inventories carried out at the national level which provide for a basic assessment of forest biological diversity.

(iv) *Actors*

National governments and institutions will have the main responsibility, with possible advice from ITFF member agencies on methodologies for the development of appropriate criteria and indicators. The active involvement of international organizations such as CIFOR, ICRAF, and IFF will provide useful links between existing initiatives.

(v) *Mechanisms*

In decision IV/7, the Conference of the Parties agreed that countries would review specific indicators of forest biological diversity derived by the major international processes related to sustainable forest management. Depending on the selection of the criteria and indicators chosen then additional taxonomic studies and inventories will be required.

(vi) *Financial, human resources and other capacity requirements*

This will be country dependent, and resource requirements and sources will vary.

(vii) *Pilot projects*

To facilitate the implementation of one element of the Forest Biological Diversity Programme of Work, a pilot project is proposed in the selection of Indicators for below ground diversity in forests in each of the three forest biomes: tropical, temperate, boreal. While there is a need to continue developing knowledge in many components of forest ecosystems, the least known, and highest priority, is the belowground biological diversity. It is understood that it plays a major role in contributing to the development and the health of the above-ground biological diversity by, for instance, processing nutrients or minerals that are then made available to, and assimilated by, plant biodiversity.

3.2 *Planned activity 8: Marine and coastal biological diversity*

(i) *Rationale*

Two major elements of taxonomic work within marine and coastal ecosystems can be considered as high priority for achieving the Convention's objectives in marine and coastal systems, namely ballast water organisms, and key organisms for monitoring the health of mangrove systems through their invertebrate fauna. The ballast water organisms sub-element will require, *inter alia*, a focus on pelagic juvenile stages of benthic organisms. The second element focuses on mangroves, which are among the world's most rapidly changing systems. Within the marine and coastal biodiversity programme of work there is a need to develop taxonomic support for baseline monitoring of invertebrate fauna in mangrove systems.

(ii) Outputs

Identification aids for quarantine and other officials to identify and monitor the introduction of novel marine organisms.

Taxonomic guides to key invertebrate organisms in mangrove systems to aid management of the continuum from natural to disturbed mangrove ecosystems. Taxonomic data will also assist in selecting sites for protected areas and for resource valuation.

(iii) Timing

Within the GloBallast programme timeframe produce basic guides for the identification of major organism groups found in ballast water at major sources.

Within the next three years develop taxonomic guides to the identification of mangrove invertebrate fauna that can be used as indicators of habitat change.

(iv) Actors

The International Maritime Organization (IMO) should take the lead role in the taxonomic work in ballast water, under their GloBallast Work Programme, which would then be integrated with the activities foreseen under the invasive alien species work of the Convention on Biological Diversity, and the GTI programme of work.

International conventions, in particular the Ramsar Convention, and taxonomic institutions with expertise in coastal invertebrates should play a key role in conjunction with national institutions from Parties with significant extent of mangrove ecosystems under threat, in the implementation of the necessary taxonomic work.

(v) Mechanisms

The IMO GloBallast work programme could include a taxonomic component for the identification of marine pelagic taxa, including those with adult benthic forms, which will form a key element of the GTI in the marine environment. The International Society for Mangrove Ecology could facilitate the development of the work element on mangrove invertebrate fauna, including training workshops of key personnel from taxonomic institutions in tropical areas. Three workshops, one in Africa, one in the neotropics and one in Asia have been suggested and are in preparation for 2001 with support from UNESCO. ICRI and its network can assist with regard to coral reefs.

(vi) Financial, human resources and other capacity requirements

The IMO GloBallast programme could provide the appropriate resources for a pilot project involving 6 developing countries.

Funding support is required for the three capacity building workshops as well as appropriate infrastructure support for the mangrove invertebrate taxonomy and production of guides and ICRI work.

(vii) Pilot projects

The GloBallast programme is a pilot project underneath the IMO, with direct relevance to the invasive alien species and GTI programmes of work.

