



**CONVENTION ON
BIOLOGICAL
DIVERSITY**

Distr.
GENERAL

UNEP/CBD/SBSTTA/6/INF/4
12 February 2001

ENGLISH ONLY

**SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND
TECHNOLOGICAL ADVICE**

Sixth meeting
Montreal, 12-16 March 2001
Item 5.2 of the provisional agenda*

GLOBAL TAXONOMY INITIATIVE

Progress report on the Global Taxonomy Initiative

Note by the Executive Secretary

Executive summary

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I. INTRODUCTION

1. In its decision III/10, on identification, monitoring and assessment, the Conference of the Parties established the need for specific action under the Convention in taxonomy, by endorsing recommendation II/2 of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), which recognized the need to take measures to alleviate the scarcity of taxonomists, taxonomic collections, and institutional facilities worldwide, to assist countries in implementing the Convention, and recommended the development of guidelines and programme priorities for capacity-building in taxonomy.

2. At its fourth meeting, in its decision IV/1 D, the Conference of the Parties endorsed, as initial advice, a set of "Suggestions for Action" for the development and implementation of a Global Taxonomy Initiative (GTI), and stressed the urgent need for capacity-building in all fields of taxonomy to assist in the implementation of the Convention.

3. At its fifth meeting, in its decision V/9, the Conference of the Parties urged Parties, Governments and relevant organizations to undertake a series of priority activities, and requested the Executive Secretary to draft a work programme for the Global Taxonomy Initiative defining timetables, goals, products and pilot projects. That draft programme will be before SBSTTA at its sixth meeting as document UNEP/CBD/SBSTTA/6/10.

4. The purpose of the present note is to report on progress on recent activities relevant to the GTI including:

- (a) A synthesis of relevant sections of national reports;
- (b) A synthesis of reports from major meetings of experts;
- (c) Information on those Conventions, initiatives and programmes that have indicated their support for the GTI;
- (d) Progress on short-term activities;
- (e) A compilation of submissions from Parties, Governments and relevant organizations; and
- (f) Progress in the establishment of the GTI Coordination Mechanism.

II. PROGRESS REPORT ON RECENT ACTIVITIES RELEVANT TO THE GLOBAL TAXONOMY INITIATIVE

A. *Synthesis of relevant sections of national reports (submitted prior to August 2000)*

5. Most countries that have submitted their first national reports to the Conference of the Parties include references to taxonomy. Coverage is very variable; different countries focus on different matters ranging from general descriptions of taxonomy in the country to specific information about particular topics. Of the 115 national reports submitted prior to August 2000, a preliminary analysis shows 33 contained significant elements that reported on the status of taxonomy or provided relevant taxonomic information. The following is a brief synthesis from these reports. All of the reports are available in full on the Secretariat's website at <http://www.biodiv.org/spec-tax/gti/index.html>.

Armenia

6. Research on various groups of animals including molluscs, arachnids, beetles, ticks, amphibians, reptiles, and birds and studies focusing on their taxonomy, zoogeography, ecology and behaviour, as well as issues relating to their conservation, have been under way for the past 50 years.

7. Research also covers inventories of flora and fauna and their genetic diversity, taxonomy, population dynamics, plant phenology, identification of impacts on biodiversity and conservation measures. A range of collections provides the basis for much of this research, including collections based in herbaria, museums, botanical gardens, as well as seed-banks, and genetic databases. For example, the Institute of Botany of the National Academy of Sciences holds more than 265,000 plant specimens, while a further 25,000 are held in Yerevan State University. The largest collections of animals are based in the Institute of Zoology and in the Natural History Museum of Armenia, with a total of 10,000 specimens, including many rare and threatened species, such as Sevan trout, leopard, manul, wild cat, striped hyena and Armenian mouflon.

Australia

8. Seven families of mammals, including those of the platypus and the koala, and 12 of flowering plants that are endemic give Australia far more endemic families than any other country. At the species level, the mean percentage of endemism for terrestrial vertebrates and flowering plants is 81 per cent. Approximately 88 per cent of Australian reptiles, 70 per cent of birds, 94 per cent of frogs, and 99 per cent of non-marine molluscs occur nowhere else in the world.

9. Australia recognizes the need to accelerate research into the taxonomy, geographic distribution and evolutionary relationships of Australian terrestrial, marine and other aquatic plants, animals and micro-organisms, giving priority to the least known groups, including non-vascular plants, fungi, invertebrates and micro-organisms. Each of the Australian states and territories has a herbarium and/or museum funded by the Commonwealth or the state or territory. Together, these institutions hold over five million specimens of Australian plants and over 25 million specimens of fauna, both native and naturalized. The aim of these institutions is to provide the underlying taxonomic knowledge for the biota of their regions.

Austria

10. The renewal of gene bank material is a major problem. Neglected forms include vegetable varieties, where major gaps in taxonomic knowledge exist, and potatoes, whose difficult storage prevents conservation. Austria considers that these fields require greater attention on a nationwide basis; and that in the case of potatoes, international cooperation may provide a way forward. A special effort should be made to teach the taxonomy of species-rich groups (e.g., insects, spiders) in university curricula in order to satisfy the demand for much-needed taxonomists.

Bahamas

11. A major feature for biodiversity data and information management is the need to establish and strengthen national institutions for biodiversity collections, e.g., the National GIS Unit (geospatial data collections, data standards and training), the National Museum and National Archives (taxonomic and systematic collections), the National Library (bibliographic collections and information resources), the National Herbarium (taxonomic collections), and the Botanical Gardens (*ex situ* collections of native plants).

