



CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/SBSTTA/11/5
17 September 2005

ORIGINAL: ENGLISH

SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

Eleventh meeting

Montreal, 28 November – 2 December 2005

Item 4.2 of the provisional agenda*

IN-DEPTH REVIEW OF THE IMPLEMENTATION OF THE PROGRAMME OF WORK FOR THE GLOBAL TAXONOMY INITIATIVE

Note by the Executive Secretary

EXECUTIVE SUMMARY

1. The programme of work for the Global Taxonomy Initiative (GTI) was adopted by the Conference of the Parties in its decision VI/8 to support the Convention's programmes of work on thematic areas and cross-cutting issues by strengthening taxonomic capacities worldwide to improve the ability of countries to undertake the priority work required to implement the Convention. Significant progress has been made in the conduct of taxonomic needs assessments, the strengthening of networks for regional cooperation and the development of a coordinated global taxonomy information system. In other areas, progress has been slower.
2. Frequently, taxonomic activities are only one component of larger projects or programmes on the conservation and sustainable use of biological diversity. Reports tend to focus on the management-related outcomes and to put less emphasis on the taxonomic progress and underpinning. It is therefore likely that national reports reflect only a portion of relevant ongoing taxonomic activities.
3. The programme of work is at an early stage of implementation. Since its adoption, three new programmes of work have been developed under the Convention: on mountain biological diversity, protected areas and island biological diversity. The GTI Coordination Mechanism has assisted the Executive Secretary in formulating the planned activities to support implementation of these new programmes of work. They should be considered as complementary to the planned activities of the programme of work annexed to decision VI/8.

* UNEP/CBD/SBSTTA/11/1.

SUGGESTED RECOMMENDATIONS

The Subsidiary Body on Scientific, Technical and Technological Advice may wish to recommend that the Conference of the Parties:

1. *Welcomes* the progress made in the implementation of the programme of work for the Global Taxonomy Initiative;

2. *Notes* with appreciation the contributions to the Global Taxonomy Initiative made by BioNET International, the Global Biodiversity Information Facility, CABI International, the Integrated Taxonomic Information System (ITIS) and Species 2000 and *encourages* these organizations and initiatives to continue contributing to the implementation of the Convention;

3. *Recalling* target 1 of the Global Strategy for Plant Conservation (“A widely accessible working list of known plant species, as a step towards a complete world flora”), *welcomes* the progress made by Species 2000, the Royal Botanic Gardens, Kew, and collaborating partners towards the achievement of target 1 of the Global Strategy for Plant Conservation;

4. *Adopts* a strategic taxonomic target (“A widely accessible working list of known species, as a step towards a global register of plants, animals and microorganisms”) to complement the goals of the Strategic Plan and the goals and sub-targets of the framework for assessing progress towards the 2010 target;

5. *Adopts* the planned activities to support implementation of the programmes of work on mountain biological diversity, protected areas and island biological diversity contained in the addendum to this note (UNEP/CBD/SBSTTA/11/5/Add.1) as complementary to the programme of work contained in the annex to decision VI/8 and decides to incorporate them in the consolidation of the decisions prepared in accordance with recommendation 1/2 (section I, para 4, and annex III) of the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention;

6. *Urges* Parties and other Governments that have not done so to:

(a) Undertake or complete, as a matter of priority, national taxonomic needs assessments, including an assessment of related technological and capacity needs and establish priorities for taxonomic work. These assessments should take into account ongoing national biodiversity strategies and action plans as well as regional strategies and initiatives under development, incorporating more explicitly the taxonomic needs and priorities;

(b) Contribute, as appropriate, to regional and global taxonomic needs assessments, with a view to completing, by 2010, a global assessment of taxonomic needs, including capacity and technology needs, and the identification of priorities;

(c) Develop procedures and requirements for taxonomic collections, including for the deposition, transfer and loan of specimens, and make these available *inter alia* through the clearing-house mechanism of the Convention with a view to facilitating the establishment of international procedures, rules and mechanisms that take into account the special need of taxonomic information, in accordance with the Bonn Guidelines on Access to Genetic resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization;

(d) Contribute, as appropriate, to initiatives facilitating the digitization of museum specimen collections;

7. *Invites* Parties, other Governments, and relevant organizations and institutions to:

(a) Strengthen collaboration and communication among government agencies, the scientific community, research institutions, universities, collection holders, the private sector and stakeholders in order to improve the response to taxonomic needs for decision-making;

(b) Develop an outreach strategy to promote taxonomy and taxonomic products and related research as a cornerstone for inventorying and monitoring biological diversity in the framework of the implementation of the Convention and to achieve its objectives;

