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REPORT ON THE INFORMATION ON EX-SITU COLLECTIONS IN ACCORDANCE WITH DECISIONS IV/8

Note by the Executive Secretary

I. INTRODUCTION

1. In paragraph 2 of decision IV/8, the Conference of the Parties requested the Executive Secretary to:

"invite information from Parties and relevant organizations in time for the intersessional meeting in respect of those ex-situ collections which were acquired prior to the entry into force of the Convention on Biological Diversity and which are not addressed by the Commission on Genetic Resources for Food and Agriculture of the Food and Agriculture Organization, to help the intersessional meeting to make recommendations to the fifth meeting of the Conference of the Parties for future work on resolving the issue of such ex-situ collections with due regard to the provisions of the Convention".

2. In accordance with this decision, the Executive Secretary invited Governments and relevant organizations, including, botanical gardens, zoological gardens and microbial culture collections to provide such information. Letters were also sent to Centres of the Consultative Group on International Agricultural Research (CGIAR). The Executive Secretary also wrote to the Food and Agriculture Organization of the United Nations (FAO) to inform it of the decision of the Conference of the Parties and to invite submission of relevant information.

3. To date, the secretariat has received ~~reapes~~ responses from five Governments; FAO; the International Plant Genetic Resources Institute (IPGRI), on behalf of the CGIAR Centres; Botanic Gardens Conservation International (BGCI), on behalf of its associated botanical gardens; the International Species Information System (ISIS), on behalf of its associated zoological gardens and the World Federation for Culture Collections (WFCC), on behalf of its member culture collections. In addition, two botanic gardens, the Royal Botanic Gardens, Kew (United Kingdom) and the Rio de Janeiro Botanic Garden Research Institute (Brazil), provided information on their policies regarding access to their ex-situ collections. These submissions are contained in document UNEP/CBD/ISOC/Inf.1.

4. Although the information received was not sufficient to undertake a full analysis, some directions regarding the future work on resolving the issue of ex-situ collections specified in decision IV/8, paragraph 2, can be inferred. The information transmitted to the secretariat to date is summarized in this Note. Section II presents background information to this issue. Section III summarizes the responses from FAO and the CGIAR Centres. The information they provide offers some clarification regarding the scope of the matters currently under consideration. Section IV summarizes information provided by Governments. Sections V to VII contain information provided by, respectively, botanical gardens, zoological gardens and microbial culture collections. Although the vast majority of the ex-situ collections held in these institutions predate the entry into force of the Convention, more specified information may be required from these institutions to make meaningful analysis. Finally, section VIII presents conclusions and recommendations.

II. BACKGROUND

5. Article 15 paragraph 3 provides that provisions of the Convention with respect to Articles 15, 16 and 19 only apply to those genetic resources that come from the country of origin or that have been acquired in "accordance with this Convention". In effect this specifically excludes ex-situ holdings acquired prior to the entry into force of the Convention on 29 December 1993 from these specific obligations of the Convention. These resources were excluded due to the existence of a number of distinguishing features which meant that the regime of control developed for in-situ resources was not appropriate for ex-situ resources. The most important of these was the need to avoid retroactivity, as to bring under the terms of the Convention collections which had acquired their accessions under previous regimes was understood to be not only unfair, but contrary to basic principles of international law.

6. With regard to plant genetic resources, Resolution 3 of the Nairobi Final Act recognized "the need to seek solutions to outstanding matters concerning plant genetic resources within the [FAO] Global System for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, in particular (a) access to ex-situ collections not acquired in accordance with this Convention". Following FAO Conference Resolution 7/9 FAO members are negotiating the revision of the International Undertaking on Plant Genetic Resources (the Undertaking) to harmonize the Undertaking with the Convention, including the matter of such ex-situ collections, through the Commission on Genetic Resources for Food and Agriculture (CGRFA). In addition, by its mandate the CGRFA addresses all components of biological diversity of relevance to food and agriculture.