A pilot project focused in south east Asia on mangrove invertebrates, particularly involving Malaysia, Indonesia and Philippines could be developed in conjunction with ICLARM and ISME.

3.3 *Planned activity 9: Dry and sub-humid lands biodiversity*

(i) *Rationale*

Decision V/23 on consideration of options for conservation and sustainable use of biological diversity in dryland, Mediterranean, arid, semi-arid, grassland and savannah ecosystems, establishes a programme of work, including, *inter alia*, assessment of the status and trends, identification of specific areas within dry and sub-humid lands of particular value for biological diversity and/or under particular threat, and the further development of indicators. Under each of these activities targeted actions on furthering the knowledge base on the organisms that maintain the crucial soil crust should be developed at national and regional levels, as well as the need for greater knowledge of the micro-organisms in nutrient cycling, and increased taxonomic information of pests and diseases.

Correct identification of crust forming lichens often requires special identification aids and techniques, and the development of such tools are required for increasing the capacity of rangeland managers to understand their function in maintaining dry-land ecosystems. Increasing taxonomic capacity to identify the lichens, and to then develop identification tools is required in many parts of the world. Importantly such identification tools must be designed so that they are capable of being used by rangeland managers to help in identification of key organisms.

(ii) *Outputs*

Enhanced understanding among agricultural and rangeland managers of lichens as key indicators warning of the advance of soil degradation. This will usually be in the form of loss of particular species from the system. Taxonomic work will need to develop easily used identikits for key soil lichens, algae, soil invertebrates and herbivores that will be the harbingers of change.

(iii) *Timing*

By the sixth meeting of the Conference of the Parties, have developed identification aids in consultation with appropriate national taxonomy and management agencies.

(iv) *Actors*

The Convention to Combat Desertification (CCD) and other environmental conventions and their relevant collaborators, international agencies (including CGIAR systems), rangeland managers and national governments.

(v) *Mechanisms*

Cooperation with CCD and other key players among international organizations

(vi) *Financial, human resources and other capacity requirements*

To facilitate global and regional cooperation and synergy in this work, a project which could attract funding from the CGIAR system, in conjunction with FAO, can be proposed.

(vii) *Pilot projects*

A pilot project could be developed between CCD, FAO and UNEP to assess different biological and biochemical indicators of land degradation. This project would require input from a range of taxonomic experts, including algologists and lichenologists. Input would also be required from soil scientists, who can link abiotic information with the taxonomic information obtained. Results can be distilled to a simple identikit system that will allow local managers to identify key species and determine the health of their arid/semi-arid system.

3.4 *Planned activity 10: Inland waters biological diversity*

(i) *Rationale*

As in all other major ecosystems the current status of taxonomic knowledge in inland waters is varied both geographically, and according to the major taxon groups. For the purposes of the GTI targeted activities in rapidly increasing worldwide knowledge of freshwater fish and invertebrates are proposed as high priority.

(ii) *Outputs*

A series of regional guides to freshwater fish and invertebrates (including adult terrestrial forms where appropriate) as an input to ecosystem monitoring for river and lake health.

(iii) *Timing*

Produce field-useable regional guides within two years for both professional and public use.

(iv) *Actors*

National agencies and taxonomic institutions, especially museums should play a principal role in the implementation of this activity. International support and coordination could be provided through UNESCO's key science activity 'Water and Ecosystems'. Parataxonomists, in the form of interested public and school students in a number of countries have been using the technique to monitor aquatic health. This is an area that could be built upon, and maybe also linked through to planned activity 3.4.

(v) *Mechanisms*

Changes in the species compositions and abundance of macro invertebrates in freshwater systems are now being studied worldwide as part of approaches to monitoring of ecosystem health. A number of key potential partners are possible for this activity, including from developed and developing country perspectives. The Scientific and Technical Review Panel of the Ramsar Convention should also be involved in this project to provide specialist expertise, and a focus on the concept of using taxonomy to help understand ecological change.