(c) Provide, within the framework of the terms of reference contained in decision V/9, clear guidance to national focal points for the Global Taxonomy Initiative on duties and specific tasks to better communicate and promote the objectives of the Initiative;

(d) Facilitate the integration of information on nationally held collections in regional and global databases and information systems;

8. *Requests* the Executive Secretary to:

(a) Continue collaborating with relevant conventions, organizations and institutions to make available taxonomic information, expertise and relevant technologies needed to achieve the objectives of the Convention on Biological Diversity;

(b) Continue collaboration with existing initiatives, including the Global Biodiversity Information Facility, the Integrated Taxonomic Information System and Species 2000, to develop the Electronic Catalogue of Names of Known Organisms;

(c) Establish, through the clearing-house mechanism of the Convention, a taxonomic web portal to promote the integration of taxonomic databases and information, facilitate access to and exchange of taxonomic information and relevant technologies and contribute to public awareness about taxonomic issues;

(d) Undertake, as part of the Global Initiative on Communication, Education and Public Awareness programme and in collaboration with relevant partners, activities on the importance of taxonomy for the general public;

(e) Report on progress made towards the strategic taxonomic target in connection with the assessment of progress made towards the achievement of the Strategic Plan and the 2010 target;

(f) Compile information on procedures and requirements for taxonomic collections, including for the deposition, transfer and loan of specimens, and report on the feasibility of developing international procedures, rules and mechanisms for taxonomic collections;

(g) Compile and make available through the clearing-house mechanism and other means information on products, lessons learned and accomplishments on taxonomy-related projects;

9. *Requests* the Global Environment Facility, as the institutional structure operating the Financial Mechanism of the Convention to continue to support the conduct of taxonomic needs assessments, projects with a taxonomic focus or clearly identified taxonomic components and regional activities on taxonomic capacity development and technology transfer;

10. *Requests* the secretariats of the Convention and the Global Environment Facility to conduct a joint analysis of funded GTI-related projects and relevant project information contained in national reports with a view to extracting best practices and sharing information and experience in promoting financial support for the GTI;

11. *Requests* the secretariats of the Convention and the Global Environment Facility to convene, with support from relevant organizations, in particular the Agencies of the facility, a project-development seminar for those countries that have already identified taxonomic needs, to promote formulation of country-driven projects based on identified taxonomic needs and to explore potential benefits of developing regional or global projects to address common taxonomic needs that have already been identified.

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I. INTRODUCTION

1. The programme of work for the Global Taxonomy Initiative (GTI) was endorsed by the conference of the Parties in decision VI/8. It was designed to support the Convention's programmes of work on thematic areas and cross-cutting issues by strengthening taxonomic capacities worldwide to improve the ability of countries to undertake the priority work required to implement the Convention.
2. In its decision VII/31 on the multi-year programme of work of the Conference of the Parties up to 2010, an in-depth review of the programme of work for the GTI was scheduled for the eighth meeting of the Conference of the Parties, in 2006.
3. This note presents the key findings and conclusions of this in-depth review. Information on progress in the implementation and obstacles is derived from the responses received to the questionnaire sent out by the Executive Secretary on 22 April 2004, a review of relevant sections of the second and third national reports, the thematic report, national biodiversity strategies and action plans, reports on relevant Global Environment Facility-funded projects, GTI workshop reports, reports of the Coordination Mechanism for the GTI, as well as on reports provided by relevant national, regional and international organizations. More detailed information is contained in relevant information documents.
4. The present note has been prepared by the Executive Secretary, to assist the Subsidiary Body in the review of the programme of work for the GTI by assessing the implementation of the programme of work for the Global Taxonomy Initiative and providing suggestions to bring it up-to-date.

II. ASSESSMENT OF THE IMPLEMENTATION OF THE PROGRAMME OF WORK FOR THE GLOBAL TAXONOMY INITIATIVE

5. To facilitate the implementation of the programme of work of the GTI, the Conference of the Parties *inter alia*:
 - (a) Established a GTI coordination mechanism to facilitate international cooperation and coordinate activities under the GTI (decision V/9, para 1);
 - (b) Urged Parties, Governments and relevant organizations to, *inter alia*, identify national and regional priority taxonomic information requirements and available capacities (decision V/9, para. 2, and decision VI/8, annex, planned activities 1, 2 and 3);
 - (c) Requested Parties and other Governments to designate a national Global Taxonomy Initiative focal point to facilitate information-sharing for the GTI (decision V/9, para. 4 and decision VI/8, para. 6 (a));
 - (d) Requested the financial mechanism to, *inter alia*, investigate ways to facilitate capacity-building in taxonomy (decision V/9, para. 6);
 - (e) Emphasized the need to raise public awareness and to educate on the importance of taxonomy to underpin the Convention (decision VI/8, annex, planned activity 4);
 - (f) Called for human and infrastructure capacity-building to support access to and generation of taxonomic information (decision VI/8, annex, planned activity 5) and the strengthening of existing networks for regional cooperation in taxonomy (decision VI/8, annex, planned activity 6); and
 - (g) Emphasized the importance of a coordinated global taxonomy information system (decision VI/8, annex, planned activity 7).
6. The following paragraphs summarize progress made with respect to each of these areas, identify limitations and suggest possible solutions.