Bhutan

12. An inventory of the country's biodiversity is now under way. Bhutan is planning to use Costa Rica's experience with INBio as a model for biodiversity inventory and taxonomic research.

Botswana

13. There is a severe shortage of staff in all specialized fields of taxonomy and existing staff do not have sufficient academic training and experience in taxonomic research or on biodiversity issues.

Brazil

14. The only systematic treatise on botany in Brazil is the *Flora Brasiliense* by Martius, compiled over the period 1840- 1906. Although still a standard reference, it is now considered out of date and there is therefore an urgent need for a new synthesis. The National Botany Plan (“*Plano Nacional de Botânica*”) has adopted the strategy of promoting the compilation of flora at the state level, which will lead eventually to a new *Flora Brasiliense*. The Taxonomic Diversity Programme (“*Programa Diversidade Taxonômica*”), set up in 1996, combines all the research on plant taxonomy traditionally carried out in different institutions.

Bulgaria

15. The country’s rare flora and fauna include more than 700 vascular plants, many of which are endemic species found in the high mountain regions; 567 species of non-insect invertebrates (about 23 percent of all known species); more than 1,500 insect species; 29 species of Black Sea and freshwater fish; 2 species of snakes; 78 birds (including 16 from the IUCN 1993 List of Globally Threatened Species); and at least 10 large mammals, including the Black Sea monk seal, endemic subspecies of harbour porpoise and bottle-nosed dolphin, chamois, brown bear, wolf, otter, and European marbled polecat. While the foundation of scientific information on Bulgaria’s biological diversity is one of the nation’s most significant strengths, a number of gaps have been reported. The most significant gaps are: insufficient information on species richness, distribution, current populations, and population trends for many taxonomic groups; insufficient information on biological diversity in specific geographic regions; and insufficient information on the impact of various anthropogenic threats and on mitigation methods and restoration procedures.

Egypt

16. A large number of well-designed and illustrated booklets, posters, brochures and pamphlets depicting numerous species of plants, birds, fish, corals, mammals and other biota in their natural habitats, as well as 11 specialized volumes dealing with various taxonomic groups have been published. A simple but highly efficient system of data storage and retrieval has been set up to incorporate available information on representatives of the various taxonomic groups in Egypt. It covers data on the taxonomy, ecology, biology (e.g., life-form, life-cycle, reproduction, nutrition, pathogenicity, behaviour), status, frequency, local and global distribution, conservation measures and economic value of every species of plants, animals and micro-organisms. So far, available information for about 35 per cent of the biota of Egypt is included in this database and work is going on to include the rest.

Finland

17. Scientific research on biological diversity, including taxonomy, systematics and ecology, occupies a central position in GEF-funded projects. Although Finland has an exceptionally high level of expertise in these fields, Finnish expertise has not been used very much in these projects to date.

Greece

18. Research on biodiversity is being carried out mainly by the departments of biology, forestry, agriculture and environment of universities and the related research institutes. This sector poses important problems, since basic research, especially in the areas of taxonomy and ecology, does not receive the support it deserves. The main deficiencies concern the knowledge of systematics and biogeography of terrestrial invertebrates and marine species, while the biology and ecology of most organisms remains unknown. The major Greek databases on Greek flora are: (a) the *Data Bank for the Greek Natural Environment* which, in its final phase, includes 5,517 plant taxa, nearly the total of the higher plants of Greece, and the description of 430 sites; (b) the database system of *Flora Hellenica*, which was developed in order to store and manage the large amount of data for Greek flora used for the writing of *Flora Hellenica*. In 1994, this database included information on 5,605 species; (c) the

database on endemic, rare and threatened plants of Greek flora, entitled *Chloris*, of the Department of Biology, University of Athens, within the framework of the programme for the support of research manpower. It includes information on the taxonomy, distribution, status, protection, biology, ecology and bibliography of about 2,000 plant taxa of Greece and contains all threatened and protected Greek taxa, as well as the majority (> 90 per cent) of the endemic taxa.

19. From a recent analysis of the research activities (June 1997), indicative of the general situation in Greece, the following conclusions were reached:

(a) Researchers per animal group: mammals: 40; reptiles: 20; amphibians: 12; fish: 35; insects: 45; other invertebrates: 80; birds*: 30;

(b) Researchers per general field of research : Systematics/Biogeography: 90; Ecology: 170; Applied (fisheries etc.): 45; Genetics/Physiology: 15; Veterinary/Pathology: 15; Conservation/Management: 20.

Gambia

20. An increase in funding and training for Gambian scientists is urgently needed to build the Gambia's capacity and expertise in areas like taxonomy.

Guyana

21. The Guyana country study on biological diversity tabulated the number of species recorded for each broad taxonomic group, but the information is very incomplete.

India

22. Many autonomous institutions and universities have contributed to the identification and documentation of biodiversity. State and regional floras have been identified, and documented by the Centre for Taxonomic Studies (Bangalore) and Rapinat Herbarium (Tiruchirapalli). Centres for advanced studies (CAS) in different universities in botany, zoology and marine biology established by the University Grants Commission (UGC) have added significantly to the knowledge of India's flora, fauna and micro-organisms both in the land and seas.

Ireland

23. National botanic gardens contain a living plant collection, a herbarium of preserved specimens and a botanical and horticultural library. The living collection of some 20,000 plant species and cultivars represents a huge genetic resource and is the greatest concentration of plant diversity in Ireland. The herbarium of 500,000 preserved specimens represents all the plant groups and the fungi. It aims to be comprehensive in its record of the Irish flora and has significant samples of the flora of the temperate and tropical world. The library of some 30,000 volumes has a historical and developing collection of taxonomic and horticultural works.