7. The Conference of the Parties has recognized in its decision II/15 "the special nature of agricultural biodiversity, its distinctive features and problems needing distinctive solutions". Furthermore, at its fourth meeting the Conference of the Parties expressed its support for the process of revising the Undertaking by adopting decision IV/6, which "urges that the momentum in the intergovernmental negotiations of the revision of the International Undertaking on Plant Genetic Resources in harmony with the Convention should be maintained with a view to its timely conclusion before the end of 1999.

8. Ex-situ conservation as defined by the Convention refers to "the conservation of components of biological diversity outside their natural habitats." Consequently ex-situ collections can be understood to refer to collections of seeds, plants, microbes and other forms of life held outside their natural habitat. Perhaps the most commercially significant, and certainly the most diverse and extensive holdings, of living resources are collections of seeds held in dry, cold storage conditions, known as gene banks. Ex-situ holdings can also include field plantings (such as botanical gardens or arboreta), live animals held in zoos, pollen held in cold storage, tissue cultures, or microbial holdings in laboratories.

9. The types of institutions in which these collections are housed can be divided into several categories. In biological terms the most important type is the collections of plant germplasm held by over 1700 botanic gardens around the world. In fact, few countries are without one or more botanic gardens. Approximately 800 of these gardens are currently active in plant conservation and this number is steadily increasing. Together they form the only network of institutions working specifically on wild plants, acting as centres for research, training and environmental education, especially in the maintenance of living plant collections. In total they manage over 4 million accessions and have at least 558 seed banks. They are estimated by FAO to hold specimens of half of all known higher plants.

10. Many countries also have networks of gene banks. They can have either a national or local focus and are sometimes managed together. The national system of the United States is a well known example of a sophisticated seed bank storage program.

11. Another important holder of germplasm is the network of private breeders who use plant genetic resources as the raw material for their work. The private breeders hold significant collections, which are in some cases, more representative than those controlled by public institutions. This is the case for example, with bananas and rubber. In the current information gathering exercise, private breeders were not contacted.

12. Ex-situ collections, as the repositories of perhaps the most valuable collection of genetic resources and an enormous amount of information and knowledge about conservation, play an important role in achieving the goal of the Convention. The Convention recognizes this. Article 9 specifies the obligations on Parties in respect of ex-situ collections, including establishing and maintaining facilities for ex-situ conservation and research, preferably in the country of origin. Ex-situ collections also play a vital role in realising and implementing many of the other provisions of the Convention. For instance, the implementation of Article 13, which calls for greater public education and awareness of the importance of biodiversity depends heavily upon botanic and zoological gardens. Likewise, the number of calls for more research and training, and for development of programmes that will enable and encourage sustainable use and conservation of biodiversity

largely depend upon the expertise and resources of the ex-situ collections and the institutions that maintain them. The exchange of information and technical and scientific co-operation called for specifically in Articles 17 and 18 and in other provisions of the Convention, is conducted almost exclusively by the institutions which manage ex-situ collections.

13. As repositories of valuable genetic resources, these institutions have an important role to play in facilitating access to genetic resources and ensuring that the benefits of use are shared equitably. In this capacity ex-situ collections have a number of advantages over genetic resources which are held in-situ such as the fact that the resources are already identified and authenticated. Another advantage is that through the institutions' research programmes there will often be further information about the material that is of relevance. The working relationships which these institutions have with industry and collectors also means that they are well placed to act as brokers and interlocutors for regulating access by industry and channelling benefits back to the countries of origin. For example, in the Andean Pact efforts to implement the new regime, it has been widely recognised that managers of ex-situ collections are the most familiar with and experienced in the practical problems associated with implementing this new relationship.