A. *The Coordination Mechanism*

7. The Coordination mechanism is currently composed of members from Africa, Asia, Central and Eastern Europe, the Western European and Others Group, Latin America and Caribbean and the

representatives of various organizations (United Nations Educational, Scientific and Cultural Organization (UNESCO), Global Environment Facility (GEF), Global Biodiversity Information Facility (GBIF), International Plant Protection Convention (IPPC), Global Invasive Species Programme (GISP), BioNET INTERNATIONAL, Royal Botanic Gardens, Kew, Smithsonian Institution and IUCN – the World Conservation Union). The coordination mechanism has formally met five times. It is active in global and regional initiatives pertaining to the GTI.

B. Taxonomic needs assessments

1. Assessment of national priority taxonomic information requirements and available capacities

8. The purpose of national taxonomic needs assessments is to identify and overcome taxonomic limitations, which hinder implementation of components of the Convention's programmes of work in the thematic areas and cross-cutting issues which have been identified as priorities at the national level.

9. According to the information from the second and third national reports and the questionnaire, sent by the Executive Secretary in April 2004, 83 countries have carried preliminary or full assessments of national taxonomic needs and capacities and set out priorities for taxonomic work. Assessments emphasized the need for increased human capacities and/or the development of infrastructure for generating and accessing taxonomic information, and identified research priorities by habitat or ecosystem types or by taxonomic groups.

10. On the basis of these assessments, 27 countries have developed information to undertake further steps to improve taxonomic capacities while another eight countries have undertaken comprehensive assessments leading to specific programmes or plans in taxonomy.

11. National taxonomic needs assessments have tended to focus on the views of taxonomists and scientists working in institutions related to taxonomy. They did not always fully take into account the needs of end-users of taxonomic products or national needs for identification and inventorying in accordance with Article 7 of the Convention.

2. Assessment of regional priority taxonomic information requirements and available capacities

12. Regional taxonomic needs assessments aim to identify options for establishing regional technical cooperation networks to share the subregional taxonomic expertise and resources and thereby optimizing the use and value of local capabilities, knowledge, experience and material resources for subregional self-sufficiency.

13. Regional needs assessments were carried out for Asia-Oceania and Africa, while Latin American and Caribbean countries have undertaken subregional assessments. Europe is promoting regional and global taxonomic cooperation. Moreover, in collaboration with BioNET-International a number of locally organized and operated partnerships (LOOPS) have been established to help build taxonomic capacity for sustainable development. LOOPS exist in the following (sub-)regions: Caribbean (CARINET), Northern, East, West and southern Africa (NAFRINET, EAFRINET, WAFRINET and SAFRINET respectively), South East Asia (ASEANET), East Asia (EASIANET), the Andean Countries (AndinoNET) the South Pacific (PACINET) and Europe (EuroLOOP).

14. Funds for organizing regional assessments and follow-up activities were a limiting factor. A number of countries have not participated or were not aware of regional activities. The designation of national focal points and the establishment of a mechanism for the exchange of information on GTI-related matters might help to improve this situation.

3. Global taxonomic needs assessment and available capacities

15. Detailed assessments of taxonomic needs at the global level and related capacity requirements have been undertaken in relation to pollinators, coral-reef monitoring, and invasive alien species. The recognized vulnerability of island habitats suggests the need to prioritize the task of cataloguing island biodiversity.

16. Needs at the global level have been discussed during meetings of the GTI Coordination Mechanism, but no assessment has been completed yet in this context. UNESCO, through its network of biosphere reserves, has identified taxonomic capacity needs in such areas as ecotourism, agrobiodiversity and biodiversity research and monitoring.