Israel

24. A national biodiversity database is being established to contain data from many sources now scattered among several bodies including digitized field observations of the National Reserves Authority, herbarium and museum records, and non-governmental databases. This information, arranged on a geographical information system (GIS), will cover a wide range of taxonomic groups at many temporal and spatial scales to allow analysis at many levels, from populations to landscapes, and from seasonal to long-term patterns. At this time, it is not expected that the database will include data on genetic diversity.

* Specifically for birds, there are a number of additional researchers that are working for the Hellenic Ornithological Society.

Kenya

25. The number of specialists working on species and genes is inadequate to meet the country's collective needs. Kenya requires taxonomists especially for the lower forms of life (algae, fungi, bacteria). Currently, research in biological diversity (taxonomy, inventory, etc) tends to be ranked very low in the list of priorities thereby suffering neglect.

Kyrgyz Republic

26. Kyrgyz Republic reports that with 0.13 per cent of the world's landmass, it has a good representation of all terrestrial taxonomic groups. Extensive ecological and taxonomic research has been carried out on ground mammals, fish, and on various groups of invertebrates by over 39 scientists. Two volumes listing the genetic resources of the Kyrgyz Republic were also published in 1996 (focusing on viruses, protozoa, and invertebrates).

Latvia

27. Latvia reports that 18,047 animal species have been recorded in the country. According to the most recent scientific assessments, there could be more than 30,000 animal species in Latvia altogether, including 20,000 insect species. The number of bird species (about 320) is determined by migration routes crossing the territory of Latvia. In this perspective, the coastal areas and wetlands, where large concentrations of migrating birds can be observed during migration, play a particular role. Currently there are no special monitoring projects on fungi, lichens and mosses. The new issue of the *Flora of Vascular Plants* is under preparation by the Laboratory of Botany (Institute of Biology). The first floras of mosses and woody plants, and atlases of mammals, reptiles and amphibians are being prepared.

Malawi

28. A comprehensive collection of plant species has been undertaken throughout Malawi, including production of checklist of plants in protected areas and sites of high plant diversity, and publication of taxonomic treatments and revisions of major plant taxa. A major ethno-botanical survey of the flora of Malawi has also been completed and published.

Norway

29. Identification of species, ecosystems and biological processes is an essential basis for practical work related to biological diversity in Norway. The natural history museums are part of the universities, and their work is on the borderline between basic and applied research. One of their important functions is to supply information on biological diversity to the authorities and the public. In order to strengthen this element of the museums' activities, taxonomy has been given priority by the universities, partly by the provision of funds from the Research Council of Norway.

Oman

30. Field studies have been carried out in many taxonomic areas and knowledge is considered good.

Poland

31. The total number of scientific personnel engaged directly or indirectly in the study of biological diversity, including the systematics of plants and animals, is estimated at approximately 4000.

Portugal

32. In Portugal, there is a shortage of in-depth biological studies on certain taxonomic groups, especially the invertebrates, which would enable Portugal to draw up complete and up-to-date inventories of every group.

Russian Federation

33. Approximately 11,400 species of aboriginal and endemic plants belonging to 1,488 genera and 197 families are presently registered in the Russian Federation. In total, this makes up approximately 50 per cent of the flora range in the former Union of Soviet Socialist Republics. Identification of the floral taxonomic composition is far from being completed. Annual explorations of the country's territory yield dozens of species earlier unknown to science; plants common to adjacent territories and multiple adventive species, particularly of North American origin, are discovered to be growing in Russia. A lot of groups need a modern taxonomic revision. Over 9,000 sea, freshwater and soil algae species (macro- and micro-phytes) that amount to about one quarter of world algae flora are registered on Russian land and water areas.

34. More than 160 algae species are of economic value and have found wide application in food, medicinal and other areas. Russian lichen flora contains about 3 000 species. This master catalogue incorporates detailed data on taxonomic diversity, geographic ranges, ecology and usable properties of 2,160 lichen species grouped in 167 genera and 45 families. The reptilia fauna of Russia is not rich (75 species) due to rather severe climate in most parts of the territory; it constitutes approximately 1.2 per cent of global diversity in this class of vertebrates. Endemic species of reptiles are lacking.

35. Many fish species, for example Salmoniformes and Cypriniformes, form multiple varieties, races, subspecies, including endemic, that differ in ecological and morphological aspects within a wide geographic range. To specify their taxonomic status, further investigations are needed with the application of updated cytogenetic and genetic methods. Fish fauna comprises 268 freshwater, semi-migrating and migrating species (sea/fresh waters) and no less than 400 species observed in coastal waters. In total, this constitutes about 2 per cent of the global diversity of of this class. Freshwater fauna indicates a high percentage of endemic species. The Lake Baikal basin ranks first in endemics. The highest species diversity is seen in that region and the Amur basin.

St-Lucia

36. There are many wild plant species indigenous to the island that are utilised for aromatic and medicinal purposes. These include: mint, bayleaf, basil, sage, aloe, shining bush, St. John bush, hibiscus, carpenter's grass (chapantye), lemon grass (citronella), castor oil and gros pompon. Some indigenous species are under-utilized because of the ready availability of imported pharmaceuticals. Taxonomic classification and inventories of wild and traditional types is necessary for a successful biodiversity utilization programme.