14. The CGIAR system, the most prominent international network of gene banks, has been distributing around 110,000 germplasm samples annually to institutions and individuals. Most of these samples are distributed in developing countries and for "virtually all countries" the number of samples each receives exceeds the number of accessions which it has contributed. In addition, there are numerous national programmes for exchange of germplasm. The CGIAR estimates that these have distributed over 500,000 germplasm samples annually in over 120 countries.

15. The International Agricultural Research Centres (IARCs) of the CGIAR have themselves been actively involved in relevant capacity building activities. They have successfully encouraged many national programmes and assisted in many scientific and educational programmes. CGIAR currently has links with over 500 institutes in some 106 countries and in collaboration with the United Nations Environment Programme and FAO, among others, has trained some 45,000 scientists from developing countries. The CGIAR has also facilitated the assembly of many other germplasm collections held in both developing and developed countries. These amount to over 200,000 further accessions.

16. Even though the legal obligations of the Convention do not extend to the existing accessions of ex-situ holdings so far as Articles 15, 16 and 19 are concerned, many of the ex-situ collections are, nonetheless, considering how they can bring management of their collections into line with the principles of the Convention.

17. The CGIAR Centres contain the major part of the world's food and agriculture holdings, and thus their efforts to implement Article 15 will have a very significant impact on the way that other ex-situ institutions fulfil the principles of the Convention. As reflected in the response from the CGIAR Centres, the FAO entered into separate agreements with 12 Centres of the CGIAR on 24 October 1994, by which these Centres agreed to place their germplasm collections under the control of the FAO as part of the International Network of Ex-situ Germplasm Collections (the "Network"). The Centres also undertook not to claim ownership or intellectual property rights over the designated germplasm or related information, but to hold it in trust for the benefit of the international community and to make it available without restriction to

users, provided such users gave similar undertakings on ownership and intellectual property rights. The Network has been established by FAO under its auspices to provide a framework for ex-situ plant genetic resources for food and agriculture and to resolve questions of legal status that predate the Convention.

III. INFORMATION PROVIDED BY FAO AND THE CGIAR CENTRES

A. Information from FAO

18. In response to the communication sent by the Executive Secretary on 27 October 1998, FAO provided the following information.

Genetic resources addressed by the Commission on Genetic Resources

19. By its mandate contained in FAO Conference Resolution 3/95, the CGRF addresses "all components of biodiversity of relevance to food and agriculture". This is in harmony with decision II/15 of the Conference of the Parties to the Convention. Among the terms of reference of the FAO Commission is, "subject to approval by the Governing Bodies of FAO, as appropriate, to respond to requests from the Conference of the Parties to the Convention on Biological Diversity in the specific area of genetic resources of relevance for food and agriculture."

Ex-situ collection of plant genetic resources for food and agriculture and the revision of the International Undertaking

20. With regard to plant genetic resources for food and agriculture, Resolution 3 of the Nairobi Final Act recognized the need to seek solution to outstanding matters concerning plant genetic resources within the [FAO Global System for the Conservation and Sustainable Use of Plant Genetic Resources for Food and Agriculture, in particular (a) access to ex-situ collections not acquired in accordance with this Convention". Following FAO Conference Resolution 7/93, FAO Members are negotiating the revision of the International Undertaking on Plant Genetic Resources, in order to bring it in harmony with the Convention, including the matter of such ex-situ collections, through CGRFA.

The International Network of Exsitu Collections under the Auspices of FAO

21. The revised International Undertaking is expected to provide a definitive solution to the outstanding issue of ex-situ collections of plant genetic resources for food and agriculture. Meanwhile, in accordance with Article 7.1 of the International Undertaking, FAO has established the International Network of Ex-situ Collections under its auspices. Agreements have been signed with twelve Centres of the CGIAR on 24 October 1994, whereby they brought their ex-situ collections into this Network. By these Agreements, the Centres recognize the intergovernmental authority of FAO and its Commission in setting policies for the International Network, undertake to hold designated germplasm "in trust for the benefit of the international community" and "not to claim ownership, or seek intellectual property rights over the designated germplasm and related information". Negotiations continue with a number of countries and institutions that have offered to bring their ex-situ collections of plant genetic resources for food and agriculture into the Network.