17. Significant progress has been made towards the development of a coordinated global taxonomy information system. This has been enabled by global initiatives such as GBIF, the Catalogue of Life of Species 2000 and ITIS, regional efforts such as the European Network for Biodiversity Information (ENBI), or the database of agricultural pests, experts, and institutions developed by CARINET within EcoPort. Taxon-based systems such as the Global Information System on Fishes (FishBase), the Generic Taxonomical Database System with focus on marine nematoda and mysida (NeMys), the Universal Virus Database of the International Committee on Taxonomy of Viruses, Index Fungorum, a community resource currently coordinated and supported by CABI Bioscience, the Centraalbureau voor Schimmelcultures (CBS) and Landcare Research, BIOS with a focus on bacteria and archaea (National Institute for Environmental Studies, Japan), the World Federation for Culture Collections (WFCC)-MIRCEN World Data Centre for Microorganisms (WDCM), which maintains a database for culture collections of bacteria, fungi and yeasts, and the Census of Marine Life, the Institute for Plant Genetics and Crop Plant Research Gatersleben (IPK) on a number of agricultural important plants (oil and fodder, potato, *Poa*), the Information System Genetic Resources (GENRES) on a wide range of databases on agricultural biodiversity, and SYSTAX (a Database System for Systematics and Taxonomy) provides taxonomic information on botanical and zoological collection objects, are just some examples. Fauna Europea, Ant'Phipoda, the Antarctic Marine Biodiversity Reference Center, are examples of regional databases.

18. A global register of taxonomic expertise is also available. The World Taxonomist Database (WTD) hosted by ETI Bioinformatics at the University of Amsterdam in the Netherlands, currently includes 4,172 taxonomists and biodiversity specialists from over 100 countries around the world, their expertise covers viruses, bacteria, protocista, fungi, plants and animals (<http://www.eti.uva.nl/Database/WTD.html>).

19. A global taxonomic needs assessment is a complex process. However, by compiling regional assessments on existing capacities, information by taxonomic groups (priorities, coverage or needs on information) and geographic coverage, it may be possible to achieve a comprehensive picture, which can be complemented by global efforts.

C. National focal points for the Global Taxonomy Initiative

20. As of August 2005, 60 Parties and other Governments had designated GTI national focal points for GTI. More than half of the focal points are directly involved in taxonomic, academic or research institutions while the remainder work in Government administrations. While decision V/9 contains terms of reference for GTI focal points, it would be useful to provide them with more specific tasks and appropriate resources. Better use should be made of the clearing-house mechanism of the Convention to facilitate communication among GTI focal points and with the national and international taxonomic communities.

D. The financial mechanism of the Convention

21. A large number of projects funded by Global Environment Facility (GEF) contributed, to some extent, to the generation of taxonomic information. At the end of 2003, GEF had funded 33 projects with significant components addressing taxonomy as a means to achieving conservation and sustainable use of biodiversity. Parties reported in their second national reports that nine out of a total of 15 taxonomy-oriented projects were funded by GEF.

22. Three specific projects on capacity-building for taxonomy, implemented in Indonesia, Costa Rica and southern Africa are considered to have significantly contributed towards increasing human and institutional capacities to generate taxonomic information, maintain collections, and share information

that will feed other projects and programmes towards achieving the objectives of the Convention on Biological Diversity.

23. The World Bank has granted over 1 million United States dollars to produce at least 60 local-language field guides to promote environmental awareness and education.

24. In addition to the support to specific taxonomy-related projects, GEF funded enabling activities in at least 50 countries for national assessments of needs on capacity building, including taxonomy. Funds are still available for new assessments and several of these activities are currently ongoing.

25. All developed Parties reported having contributed to the implementation of GTI in developing countries and in countries with economies in transition, *inter alia*, by funding projects, capacity development activities or by making available general information, databases, collections, or technical expertise, as requested in paragraph 5 of decision VII/9.

26. A number of foundations have also made significant contributions to taxonomic initiatives.

E. Public awareness and education

27. Specific activities focusing on public education and awareness-raising for the GTI included public exhibitions, broadcast events, online information, publications and articles in the general media, information provided in scientific meetings and conferences, posters on taxonomic groups of special interest for distribution to schools and the general public, and the production of field guides.

28. The Secretariat produced a brochure and, in collaboration with the Australian Government, a booklet on the programme of work. The guide to the GTI is also expected to be published. BioNET INTERNATIONAL and the German GTI focal point have published case studies illustrating the importance of taxonomy online (http://bionet-intl.org/case_studies and http://www.gti-kontaktstelle.de/cases_E.html). BioNET INTERNATIONAL, in collaboration with GISP and the IUCN Invasive Species Specialist Group, also publishes a series on taxonomic aspects of invasive alien species.

29. In most cases, awareness activities are undertaken within taxonomic institutions (museums, research institutions involved in taxonomic work and universities), and by taxonomists themselves. Complementary activities on the importance of taxonomy which address a wider audience are important and should be undertaken as part of the communication, education and public awareness programme under the Convention in collaboration with relevant partners.