Sweden

37. The Swedish Museum of Natural History in Stockholm and other natural history museums play an important role in efforts to safeguard biodiversity. They often have special expertise and resources in the areas of systematics and taxonomy, research and, not least, public information activities relating to biological diversity. In the view of the Government, taxonomic research should be stepped up as part of the overall effort to promote biodiversity. Work in that area should be more clearly linked to ecological and technical research, among other things with the aim of enhancing our understanding of the distribution of biodiversity, the ways in which it is affected by human activities, and what these factors entail in terms of our efforts to achieve sustainable use of natural and genetic resources.

Switzerland

38. Between 33 and 95 per cent of plant and animal species in Switzerland are considered to be rare or endangered (the percentage varies between taxonomic groups), and some have already disappeared.

Syrian Arab Republic

39. Data on the status and trends of the different components of biodiversity have been collected by national consultants. Universities have herbaria, fauna collections and data banks, which contain all the known information on biodiversity. Postgraduate studies are important source of information on the state of knowledge of plants and animals in the country.

Thailand

40. The 1,625 species of terrestrial vertebrates (mammals, birds, reptiles and amphibians) found in Thailand are at least five times more numerous than those in Norway (299 species) or Sweden (328 species). Due to abundance of raw data in majority of biodiversity institutions, compiling and publishing the data are considered as the most important elements in improving information availability in the country. Such information includes lists of species found in the wild, taxonomic description of species and composition and distribution of species at all levels.

Trinidad and Tobago

41. There have been no recent taxonomic reviews of the marine fish of Trinidad and Tobago. It is possible to project an ichthyofauna of perhaps somewhere between 400 and 500 species in several dozens of orders and families.

Turkey

42. A priority is to improve biophysical inventories at ecosystem, species and genetic levels by conducting biological inventories, based upon jurisdictional priorities, that take into consideration vulnerable, threatened and endangered species and ecosystems, critical habitats, little-studied taxonomic groups, taxonomic groups of economic importance, areas of high diversity and areas where human development and disturbance are the most significant.

United Kingdom

43. In 1996 the United Kingdom Biodiversity Group identified a need to review research requirements arising from the United Kingdom Biodiversity Action Plan and, in particular, the individual species and habitat action plans flowing from it. The review commissioned demonstrated that, overall, a high proportion of the research needs identified were being addressed. Ninety-six per cent of the research requirements for habitats are being wholly or partially addressed and 50 per cent of those identified for species are being addressed. However, as one might expect, the degree to which the research requirements for different taxonomic groups are being met varies considerably. For popular groups such as birds, approximately 96 per cent of the research identified is being addressed whilst for the lesser-known lower plants only 33 per cent is being addressed. A research group will be established by the Department of the Environment, Transport and the Regions to take forward issues relating to raising awareness of research initiatives and to influence the direction of particular research funds so specific needs are targeted. The United Kingdom has also established an information system, known as the United Kingdom System for Ranking Biodiversity, which includes information validation by specialist review panels of taxonomists.

B. Synthesis of reports from major meetings of experts

44. Several key meetings of experts have been held to identify elements for the further development of the programme of work on the Global Taxonomy Initiative. The meetings include, among others:

- (a) The Crete workshop convened by DIVERSITAS in 1997;

(b) The Darwin Workshop on "Removing the Taxonomic Impediment", co-convened by Environment Australia and the National Museum of Natural History, Smithsonian Institution, in 1998 (report accessible at <http://www.anbg.gov.au/abrs/flora/webpubl/darwinw.htm>);

(c) A meeting on "The Global Taxonomy Initiative: Shortening the Distance between Discovery and Delivery", held in London in 1998, at the Linnean Society, under the auspices of DIVERSITAS, the Scientific and Technical Advisory Panel of the Global Environment Facility (GEF) and Environment Australia (report available at <http://www.anbg.gov.au/abrs/flora/webpubl/london.htm>);

(d) The New York workshop on "Using Systematic Inventories to Meet Country and Regional Needs" held in 1998 (UNEP/CBD/SBSTTA/4/Inf.7) (report also available at <http://www.biodiv.org/spec-tax/gti/index.html>)); and

(e) The Paris meeting of the Expert Panel on Taxonomy of DIVERSITAS, core programme element 3, on "Implementing the GTI", held in Paris in 1999, to give an overview of current taxonomic knowledge of species diversity, and some recommendations on opportunities and priorities, and suggestions for capacity building, taking into account the earlier DIVERSITAS workshop in Crete (report available at <http://www.biodiv.org/spec-tax/gti/index.html>).

45. Major findings include:

(a) Recognition of the existence of a taxonomic impediment to sound management and conservation of biodiversity. Removal of this impediment is a crucial, rate-determining step in the proper implementation of the Convention's objectives. There is an urgent need to train and support more taxonomic experts, and to strengthen the infrastructure required to discover and understand the relationships among the world's biological diversity;

(b) Information derived from biological collections held in the world's taxonomic institutions underpins the global, regional and national efforts to conserve biological diversity. The collections, staff and associated information serve as an essential resource for countries in fulfilling their obligations under the Convention on Biological Diversity;

(c) Accordingly, a taxonomic perspective should be integrated into policies and programs established at all levels of government to achieve sustainable development and conserve biodiversity. Taxonomy should underscore all national, regional and global programs for inventory and monitoring of biological resources in ecosystems and requirements for broad-scale environmental assessment;

(d) The need to develop initiatives for critical taxa. It is crucially important to develop a few new pilot projects, bringing together resources of governments, institutions and scientists, that will address the critical areas of biodiversity. Ideally, such projects would involve taxonomic groups that require international cooperation: groups of taxa with a broad geographical distribution, that are relevant for the objectives and priorities and which will yield results in the short term;