(vi) *Financial, human resources and other capacity requirements*

There is opportunity to build on existing projects here, or assist regional collaboration between existing projects, which would contribute to the implementation of the GTI while simultaneously improving monitoring of ecosystem health.

3.5 *Planned activity 11: Agricultural biological diversity*

(i) *Rationale*

Within the Agricultural Biological Diversity Programme of Work several areas require taxonomic capacity in order to fully deliver on their objectives. The need for taxonomy ranges from classical taxonomy of the species living in agricultural ecosystems, to the taxonomy of agriculturally important species' wild relatives, to access to existing taxonomic information including basic knowledge on the functional relationships between organisms often recorded by taxonomists.

The need for increasing the world's para-taxonomy base through the training of farmers and on-the-ground ecosystem managers in identification and collection of all aspects of agro-ecosystems is also a highly important component of Integrated Pest Management.

Within the agricultural biodiversity work programme specific taxonomy related activities are envisaged in the following subject areas: pollinators (decision V/5), soil biodiversity (decision V/5), and Integrated Pest Management (IPM) (decision V/5).

As the agricultural biological diversity work programme develops significant taxonomic activities will need to be integrated within the proposals for work.

(ii) *Outputs*

Outputs would include: easy to use keys to families, genera and species of pollinators; automated identification systems for pollinators; development of standard methods for identification of soil biodiversity to different taxonomic levels; increased knowledge of soil biodiversity to aid in the identification of indicators of below ground biological diversity 'health'; and taxonomic training for farmers and ecosystem managers.

(iii) *Timing*

Within the agricultural biodiversity work programme the taxonomy related activities are part of the timeframe for the development of the overall activity. Current timeframes are as follows:

Pollinators – A planning meeting is expected to take place in late 2000, with the aim of developing a full project proposal in 2001, which will be submitted to SBSTTA-7, including the taxonomic elements.

Soil biota – to be developed within the timeframe of the GEF project.

Functional guides and parataxonomy for IPM – A proposal for activities will be developed, as part of the package of work for the seventh meeting of SBSTTA.

(iv) *Actors*

The FAO has been invited by the Conference of the Parties in decision V/5 to lead the International Pollinators Initiative (IPI), and will prepare a proposal for the development of the IPI for the seventh meeting of SBSTTA.

The Tropical Soil Biology and Fertility (TSBF) Programme hosted by UNESCO in Nairobi are the proposed executing agency for a full-sized GEF project, which includes major taxonomic components for assessing below ground biodiversity.

A possible lead agency for the Functional guides and parataxonomy for IPM is the Global IPM Facility, which is a programme co-sponsored by FAO, UNEP, UNDP and the World Bank, based in Rome.

(v) *Mechanisms*

The International Pollinators Initiative (IPI) will contain a major taxonomic component, and the project is currently under development.

A major taxonomic element needs to be built into all current and proposed projects dealing with the sustainable use or conservation of agricultural and non-agricultural lands, if we are to advance our knowledge base on the functional aspects of maintaining ecosystem processes.

Within the IPM component of the agricultural biodiversity work programme a scoping exercise should be undertaken to determine where the limitations exist in terms of taxonomic information, from basic alpha-taxonomy of pests and natural enemies, to how the information is presented and distributed. This work can be coordinated through the Farmer Fields Schools, in consultation with

the International Agriculture Research Centres (IARC), perhaps through the CGIAR system wide programme on IPM.

(vi) *Financial, human resources and other capacity requirements*

All three elements require resources to be identified within existing and new projects, as well as additional resources to be made available to increase technical capacity in most countries of the world.

(vii) *Pilot projects*

A major UNEP project entitled "Conservation and sustainable management of below-ground biodiversity" in seven countries is currently under assessment by UNEP. A pilot project on termites submitted by the Smithsonian Institution could also be considered.

3.6 *Planned activity: mountain biological diversity*

Development of this activity will be undertaken following discussion of this thematic work area at the seventh meeting of the Conference of the Parties. The GTI Coordination Mechanism could play an important role in proactively defining taxonomic needs related to this planned thematic activity.