F. Building and maintaining infrastructure and human capacities and strengthening of existing networks for regional cooperation

30. A workshop on systems and infrastructure needed to obtain, collate and curate the biological specimens organized jointly with the Global Network for Taxonomy, BioNET-INTERNATIONAL and the UNESCO Man and the Biosphere programme (MAB) and in association with the Secretariat of the International Plant Protection Convention (IPPC) and involving participants from 95 countries was held in South Africa in July 2002. A follow-up workshop was organized jointly by the Secretariat of the Convention on Biological Diversity, UNESCO-MAB and BioNET-INTERNATIONAL and was held in Paris in February 2003. The workshops, which were reported on to SBSTTA at its ninth meeting (UNEP/CBD/SBSTTA/9/INF/16) resulted in a strategic plan to strengthen global and regional capacity-building to support access to and generate taxonomic information and strengthening of existing networks for regional cooperation in taxonomy. The strategic plan comprises nine elements that have been the basis for a commitment from large institutions working on its implementation:

- (a) Meet stakeholder needs;
- (b) Generate effective political and multi-sectoral commitment to fulfil national and regional obligations;
- (c) Enhance collaboration, cooperation and partnerships, building to global scales;

- (d) Improve access to and analysis of policy level information within the taxonomic community;
- (e) Build human and infrastructural capacity to meet sustainable development needs;
- (f) Sustainably maintain and enhance taxonomic skills and knowledge base to enable responsiveness to emerging needs;
- (g) Improve access to and exchange of taxonomic information and products;
- (h) Accelerate the full taxonomic cycle: discovery, description, determination and dissemination;
- (i) Access and mobilize resources (ensure resources are available for production of appropriate output).

31. Almost all countries participated in regional or global activities to increase the human capacities in taxonomy. Efforts on infrastructure development reflected funding priorities and national commitments on taxonomic support to meet the needs of implementing the Convention. Most developed countries provide support to access taxonomic information and collections, the generation of taxonomic information, or have established programmes to support the training of taxonomists. Most developing countries are undertaking activities related to capture and management of the information from the scientific collections, taxonomic research and training as an essential component of capacity-building, and in some cases on curating biological specimens and cultured cells.

32. BioNET INTERNATIONAL, through its Locally Organized and Operated Partnerships (LOOP) has conducted training workshops, providing fellowships for training in curation and taxonomic data management and a number of activities to assist countries increase their capacities through (sub-)regional cooperation.

G. Development of a coordinated global taxonomy information system

33. The GTI programme of work calls for a strategy to develop information services that optimize access to taxonomic information worldwide, including common standards for exchange of data and consideration of intellectual property rights. Element (g) of the strategic plan outlined for regional and global capacity-building (see above) was proposed to (i) improve accessibility of publications; (ii) develop and link databases of taxonomic information; (iii) improve access to specimens and data; (iv) exploit appropriate information technology; and (v) improve transfer and interpretation of taxonomic products from providers to users. This has been the framework for institutions participating on the implementation of a global taxonomic information system.

34. Most reporting countries are working towards digitalizing taxonomic collections, publications and images with a view to making these available, including through global and regional initiatives and tools such as the Global Biodiversity Information Facility (GBIF), the World Biodiversity Database (WBD), the Catalogue of Life, the Integrated Taxonomic Information System, the Botanical Research And Herbarium Management System, the Biodiversity Collection Access Service for Europe and the synthesis of systematic resources project.

35. Global and regional databases are more common for plants than for animals. However, in the framework of target 1 of the Global Strategy for Plant Conservation, Species 2000 and the Royal Botanic Gardens, Kew, found that current global taxonomic checklists available on the internet cover less than 15 per cent of all plant species. This figure is expected to rise to 40 per cent by the end of 2005. Draft lists have been completed or are in progress for 70 per cent of plants.

36. For development and maintenance of standards on exchange formats and communication protocols and to implement online collaboration tools, a new project of the Taxonomic Databases Working Group (TDWG) affiliated with the International Union of Biological Sciences (IUBS) and

hosted by the Natural History Museum in London and GBIF, has recently received funding from the Moore Foundation.

III. INCLUSION OF KEY TAXONOMIC OBJECTIVES IN THE THEMATIC PROGRAMMES OF WORK OF THE CONVENTION

37. Operational objective 4 of the programme of work foresees that key taxonomic objectives should be included in the major thematic work programmes of the Convention to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components.

A. *Forest biological diversity*

38. Most countries undertake regular forest inventories, including assessments of forest biological diversity. The taxonomic component tends to be particularly important where these studies are carried out for specific conservation purposes, including the establishment or management of protected areas.

39. According to the responses received to the questionnaire, six countries undertook comprehensive inventories specifically targeting forest biodiversity at the species level. Taxonomic studies comprised reviews of selected groups, mostly plants. Faunal inventories of forest habitats have focused on vertebrates and two countries reported on soil biodiversity or genetic level studies. In several cases, these studies have not only produced biological collections and scientific publications but have also produced tools such as checklists, field guides and databases for monitoring, management and other economic activities (e.g. ecotourism).