(e) Capacity-building for taxonomy should be linked to the effective implementation of the Convention on Biological Diversity, particularly the national identification of areas of high diversity; improving the understanding of ecosystem functioning; giving priority to threatened taxa, taxa that are or may be of value to humanity, and those with potential use as biological indicators for conservation and sustainable use of biological diversity;

(f) Development of guidelines and programme priorities for funding, including for the financial mechanism under the Convention, should take account of the specific needs for capacity-building in taxonomy to serve areas such as bioprospecting, habitat conservation and the sustainable use of biological diversity. Such support should recognize the need for adequate, long-term housing of collections and records and long-term research;

(g) For new taxonomists to be recruited, there is a need to provide employment opportunities. It is urgent that Parties take this need into consideration and integrate it into the programme of capacity-building;

(h) Where appropriate, national taxonomic needs assessment and action plans should be developed by setting national priorities, mobilizing available institutional resources, and identifying available funds. Countries could benefit from regional and subregional collaboration;

(i) Establishing regional and subregional training programmes is important. Attention should also be given to the training of specialists, parataxonomists, and technicians in this field. The field of taxonomy must be integrated with training activities such as biological monitoring and assessments. Maximum use should be made of existing institutions and those organisations active in these fields;

(j) There is an urgent need to make the information on existing taxonomic knowledge, including information about the taxa in worldwide collections, available to countries of origin;

(k) Taxonomic information to assist capacity-building in taxonomy should be included within the clearing-house mechanism of the Convention on Biological Diversity. The taxonomic work embodied in existing archives and inventories, field guides and publications needs to be updated and readily accessible through worldwide services and unnecessary duplication of work should be avoided. The dissemination of information should further the objectives of the Convention and be linked to user needs. This sharing of information will require greater international collaboration. It should also be recognised that traditional taxonomic systems offer a valuable perspective on biological diversity and should be considered part of the total taxonomic knowledge base at national, regional and subregional levels;

(l) Since taxonomy generally involves the use of biological collections, those concerned should consider the adoption of mutually agreed upon material transfer agreements or equivalent instruments in accordance with the provisions of the Convention on Biological Diversity for exchange of biological specimens and information relating to them;

(m) Framework taxonomic activity, which is necessary to help implement the Convention on Biological Diversity, and which requires differing levels of support from GEF, includes the need to provide adequate resources for the creation of taxonomic infrastructure (collections, equipment, human resources) in countries where it does not yet exist, or is poorly developed or inadequate, and improvement of existing infrastructure especially in developed countries;

(n) Taxonomic/systematic questions, which are essentially global in nature, must be approached through cooperative efforts at national, regional and global levels;

(o) The description and collation of the world's species diversity cannot be completed in a reasonably short time, without modifications to the ways species are described and recorded. Given the rapid improvements in information technology, it is perhaps time to consider the establishment of an electronic journal devoted to species descriptions, or the establishment of worldwide coordinated databanks, into which new descriptions must be logged after publication.

C. Conventions, initiatives and programmes that have indicated their support for the GTI, and possible support for its implementation

46. By paragraph 5 of its decision V/9, the Conference of the Parties invited all interested international and regional conventions, initiatives and programmes to indicate their support for the Global Taxonomy Initiative and its coordination mechanism, through the Executive Secretary, and in doing so to specify their particular areas of interest and any support for the Initiative that could be forthcoming. As at 30 October 2000, BioNET International had formally written to the Executive Secretary indicating its support for the GTI. In addition, focal points for the Initiative had been proposed

by the Food and Agriculture Organization of the United Nations (FAO), GEF, UNEP and the Global Biodiversity Information Facility (GBIF).

D. Short-term activities, including regional meetings to prioritize the most urgent taxonomic needs and to formulate specific regional and national projects.

47. In paragraph 3 (a) of its decision V/9, the Conference of the Parties requested the Executive Secretary to initiate short-term, 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.

48. In this regard, the Swedish International Development Cooperation Agency (SIDA) has provided funding for two regional meetings, in addition to background research and the preparation of meeting reports. The first of these will be a Central American meeting with representatives from each of the 7 countries making up Central America (Costa Rica, Guatemala, Honduras, Belize, Nicaragua, El Salvador, Panama), to be held from 5 to 9 February 2001.

49. The second regional meeting will cover all of Africa, with approximately 30 representatives to provide regional coverage, with specific emphasis on ensuring adequate representation from French speaking nations, zoologists and microbiologists, and will be held from 27 February to 2 March 2001. In preparation for both meetings, national focal points have been urged to provide completed needs assessments as soon as possible for a basis for discussion at the meetings. Major objectives and outputs of the meetings are to:

(a) Enable African/Central American countries and collaborating institutions to gain clarity on the principles, role and mechanisms of the GTI;

(b) Establish a comprehensive strategy and achievable workplan according to which funding for building capacity in taxonomic research in Africa/Central America can be accessed from the Global Environment Facility;

(c) Initiate and urge Governments to support the completion of new regional, subregional or national taxonomic needs assessments, where these do not exist;

(d) Formulate specific national, subregional or regional projects aimed at meeting the most urgent taxonomic needs;

(e) Produce a final report that can act as a guide to achieve these objectives.

50. In addition, a preliminary meeting of representatives of European taxonomic institutions took place in Amsterdam on 20-21 October 2000, funded by Fauna Europaea. The report from the meeting will be sent to the European Commission as a possible basis for a regional assessment. Other meetings may take place with a wider constituency: discussions are currently under way on a possible Asian regional meeting, and North American taxonomic institutions are also considering ways of holding meetings to provide regional consensus on taxonomic issues in each of their regions.