4. *Operational objective 4 - Within the work on crosscutting 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.*

4.1 *Planned activity 12: Access and benefit-sharing*

(i) *Rationale*

The Conference of the Parties, in its decision V/26, identified "Assessment and inventory of biological resources as well as information management" as key capacity building needs with respect to access and benefit sharing arrangements. Indeed, the inventory of biological resources could provide useful information in view of the elaboration of measures regarding access to genetic resources and the equitable sharing of benefits arising from their exploitation. In order to carry out this inventory, increased capacity is often needed at the country level. The primary goal of the GTI is to assist countries in carrying out this inventory in a timely and efficient manner. A major element in increasing capacity to properly inventory and access biological resource information is effective information management. Therefore a key element of the Global Taxonomy Initiative must be the development of appropriate IT tools to allow access to existing data, as well as to provide efficient entry of new information generated from any increased knowledge.

Further each country can develop its capacity to properly inventory, collect, classify, and then commercialize its biological resources, the greater will be the return of benefits to that country. These four elements (inventory, collection, classification, commercialisation) can be seen as a hierarchy of increasing capacity. The Global Taxonomy Initiative will concentrate on developing capacity in the collection and classification of biodiversity. The Global Taxonomy Initiative should include projects designed to develop capacity in collecting and maintaining biological collections, as well as the proper classification and knowledge of the biological resources. This will then provide the foundation for the commercialisation of specific elements of the biodiversity. By increasing in-country capacity in collection and classification, the Global Taxonomy Initiative may provide new market opportunities in the commercialisation of biological resources based on equitable benefit sharing arrangements. In addition, taxonomic information including specifically at the genetic level will be critical in tracing the origin of resources and living modified organisms (LMOs).

Increasing access to existing information on biological resources outside of the country of origin has also been highlighted as a major element of the Global Taxonomy Initiative. In decision V/26

the COP urges countries to adopt measures that are supportive of efforts to facilitate access to genetic resources for scientific, commercial and other uses, and associated knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant to the conservation and sustainable use of biological diversity.

The first step in facilitating access is provision of information, and the parties have agreed in decision IV/1 D to a series of actions that would increase access to information world-wide. Operational objective 5 of this work plan sets out a plan to begin to address this issue.

(ii) *Outputs*

Interactive catalogues of material available, linked to taxonomic collections in herbaria and museums. Taxonomic support, including at the molecular level, to provide clear identification of specimens in the *ex-situ* collections, especially in developing countries is needed.

A series of country driven projects could be carried out, combining the development of basic taxonomic capacity and an improved information base on biological resources.

These would assist in developing better linkages between existing initiatives that provide information electronically on genetic resources, as well as new projects to improve the access to, and range of, publicly available taxonomic information. In turn, a basis for the commercialization of components of that biological diversity would be provided.

(iii) *Timing*

Progress in global networking between countries and taxonomic institutions holding significant *ex-situ* collections should be accelerated within a 5 year timeframe.

Development of pilot projects should occur as soon as possible in 2001.

(iv) *Actors*

National (and international) culture collections, including microbial collections. The CGIAR system should be involved to select priorities for needed taxonomic effort.

Taxonomic Institutions in many countries contain significant holdings of *ex-situ* materials from other countries, and in particular from developing countries. Botanic Gardens hold both dead and live material, that may be of considerable interest to the country of origin of that material, and may also develop new or improved conservation techniques that could aid countries of origin in their conservation and sustainable use efforts.

The Commission on Plant Genetic Resources could play a key partnership role.

(v) *Mechanisms*

One of the first most important measures any country can take to encourage the sustainable use of its resources and ensure proper sharing of benefits derived from their exploitation is through developing knowledge regarding their own biodiversity, and in particular full cataloguing of their diversity. Through acknowledging the importance of developing taxonomic capacity and adopting a series of suggested actions and priority activities (COP decision IV/1/D and decision V/9), the COP has clearly indicated to Parties, Governments, relevant organizations, the major work that needs to be undertaken to build taxonomic capacity within countries.