40. National obligations in connection with the FAO Forest Resources Assessment and regional processes on criteria and indicators for sustainable forest management include regular inventories of components of forest biodiversity including taxonomic work at the genetic and species levels.

B. *Marine and coastal biological diversity*

41. Most countries reported on taxonomy-related activities in marine and coastal ecosystems, ranging from inventories, establishment of databases for information exchange, production of taxonomic monographs on different groups, production of Red List information, establishment and monitoring of marine and coastal protected areas, and preparation of identification keys to the identification of regional genetic diversity in marine organisms. Inventories covered a wide variety of taxa, including fishes, marine mammals, crustaceans, nematodes, to microphytobenthos. They also covered many regions, including the Mediterranean, the Baltic Sea, the Wadden and North Sea, the Irish Sea, the Red Sea, the Indian Ocean, the Indo-Pacific region, Antarctic, and the Caribbean.

42. Several countries reported to have been involved in specific activities related to ballast water organisms. The GEF/UNDP/IMO Global Ballast Water Management Programme (GloBallast) has produced taxonomic information, with contributions from IUCN, GISP, FAO and others. GloBallast has also produced several brochures and posters of invasive species in several languages, and technical guidelines and standards for sampling of ballast water. Taxonomic products will become particularly important when the International Convention for the Control and Management of Ships' Ballast Water and Sediments enters into force.

43. The Census of Marine Life sets out to assess and explain the diversity, distribution and abundance of life in the ocean and to explain how it changes over time. In particular, it is expected to contribute to our understanding of deep sea and open ocean organisms, and may also help to establish protected areas in the open oceans.

44. Some taxonomy-related initiatives in coastal ecosystems, in particular mangroves, are currently underway. The World Mangrove Atlas (1997) will be revised and updated by a consortium of relevant partners. The Global Mangrove Database and Information System (www.glomis.com) is a database with the characteristics of single mangrove species and of mangrove ecosystems intended for worldwide

dissemination. The Ramsar Convention also promotes work relevant to wise use of mangroves, some of which pertain to taxonomy.

45. Countries reported on the shortage of taxonomists specializing in marine phytoplankton and invertebrates as a major limitation. A database of taxonomic experts for marine and coastal biological diversity from the roster of experts and other sources is yet to be available for the development and implementation of specific elements of national policies

C. Dry and sub-humid lands biodiversity

46. The purpose of this activity is to further develop the knowledge base on the organisms that maintain the crucial soil crust and prevent soil degradation, along with enhancing the knowledge of micro-organisms and nutrient cycling, and taxonomic information on pests and diseases. Expected outputs were the development by 2004 of kits for soil lichens, including indicators of possible soil degradation, algae, soil invertebrates, pest insects and other herbivores, other taxa that will be the harbingers of change, in collaboration with UNCCD and other international organizations, for use in particular by agricultural and range managers.

47. Countries reported having carried out general surveys of a broad range of organisms occurring in dryland and sub-humid ecosystems, including vascular plants, fungi, lichens, other spore plants, mycorrhizal symbiosis, phytoplankton, nematodes, aculeate hymenoptera, spiders, mites, and insects in general. Other taxonomic surveys were undertaken as part of ethnobotanical studies and on economically important plants. In addition, some specific human capacities (lichenologists, mycologists and bryologists) have been developed however, and working on inventorying lichens.

48. Regions in which habitats were sampled included sand habitats in Austria, Hungarian alkaline grasslands, the Cerrado, Pantanal and Caatingas in Brazil, dry tropical forests of El Salvador, the Sahel in Africa and the Aral Sea in Uzbekistan and Kazakhstan, Botswana, Ethiopia, Namibia desert, Tunisia, Madagascar, the western Mediterranean region, the Islamic Republic of Iran, Australia, the United States of America, and Tajikistan.

49. Relevant projects pertaining to dry ecosystems include large initiatives such as the Survey of Economic plants of Arid and Semi Arid Lands (SEPASAL), a project established at the Kenya Resource Centre for Indigenous Knowledge (KENRIK) of the National Museums of Kenya, and at the National Botanical Research Institute of Namibia (NBRI). SEPASAL seeks to collect and share seeds and data on the uses and properties of dryland plants carried by the Royal Botanic Gardens, Kew, the Millennium Seed Bank Project, Namibia's National Programme to Combat Desertification, the Index Medicus for South East Asian Region (IMSEAR), several Belgian projects and the German Competence Network for Research to Combat Desertification (DesertNet).