E. Submissions from Parties, Governments and relevant organizations

1. Analysis of the questionnaires on national taxonomic capacity

51. In its decision IV/1 D, the Conference of the Parties invited Governments to submit any reviews or studies on specific taxonomic needs identified within each country, as well as any information on national taxonomic needs assessments that may have been undertaken. To facilitate a response from countries, the Executive Secretary in April 2000 requested all national focal points for the Convention to

provide relevant information by 8 October 2000, using a short questionnaire. A reminder on the subject was sent in September 2000.

52. As of 25 January 2001, the following 59 countries had provided responses to the Executive Secretary's questionnaire on taxonomic capacity, namely: Australia, Austria, Bahamas, Bangladesh, Belarus, Belgium, Belize, Botswana, Costa Rica, Croatia, Djibouti, Egypt, Eritrea, Estonia, Ethiopia, Fiji, France, Germany, Greece, Iran, Ireland, Israel, Italy, Jamaica, Japan, Kenya, Kiribati, Latvia, Lebanon, Lesotho, Malawi, Mali, Mauritius, Mexico, Morocco, Netherlands, New Zealand, Niger, Oman, Peru, Philippines, Republic of Korea, Romania, Russia, Saint Lucia, Samoa, Singapore, Slovakia, Slovenia, South Africa, Sri Lanka, Swaziland, Sweden, Switzerland, Thailand, United Kingdom, Vanuatu, Venezuela, Yemen.

53. The main findings show that 54 per cent of these countries had undertaken some taxonomic needs assessments at the national or regional level, whereas 42 per cent had not, and 4 per cent did not know if assessments had been undertaken. Where such assessment had been undertaken, 77 per cent were still current, 23 per cent required revision, and only 33 per cent were available electronically. Fifty-nine per cent of countries had identified specific taxonomic needs, although only 19 per cent of these were available electronically. Forty-four per cent of countries did have some form of registers of practising taxonomists, though not all were complete, whereas 53 per cent had no register at all, and 4 per cent did not know if any register existed. Fifty per cent of those that did have registers also had them available electronically, and most registers also contained information on the areas of expertise of the taxonomists. 36 per cent of countries did have a description of the taxonomic collections within their respective countries, 46 per cent had incomplete descriptions, and 14 per cent had no descriptions at all. Of the full descriptions, 42 per cent were available electronically.

54. These results show that our current level of knowledge of our taxonomic capacity, and the understanding of the most urgent taxonomic needs, vary widely. The results of this questionnaire can best be built upon if Governments that have not yet done so supply a response so that a truly global picture can be assembled. Additional information could be made available by countries through a review of their current taxonomic capacity status both regionally and globally, and by undertaking taxonomic-needs assessments where they are missing or incomplete, as well as by preparing national strategy to address their specific needs in taxonomy. The results of the questionnaire received by the 31 October 2000 have been placed on the Secretariat's website (www.biodiv.org). Specific additional information provided by countries is also available on the website, under the Global Taxonomy Initiative. A short synopsis of this additional information provided is presented below.

55. *Australia* reports that its national strategy for the conservation of Australia's biodiversity contains some information on taxonomy that is still current, but the whole strategy is currently under revision. Similarly the Australian state-of-the-environment report is still considered current but a new edition is under preparation, and while it does not address taxonomy directly it does provide summaries of numbers of taxa. The Australian biological resources study holds an internal register of taxonomists and those interested in taxonomy in Australia and while currently it is not available for public consultation, it is in the process of being converted to a self-registration website.

56. *Bangladesh* reports that floral assessments at national level have been carried out, centred mostly at the Bangladesh national herbarium, but also to some extent at the botany departments of the universities of Chittagong, Jahangirnagar and Rajshahi, and the forest research institute in Chittagong. Faunal taxonomic assessments are centred at the zoology departments of the universities of Chittagong, Jahangirnagar and Dhaka. These assessments are still current, but not available electronically. Specific taxonomic needs have been identified as threatened plants, medicinal plants, plants of ecological importance, such as sedges, grasses, aquatic plants, orchids and wild relatives of crop plants. Faunal groups specifically identified are birds, fish, mammals, amphibians, insects and reptiles. The Bangladesh

Association of Plant Taxonomists has a register of all practising plant taxonomists in the country, and the Wildlife Association registers zoologists active in faunal taxonomy. Published descriptions of collections are incomplete, although details of collections of 61 Angiosperm families have been published in the *Flora of Bangladesh*, and descriptions of zoological collections are being published on an ad hoc basis.

57. *Belgium* reports that the Belgian National Committee of Biological Sciences, operating under the Royal Academy of Sciences and the Royal Academy of the Arts, has identified the specific taxonomic needs for the country. A broad survey (2000-2001) aiming to register and orientate Belgian biodiversity research is being done by the “Biodiversity Platform” sponsored by the Belgian Federal Office for Scientific, Technical and Cultural Affairs.

58. *Djibouti* reports that several different studies on the fauna and flora have been carried out. Since 1998, Djibouti has been engaged in the process of implementing the Convention on Biological Diversity including through a series of studies to make an inventory and evaluate the state of biodiversity, in the terrestrial as well as in the marine ecosystems. Despite these studies that have been carried out on the fauna and the flora, it is not possible to set up a general taxonomy plan because of a lack of the institutional framework needed to implement it.