Other genetic resources of relevance to food and agriculture

22. FAO reported that it has not yet specifically addressed sectors of genetic resources of relevance to food and agriculture covered by CGRFA according to its mandate, other than plants. For animal genetic resource for food and agriculture, however, CGRFA has established an Intergovernmental Technical Working Group which could eventually consider ex-situ collections of animal genetic resources obtained prior to the entry into force of the Convention, within the context of the Global Framework for the Management of Animal Genetic Resources for Food and Agriculture.

Genetic resources not of relevance to food and agriculture

23. FAO also reported that CGRFA, by its mandate, would not be able to address genetic resources which are not of relevance to food and agriculture as defined in Article 1 of the Constitution, that is including forestry and fisheries. It is considered that this includes much of the material maintained in botanical gardens and zoological parks. According to FAO, only part of the ex-situ germplasm in botanical gardens is of immediate relevance to food and agriculture. Document UNEP/CBD/COP/2/Inf.13/rev, "Report on the FAO Global System for the Conservation and Utilization of Plant Genetic Resources for Food and Agriculture", submitted by FAO to the second meeting of the Conference of the Parties, contains the preliminary report of the survey conducted by FAO in this regard. The completed survey is available on the World Wide Web at: <http://web.icppgr.fao.org/CGFRA/Ex5/docs.html>.

Sources of information

24. FAO also informed the secretariat that as from January 1999, summary information on material within the International Network of Ex-situ Collections under the Auspices of FAO can be found under the World Information and Early Warning System of FAO at: <http://apps2.fao.org/wIEWS.new>. It is possible to identify all "FAO in trust" designated material through the agreements of the International Agricultural Research Centres with FAO. General information on animal genetic resources is available on the Domestic Diversity Information System at: <http://dad.fao.org/dad-is/Home.htm>.

B. Information from the CGIAR

25. With regard to the collection held by the CGIAR Centres, the Director General of IPGRI responded on behalf of all the CGIAR Centres in his capacity as Programme Leader of the CGIAR Systemwide Genetic Resources Programme. In this response, it was clarified that the ex-situ collections of genetic resources, acquired by CGIAR Centres prior to the entry into force of the Convention, are of species of relevance to food and agriculture and come under the mandate of the CGRFA. It was further pointed out that in 1994, the CGIAR Centres brought their ex-situ germplasm collections into the International Network of Ex-situ Collections under the auspices of FAO. Under the terms of the Agreements signed between the CGIAR Centres and FAO, the Centres undertake to hold designated germplasm in trust for the benefit of the international community and not to claim ownership or seek intellectual property rights over the designated germplasm and related information. This information is also referred to in document UNEP/CBD/ISOC/3, as it constitutes one of the important elements in considering access and benefit-sharing arrangements.

26. Currently, 500,000 germplasm accessions are designated in trust under the International Network. Certain types of information on these collections is available through the CGIAR System-wide Information network for Genetic Resources (SINGER) on the World Wide Web at <http://singer.cgiar.org>. More detailed information is available from the centres providing the materials

IV. INFORMATION PROVIDED BY GOVERNMENTS

27. One Party reiterated its concern expressed at the fourth meeting of the Conference of the Parties that ex-situ collections acquired before the Convention came into force were specifically excluded from the scope of the Convention and that prior actions are not usually covered by subsequent international agreements. Therefore, it decided not to provide any information.