The basic mechanism for undertaking these actions and activities is through country driven projects at the national, regional and subregional levels, which are to be implemented with the assistance of developed and developing country institutions that house *ex situ* collections (ie herbaria, botanic gardens, museums and zoos), and the financial mechanism. These country driven projects need to

be developed to clearly show how the development of basic taxonomic capacity leads to an improved knowledge base and understanding of the biological resources held by the country, which can then be used to attract the necessary investment in the full range of commercial uses of components of that biological diversity.

To achieve tangible results in the short term will require the promotion of a series of projects that have existing support from within both developing and developed world institutions, that clearly lead to a conservation or sustainable use outcome. A major action plan should be developed with FAO, CGIAR system and BioNET INTERNATIONAL as the key IGOs and NGO.

(vi) *Financial, human resources and other capacity requirements*

Capacity building of taxonomic institutions is a costly and ongoing matter, and strategic input to significantly help conservation and sustainable use efforts must be based on those areas where useful outcomes can be demonstrated in the short to medium term. Hopefully by demonstrating benefit this may then lead to further investment in infrastructure support and development.

New resources are needed to initiate activities, although existing resources within key organizations may be able to be mobilized for the development of an action plan.

4.2. *Planned activity 13: Invasive alien species*

Development of this activity will be undertaken based on priorities identified through GISP phase I and the review of the status of invasive alien species and of ongoing measures addressing invasive alien species under way within the Convention on Biological Diversity .

4.3. *Planned activity 14: Support in implementation of Article 8 (j)*

(i) *Rationale*

The COP has acknowledged that traditional biodiversity related knowledge (TBRK) has the potential to inform the activities of the CBD. Before this can happen indigenous and local communities require protection of their intellectual property in any collaborative efforts aimed at meshing traditional knowledge and science. Given that the GTI has the potential to make TBRK more accessible to a wide range of users due regard must be given to the concerns raised by indigenous and local communities regarding the right to preserve, protect and manage TBRK particularly traditional taxonomic knowledge.

In its decision V/16, the Conference of the Parties endorsed a programme of work to implement Article 8(j) based on a number of principles including; full and effective participation of indigenous and local communities, the valuing of traditional knowledge, acknowledgment of spiritual and cultural values and the requirement for prior informed consent from traditional knowledge holders.

Paragraph 17 requests the Parties to support the development of registers of traditional knowledge, innovations and practices of indigenous and local communities through participatory programs and consultations with indigenous and local communities, taking into account strengthening legislation, customary practices and traditional systems of resources management, such as the protection of traditional knowledge against unauthorised use.

A number of tasks in the 8(j) programme of work have a direct bearing on the proposed activities of the GTI in particular tasks 1, 2 and 7 in phase 1 and tasks 6, 10, 13, and 16 in phase 2 (decision V/16).

Traditional knowledge systems include taxonomic information which if used in combination with Linnaean taxonomies could support the GTI. Access to and use of traditional knowledge must have the prior informed consent of the holders of that knowledge and be based on mutually agreed terms. When this has occurred then comparison of indigenous taxonomies and Linnaean taxonomies in

different regions could be made to provide general principles to assist in the conservation and sustainable use of elements of biodiversity in different ecosystems.

(ii) Outputs

Regional and subregional guides based on ethical research practices and developed with full and effective participation of indigenous and local communities. These guides could highlight the similarities and differences between the two taxonomies and may be in the form of catalogues and species lists, or be more targeted resource material that provide interpretation material for a wide variety of environmental managers, and in particular protected area and conservation managers.

(iii) Timing

Preparation of guides to be completed as part of implementation activities under Article 8 (j).