59. *Egypt* reports that their national assessment of biodiversity information done in 1998 identified that taxonomic groups of lower biota (Protista) were the least known, and with few available taxonomic experts.

60. *France* reports that taxonomic-needs assessments have been made in 1989 by the *Société française de systématique*, and a new one by the *Académie des Sciences* is currently in press. However, these assessments were made in terms of broad taxonomic capacity, and not in terms of precise taxa.

61. *Germany* reports that there is a study on the science of biodiversity — published in German — which contains some chapters with a very general overview of taxonomic needs. It is still considered current, but it is not available electronically. With regard to a register of practising taxonomists in Germany, the German Society for Biological Systematics maintains an online database on German-speaking Systematists (<http://biosys-serv.biologie.uni-ulm.de/expertdatei/germansystem/germansystem.html>). However, this database is not representative because it contains mostly zoologists. In addition, there is a database on German-speaking entomologists and arachnologists.* The members of the German Botanical Society (including, *inter alia*, taxonomists and systematists) are registered in their membership list but there is no online database available. Germany also reports that there is currently a joint project to describe the nation’s taxonomic collections in the field of botany and zoology called ZEFOD (financed by German Ministry for Education, Science, Research and Technology).

62. *Italy* reports that, while taxonomy has a great tradition in the country, at university level, it is currently declining due to competition with other fields of science. Italy also reports that its Ministry of Environment through the Conservation Nature Service completed in 1991-1993 an inventory of Italian animal species, called the “Check List of Italian Fauna”, with the collaboration of the principal Italian taxonomists. It was published in 110 issues and it is available on the Internet site of the Ministry of Environment. Furthermore, the Ministry of Environment, through the Conservation Nature Service, completed in 1995-1999, with the collaboration of the principal Italian botanists, a database on 458 vascular plant species endangered at national level, according to IUCN categories, providing also ecological information and regional distribution. In 1999, Italy started the national Global Taxonomy Plant project with the aim to produce an electronic inventory of Italian flora including also lichens, mosses, fungi and algae.

* <http://biosys-serv.biologie.uni-ulm.de/expertdatei/dgaae/dgaaeFrm.html-ssi>.

63. *Kenya* reports that there is no documented national assessment of taxonomic needs, although there are isolated specific needs projects, which are available electronically. There is a perceived need to harmonize the various initiatives under way.
64. *Mexico* reports that their analysis of taxonomic needs assessments, descriptions of taxonomic collections, and a register of practising taxonomists have been completed by CONABIO and are available electronically over the Internet at www.conabio.gob.mx.
65. *Morocco* has provided a detailed account of its taxonomic status, which is provided in full on the Secretariat's website. Morocco notes that while a great amount of information has been gathered on the taxonomy, biology, mapping, chemistry, karyology, uses and conservation of Moroccan plant and animal species, no consistent attempt has been made to bring this all together and relate it to an agreed taxonomic framework.
66. *The Netherlands* reports that specific taxonomic expertise is not available for several problematic and "endangered" taxa. For instance, no professional bryologists, lichenologists or acarologists are currently working in the Netherlands.
67. *The Philippines* reports that some initial discussion has taken place on undertaking a national taxonomic needs assessment but no real assessments have yet been made. In addition, a Flora of the Philippines has been listed as a priority project in the Philippines National Biodiversity Study and Action Plan. There are several registers of practising taxonomists, including one published by the Association of Systematic Biologists of the Philippines, and another by the Association of Pacific Systematists, which includes a partial list from the Philippines, as well as information contained in the register of taxonomists—East Asia and the Pacific Systematist Network (EAPNET).
68. *Slovakia* reports that taxonomic research in the country is concentrated in several institutions and that the major biological collections are maintained in the Slovak National Museum and several regional or local museums. With regard to international co-operation, Slovak taxonomists are taking part in major international initiatives such as Euro+Med PlantBase (new integrated information system aiming to replace partly outdated *Flora Europaea*), *Atlas Florae Europaeae*, and *Species Plantarum* ("Flora of the World"). Groups of specialists in botany, mycology, microbiology and zoology are currently being organized to prepare a detailed assessment of the status of taxonomic research and teaching and to provide the taxonomic priorities in Slovakia and a final report is expected at the beginning of 2001.
69. *Sri Lanka* reports that taxonomic needs assessments and registers of taxonomists are only available for botanical gardens and botanical taxonomists.
70. *Swaziland* reports that taxonomic-needs assessments have been undertaken at the regional level, but that registers of taxonomists are incomplete, that they are currently renewing their national checklists, and that none of the current information is available in electronic version.
71. *Thailand* reports that taxonomic-needs assessments are currently being started, but are not yet comprehensively documented nor addressed.
72. *Vanuatu* reports that there are no practising taxonomists in Vanuatu but there are some nationally important collections. A key need identified over many years is for more appropriate facilities to house these collections to prevent their continued deterioration and facilitate their use.
73. *Yemen* reports that they have completed a partial assessment of their taxonomic needs in 1998/99, during the development of the national biodiversity strategy, but that further work is required.

2. *Submission of national GTI focal points*

74. In decision V/9, the Conference of the Parties requested all Governments to submit to the Executive Secretary details of a national focal point for the GTI. This focal point would assist in the implementation of the GTI at the national and regional levels by providing information to the taxonomic community within the country, as well as to the Secretariat of the Convention on national activities. The focal point should also act as a bridge to the broader biodiversity community in order to continue to refine the type and content of taxonomic information most urgently needed for decision-making on conservation and sustainable use.