D. Inland water biological diversity

50. Most countries reporting through the questionnaire indicated that some activities have been conducted, mainly related to identification and inventorying of aquatic organisms. Many of these initiatives respond to the both the programme of work on inland water biodiversity of the Convention on Biological Diversity and the provisions of the Ramsar Convention.

51. Taxonomic work covered a range of inland waters organisms, such as rotifers, fishes in general, crustaceans, aquatic plants, and algae. Several institutions have provided training for fishers and parataxonomists to undertake monitoring programmes. Regional efforts currently underway include for example the MedWetCoast project, a Mediterranean initiative under the Ramsar Convention and ARDA, an organization working on aquaculture, freshwater ecology and environment education in Réunion Island and in the south-west Indian Ocean.

52. The production of regional guides to freshwater fish and invertebrates envisaged in the programme of work has made limited progress. Additional efforts need to be made to produce these

guides as a way to improve the status of taxonomic knowledge in inland waters and for public awareness and education.

E. Agricultural biological diversity

53. The purpose of this activity is to develop easy-to-use keys to families, genera and species of automated identification systems for pollinators and development of standard methods for the identification of below-ground biodiversity and their use as indicators of soil health.

54. Under the International Pollinator Initiative, several countries have undertaken taxonomic projects including on birds, bats and invertebrates. Other countries have been involved in studies on maintaining biodiversity in agricultural systems including in coffee plantations and a variety of agroforestry systems.

55. Soil biodiversity surveys require a wide range of biological expertise. For this reason national and international multidisciplinary collaborations are essential to enhance the efficacy and value of such research. The Tropical Soil Biology and Fertility Institute (TSBF) of the International Center for Tropical Agriculture (CIAT) has since 1984 helped to develop capacity for soil biology as a research discipline in the tropical regions, and conducted research on the role of soil biology in maintaining or improving soil fertility and combating environmental degradation. TSBF initiated a new initiative on the conservation and sustainable management of below-ground biodiversity". Through the project, a consortium of institutions in seven countries—Brazil, Côte d'Ivoire, India, Indonesia, Kenya, Mexico, and Uganda—will develop improved methods for conserving and managing the diverse community of soil organisms including bacteria, fungi, protozoa, and invertebrates), which represent a significant segment of global biodiversity.

56. Overall, progress on the taxonomy of pollinators and soil organisms was limited due to the scarcity of financial resources and human expertise.

F. Mountain biological diversity

57. The development of taxonomic support for the implementation of the work programme on mountain biodiversity, in particular identification of biodiversity components unique to mountain ecosystems, is still at its early stages. Reporting countries listed a range of activities related to inventorying mountain biological diversity, the production of floras, some field guides and keys. Additionally some countries reported on changes as a result of pollution and climate change in species composition and the use of mountain species as indicators.

58. The Global Observation Research Initiative in Alpine Environments (GLORIA) is an example of a regional initiative seeking to document mountain biodiversity and habitat changes. Launched in 2001, it has already made much progress towards the implementation of a standardized alpine long-term observation network on the global scale.

59. The elements for a planned activity to support implementation of the programme of work on mountain biological diversity, prepared in collaboration with the GTI coordination mechanism, are contained in the addendum to this note (UNEP/CBD/SBSTTA/11/5/Add.1).

G. Island biological diversity

60. The programme of work on island biological diversity will be considered by the Conference of the Parties at its eighth meeting. The elements for a planned activity activity to support implementation of the programme of work on island biological diversity, prepared in collaboration with the GTI Coordination Mechanism, are contained in the addendum to this note (UNEP/CBD/SBSTTA/11/5/Add.1).

IV. INCLUSION OF KEY TAXONOMIC OBJECTIVES IN CROSS-CUTTING ISSUES CONSIDERED BY THE CONVENTION

A. Access and benefit-sharing

61. This activity aims at inventorying biological resources to facilitate and control access to genetic resources and producing interactive catalogues of materials, linked to taxonomic collections. It also seeks to increase access by countries of origin to existing information on biological resources held elsewhere.

62. The Bonn Guidelines specify that implementation of Article 15 of the Convention on Biological Diversity should not prevent or discourage taxonomic research. This requires clear rules for collection and deposition of specimens and for accessing and sharing collections, loan policies, deposition of duplicates, guidelines on storage conditions to ensure preservation of specimens. It may be useful to consider giving incentives to institutions that share information, e.g., by loans and digitalizing specimens and information.

63. Only one reporting Party has taken comprehensive measures to strengthen capacity for the inventory and classification of biodiversity and its components in the development of a national strategy on access and benefit-sharing. On the other hand, most countries have established rules for collection of specimens. In many cases these rules are being revised in accordance with the Bonn guidelines on access and benefit-sharing.