(iv) Actors

National and sub-national governments, indigenous and local groups, indigenous research centres and indigenous NGOs should take the lead in this work element. Potentially the GBIF could play a lead role in providing a global role in information distribution. Some international and national institutions already hold significant information and have active programs in compiling indigenous and local taxonomies. These institutions, with the full and effective participation of indigenous and local communities, should be encouraged through additional “catalytic” funding to ensure that their research practices are based on agreement between parties and the principle of prior informed assent.

(v) Mechanisms

UNCBD, UNESCO, ISSC and ICSU offer the appropriate platform to develop with the full and effective participation of indigenous and local communities suitable plans of work leading to project development. The Ad Hoc Open Ended Working Group on Article 8(j) should play a key role in advising on the development of projects.

(vi) Financial, human resources and other capacity requirements

New resources are required to initiate this activity.

4.4. Planned activity 15: Support for ecosystem approach and CBD work on assessment including impact assessments, monitoring and indicators

(i) Rationale

Under the ecosystem approach, a key activity will be the Millennium Ecosystem Assessment (Millennium Ecosystem Assessment). The Millennium Ecosystem Assessment will require considerable scientific effort for the characterization of ecosystems, including better data on key species that comprise ecosystems and their role in maintaining ecosystem processes. In many regions taxonomic knowledge needed to fulfil these efforts are not available, and therefore will require specific activities to be undertaken (created under the GTI). The Millennium Ecosystem Assessment seeks policy-relevant information; the GTI is a policy response to a recognized impediment, or knowledge block, in our system of biodiversity understanding. The GTI seeks to facilitate gathering of the pertinent species information that would be used to characterize ecosystems, including those that help to illustrate the value of goods and services flowing from ecosystems.

The Millennium Ecosystem Assessment will be required to report on issues such as patterns of species and ecosystem diversity – the activities of the GTI in facilitating better knowledge of the species and their distribution will help provide this information. All information fed into the

Millennium Ecosystem Assessment will need appropriate geo-referencing – which is a key plank for all activities envisaged under the GTI. The GTI will also be focusing on taxonomic activity in areas of relevance to the Convention, especially the key ecosystem themes. Thus the products of the GTI can complement the Millennium Ecosystem Assessment activity in thematic ecosystems, which in turn may illustrate the extent of removal of the taxonomic impediment – providing a positive feedback process.

The GTI also has relevance to the suite of associated environmental conventions to the CBD (eg CMS, CITES, CCD), and to the CSD all of which have a direct interest in the outcomes of the Millennium Ecosystem Assessment. There is scope for linking envisaged work programmes under the Millennium Ecosystem Assessment with the key action areas under the GTI.

(ii) Outputs

Production of taxonomic overviews to help guide the Millennium Ecosystem Assessment to focus on key areas and issues of importance. These overviews can be compiled from work under the other operational objectives, but may need special focus for the global ecosystem context of the Millennium Ecosystem Assessment.

(iii) Timing

To be linked with the Millennium Ecosystem Assessment development and program

(iv) Actors

The Millennium Ecosystem Assessment advisory mechanisms, and UNEP-WCMC and UNESCO as key synthesisers.

(v) Mechanisms

The CBD cross cutting issue of Assessments and the programme of work on Indicators of Biological Diversity include a number of programme elements where input from the GTI would be required, including the development of a menu of indicators in thematic areas and development of methodology sheets, guidelines and training for supporting the development of national monitoring and indicator programmes. Specific input required from the GTI would be in the identification, development and testing of suitable indicators, and priority taxonomic information required as input to scientific assessments.

(vi) Financial, human resources and other capacity requirements

The development of financial and human resource requirements will need to be undertaken within the development of specific Millennium Ecosystem Assessment project proposals, as well as through agreed activities in Indicator development.

5. Operational objective 5 -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.

5.1 Planned activity 16: Develop a coordinated global taxonomy information system

(i) Rationale

Existing taxonomic information is widely scattered and not centrally available. This activity will firstly identify the current status of major taxonomic information systems in particular their major foci, and plan a coordinated approach to the development of a global taxonomic information infrastructure, as the major element of the GTI under the Convention's clearing-house mechanism.