75. As of 25 January 2001, 12 countries had submitted details of their GTI national focal point, namely, Australia, Djibouti, Grenada, Japan, Kenya, Mauritius, Namibia, Netherlands, New Zealand, Peru, Slovakia, and Sweden. Details of the focal points have been, or will shortly be, entered into the Convention's clearing-house mechanism.

3. *Submission of programmes, projects and initiatives for GTI pilot projects*

76. As of 25 January 2001, 12 programmes, projects and initiatives for consideration as pilot projects under the Global Taxonomy Initiative had been submitted by various countries and organizations, namely:

(a) Taxonomic initiatives for conservation and sustainable use of biological diversity: national to global capacity building, using India, Mongolia and Morocco as regional focal exemplars, submitted by: UNESCO, Morocco, India, and Mongolia;

(b) National strategy and action plan for taxonomy in the Philippines and an assessment of national taxonomic capacity, submitted by the Philippines;

(c) Mapping African dragonfly diversity, submitted by the Invertebrate Conservation Research Centre, South Africa, the International Centre of Insect Physiology and Ecology (ICIPE), Kenya, the Major Systematic Entomology Facility Group (MSEFG), and the Smithsonian Institution, United States of America;

(d) Establishment of subregional technical cooperation networks, Submitted by BioNET-International;

(e) Distribution patterns of pest and beneficial termites: gathering collection data in an agrobiodiversity context, submitted by ICIPE, MSEFG, the Smithsonian Institution, BioNET-International, and the Natural History Museum, London;

(f) Checklist of Afrotropical insects, submitted by ICIPE, and the Smithsonian Institution;

(g) Data-bank of images of Neotropical moths, submitted by the Smithsonian Institution and the Natural History Museum, London;

(h) The Global Butterfly Information System, submitted by MSEFG and the Natural History Museum, London;

(i) Development of an information-provision system for a hyper-diverse insect group, submitted by the CSIRO Division of Entomology, Canberra, Australia, MSEFG, and the Natural History Museum, London;

(j) Networking Latin American systematists to generate a practical taxonomic product, submitted by INBio, Costa Rica, and the Natural History Museum, London;

(k) Flora of Ethiopia, submitted by the National Herbarium, Ethiopia;

(l) Species Plantarum, submitted by the Environmental Affairs Department, Malawi.

77. The GTI Coordination Mechanism (see paras. 78-81 below) has recommended the development of a transparent and objective review system for pilot projects for the GTI, with explicit criteria, for evaluating, implementing, and monitoring GTI pilot projects. Projects should consider all relevant decisions of the Conference of the Parties and state explicitly:

(a) Which identified taxonomic impediments are addressed (human resources, collections and facilities), including how such impediments were identified and the process through which they will be overcome;

(b) How the project shall provide objective, reliable taxonomic support to activities under the Convention;

(c) How the proposed activities shall allow parties to meet their obligations under the Convention, with particular reference to the maintenance of long-term sustainability of in-country taxonomic information;

(d) How robust taxonomic information shall be made available openly and dynamically, while allowing for future upgrading, meeting protocols on intellectual property rights, and ensuring future access and benefit-sharing.

F. Establishment of the GTI Coordination Mechanism

78. In decision V/9, the Conference of the Parties established a GTI Coordination Mechanism to assist the Executive Secretary in facilitating international cooperation and coordinating activities under the GTI. In June 2000, the Executive Secretary wrote to all national focal points requesting country nominations for representatives for the GTI Coordination Mechanism by 28 July 2000, and by 8 September 2000 the Secretariat had received 62 nominations from 48 countries. The Executive Secretary also invited, in accordance with the decision, UNEP, UNESCO, FAO, the International Council of Scientific Unions (ICSU), GBIF, GEF and BioNET International to be represented on the coordination mechanism, as well as an indigenous peoples' representative.

79. The GTI Coordination Mechanism met at the seat of the Secretariat of the Convention on Biological Diversity on 23 November 2000, to assist in the work on the Global Taxonomy Initiative, as agreed by the Conference of the Parties in decision V/9. The meeting was attended by experts from 10 countries (Canada, China, Costa Rica, France, Jamaica, Japan, Kenya, Namibia, Netherlands, Russian Federation), as well as participants from BioNET International, DIVERSITAS, FAO, GBIF, the SBSTTA Bureau, and an indigenous peoples' representative.

80. The meeting mostly addressed the draft programme of work for the Global Taxonomy Initiative prepared by the Executive Secretary (see UNEP/CBD/SBSTTA/6/10). The meeting also discussed mechanisms to improve international cooperation and coordination specifically with regard to implementing the GTI in line with other activities under the Convention.

81. The Coordination Mechanism emphasized that biological species do not observe national boundaries, and can only be understood and sustained if their variation can be studied and assessed in the natural habitats throughout their entire geographic range. Much taxonomic research depends on transnational activities and international cooperation involving joint fieldwork, travel of personnel, and the frequent exchange of data, samples, and biological specimens. The Coordination Mechanism noted the need to facilitate international cooperation for taxonomic research by *inter alia* granting the necessary permissions for approved research projects, field work, collection of biological specimens, and free exchange of personnel, data and relevant materials.

G. Support for Executive Secretary

82. Support for the Executive Secretary in planning and carrying out activities under the GTI has been provided by a Programme Officer funded for a year through donations from the Australian Government and the Swedish Biodiversity Council. Following the cessation of the contribution from Australia, the British Government has provided additional funding to employ a short-term consultant. The Executive Secretary is seeking further funding in order to appoint a Programme Officer for two years.