64. The Royal Botanic Gardens, Kew, coordinated a project involving 28 botanical institutions from 21 countries to develop Principles on Access to Genetic Resources and Benefit-Sharing and Common Policy Guidelines, now the basis for access and benefit-sharing (ABS) policies in a range of institutions.

65. The Millennium Seed Bank Project partnerships are based on mutually agreed access and benefit-sharing agreements. Twenty-five agreements have been signed with partners in 17 countries. Benefits include those related to taxonomy such as training, collection, curation and identification of herbarium specimens, and the description of new species.

B. Invasive alien species

66. With regard to the development of taxonomic support to address the issues of invasive alien species, country implementation varies from comprehensive policies and programmes in place, including a national strategy on invasive alien species to several cases with no development reported in this area. Taxonomy-related activities and products include guides to invasive crustaceans, marine invertebrates, freshwater macro-zoobenthos, invasive plants, and research projects aiming to share information and facilitate identification of invasive alien species around the world.

67. The Convention Secretariat hosted a workshop organized jointly with the Global Invasive Species Programme (GISP) and the UNEP regional seas programme to develop a joint work programme on marine invasive alien species with key stakeholders and organizations. The workshop held in Montreal from 27 to 29 June 2005, identified gaps in activities relating to marine invasive species, and developed a programme to address those gaps. A second workshop to develop the joint work programme is scheduled for November 2005.

C. Support in implementation of Article 8(j)

68. The support of the GTI to the implementation of Article 8(j) consists in facilitating the preparation of guides by, or in collaboration with, indigenous and local communities. It also includes the conduct, with full participation of indigenous and local communities, of studies on similarities and differences between traditional taxonomies and modern classification systems.

69. No reporting Party has yet implemented a taxonomic information system that takes into account and/or supports the inclusion of indigenous and local community taxonomy perspectives and/or the maintenance, preservation and protection of traditional taxonomic knowledge, and related innovations

and practices of indigenous and local communities. However some countries have established country-based working groups on traditional knowledge, under national biodiversity programmes, to address this issue among others. Useful projects include the production of traditional pharmacopoeias with the free, prior and informed consent of local and indigenous communities, which have resulted in publications, some in indigenous languages.

70. Taxonomic work in relation to the implementation of Article 8(j) has not yet been addressed. To develop a way forward, research should be conducted on relevant experiences and good case-studies and practices, from different indigenous regions, with the view of enhancing taxonomy systems and the GTI. This research should take into account gender when researching in indigenous contexts as knowledge of specific living organisms and related sites and knowledge may be gender specific. Researchers should always be sensitive to secret and sacred knowledge, species and places. Sacred species in particular, present unique issues that must be taken into account by researchers. Funding and the identification of pilot projects should be provided for future implementation of this activity.

D. Support for ecosystem approach and work under the Convention on Biological Diversity on assessment including impact assessments, monitoring and indicators

71. This activity focuses on supporting assessments of status and trends of biodiversity including the Millennium Ecosystem Assessment. Efforts to monitor progress towards the Convention's 2010 biodiversity target and related national and regional activities will continue to rely on the generation of taxonomic information.

72. There is general recognition of the importance of public participation in the collection of data for monitoring, including by parataxonomists, amateur naturalists, or volunteer birdwatchers. The provision of training on species identification and monitoring methods is therefore a priority.

E. Protected areas

73. Most reporting countries support ongoing taxonomic activities in protected areas including the production of databases, inventories, taxonomic collections, production of field guides and manuals, and occasionally involving parataxonomists who specially trained for monitoring of biodiversity in protected areas.

74. The elements for a planned activity on taxonomy in support of the programme of work on protected areas, prepared in collaboration with the GTI Coordination Mechanism, are contained in the addendum to this note (UNEP/CBD/SBSTTA/11/5/Add.1).

V. SUGGESTIONS FOR UPDATING THE PROGRAMME OF WORK

75. The programme of work for the Global Taxonomy Initiative was adopted in 2002 to support the Convention's programmes of work in the thematic areas and cross-cutting issues by strengthening taxonomic capacities worldwide to improve the ability of countries to undertake the priority work required to implement the Convention. The analysis in sections II to IV above shows that the Global Taxonomy Initiative is still at an early stage of its implementation. It is also apparent that the planned activities are still valid and that the expected outputs are generally yet to be generated.

76. Since 2002, three new programmes of work have been developed under the Convention: on mountain biological diversity, protected areas and island biological diversity. The GTI Coordination Mechanism has been tasked to assist the Executive Secretary in formulation of the relevant planned activities to support implementation of these new programmes of work. The planned activities are contained in the addendum to this note (UNEP/CBD/SBSTTA/11/5/Add.1) and should be considered as complementary to the planned activities of the programme of work annexed to decision VI/8.