(ii) Outputs

An agreed strategy to develop information services that optimizes access to taxonomic information systems world-wide. This strategy would also include common standards for exchange of data and consideration of intellectual property rights.

(iii) Timing

To be developed by October 2001 as an input to discussions by the sixth meeting of the Conference of the Parties.

(iv) Actors

Including clearing-house mechanism of the Convention, ECOPORT, GBIF, Species 2000, Tree of Life, NABIN (ITIS etc), ISIS, BIN21, BCIS, BioNET INTERNATIONAL, as well as large-scale biosystematics research institutions and other stakeholders of taxonomic information.

(v) Mechanisms

Assessment of the objectives of each system, and their prospective target audience, as a means to evaluate the fulfilment of the needs of Parties in accessing taxonomic information required under the the Convention on Biological Diversity. The existing International Plant Names Index (IPNI) and the Global Plant Checklist (IOPI) among others could provide useful models for developing a global strategy.

(vi) Financial, human resources and other capacity requirements

Sources of funding need to be identified.

(vii) Pilot projects

As a precursor to developing pilot projects it is proposed to hold a workshop that brings together stakeholders of all the existing global and major regional biodiversity information systems to identify overlaps, synergies, and gaps in order to develop a coordinated global strategy for harmonizing the existing systems.

Several pilot projects are already underway including SABONET and Species Analyst, and several potential projects have been put forward in recent international taxonomic meetings, including GLOBIS, a butterfly information system for the world, and the World Termite Database.

III. MONITORING AND ASSESSMENT OF THE GTI

The GTI Coordination Mechanism has been tasked to assist the Executive Secretary to facilitate international cooperation and to coordinate activities on matters pertaining to the implementation and development of the GTI, and in this role will provide overall monitoring and assessment of the activities undertaken as part of the GTI.

The Parties will provide regular updates on activities under the GTI through the national reporting process of the Convention on Biological Diversity.

Annex

WHAT IS TAXONOMY IN THE GTI?

Three conceptual levels can be used to describe the complexity inherent in biodiversity:

(a) *Genetic level.* The inherent variability present within species is often understood at various sub-levels including sub-species, races, populations. Genetic variability within each species ensures species survival. Genetic resources are a major focus of biodiversity use by people. The science of molecular systematics (a modern branch of taxonomy) uses information at the genetic level to help inform how we describe species, as well as the variability within the species. The increasing importance of genetic technologies in many areas of scientific and commercial endeavour is expected to continue to push the frontiers of taxonomy well beyond our current level of knowledge;

(b) *Species level.* Species descriptions and classification provide the base unit by which science distinguishes biological diversity, and the science of taxonomy has been describing species based on the Linnean binomial system for the past 250 years. However to date it is currently estimated that less than 15% of all species on Earth have been discovered and classified. Of those species described over 90% are the large visible species of fauna and flora, and it is generally recognised that the greatest need for new taxonomy and taxonomists lie in the realms of invertebrates, microorganisms and fungi;

(c) *Ecosystem or landscape level.* The ecological variability in the temporal and spatial distribution of any species is a significant component in the description of any species, particularly in relation to the conservation and sustainable use of biodiversity. Temporal and spatial variability in the distribution of species is an expression of genetic variability, but may also be simply a response to abiotic factors influencing each species, which in turn may lead to speciation, through genetic variability. An understanding of the expression of ecological variability across the landscape is the key linkage between understanding species and understanding the agglomeration of species that together form ecosystems/landscapes. The importance of documenting ecological variability, that is assemblage differences within an ecosystem, is crucial, for instance in representing dynamic changes in habitat.

The documentation of ecosystems is a form of classification, but is generally held to be outside the scope of the scientific field of taxonomy. Within the Convention this area of endeavour is developed under the thematic ecosystem studies and especially through the 'ecosystem approach', another crosscutting area of work of the Convention.