28. The Government of China and the Government of Ukraine reported on the extent of their ex-situ collections. They both emphasized the richness of their collections and the importance of ex-situ conservation. As explained in document UNEP/CBD/ISOC/3 on the review of options for access and benefit-sharing mechanisms, there is no specific policy or plan concerning access or benefit-sharing of genetic resources in China. In particular, there are no regulations concerning the collection, storage, introduction and transportation of genetic resources. In China, under the Regulation on Seed Management (1991), the State collects, conserves and utilizes crop and forest germplasm in a planned way. In Ukraine, the collections and genebanks of many research institutions, ministries and agencies are considered extremely important for conservation of both natural and cultivated genetic and species biodiversity. According to the "Regulation for procedure of selecting national heritage scientific objects" (1997), a State Register for such objects has been established.

29. The Government of Morocco reported that, in respect of gene banks as the basis of collection, the country has already been associated with FAO

30. Finally, the Government of Germany reported on a project of botanical gardens in Germany, entitled "Contribution of the German Botanic Gardens to the Conservation of Biodiversity and Genetic Resources - Assessment and Development Concept" and, in general, emphasized the important role played by botanical gardens in ex-situ conservation. The project is carried out by the Botanic Garden of the University of Bonn for the German Association of Botanic Gardens in cooperation with Botanic Gardens Conservation International (BGCI) and is sponsored by the German Federal Ministry for Environment, Nuclear Safety and Nature Conservation through the Federal Agency for Nature Conservation. The project aims to document the achievements and experiences of the German Botanic Gardens in the conservation of biological diversity, to identify their potentials and weaknesses and to develop a concept of strategies for achieving a greater contribution to conservation activities. Two important achievements of the project are the development of the concept of "National protected collections to ensure the conservation of valuable ex-situ plant collections and the development of a voluntary "code of conduct" that outlines how botanical gardens should respond to the new conditions under the Convention. The submission also provided information on an international botanical gardens project "Access to Genetic Resources and Benefit-sharing", which was initiated and organized by the Royal Botanic Gardens, Kew. The third draft of the "Policy of participating Botanic Gardens on access to genetic resources and benefit-sharing" was made available to the secretariat. I

is noted, however, that the positions contained in the draft policy have not been agreed with the Association of Botanic Gardens in Germany.

V. INFORMATION PROVIDED BY BOTANICAL GARDENS

31. Botanic Gardens Conservation International (BGCI) reported on the ~~or~~ and the collections of botanical gardens relevant to the matters under consideration. BGCI is the international network organization linking over 500 botanical gardens in 120 countries for the conservation of biological diversity. According to the ~~tab~~ases maintained by BGCI, botanical gardens globally maintain living collections of representatives of as many as 80,000 plant species, numbering more than 4 million living plant accessions. BGCI also holds information on more than 1,700 botanical garden institutions worldwide. According to BGCI, it is estimated that more than 90 per cent of all living collections in botanical gardens were obtained prior to the entry into force of the Convention. BGCI also stated that it is currently preparing a manual for botanical gardens on the Convention on Biological Diversity.

32. BGCI and the Royal Botanic Gardens, Kew submitted a relevant information document to the third meeting of the Conference of the Parties, entitled "The role of botanic gardens in implementing the Convention on Biological Diversity - with particular reference to Articles 6 & 8" (document UNEP/CBD/COP/3/Inf.46). In this document, the initiatives by botanical gardens to comply with the Convention are ~~des~~cribed. Some botanical gardens have developed or are in the process of developing their own policies to comply with the Convention, in particular, on the issues of access and benefit-sharing. Two botanical gardens, the Royal Botanic Gardens, Kew (United Kingdom) and the Rio de Janeiro Botanic Garden Research Institut (Brazil), made their policies regarding ex-situ collections available. The submission from the Government of Germany also contained the third draft of "Policy of participating botanic gardens on access to genetic resources and benefit-sharing", as explained above. They all indicate that, as far as possible, they strive to comply with the Convention, even for the collection obtained prior to the entry into force of the Convention. Policies regarding access and benefit-sharing arrangements are further discussed in a separate document prepared for this meeting (see document UNEP/CBD/ISOC/3).

VI. INFORMATION PROVIDED BY ZOOLOGICAL GARDENS

33. The International Species Information System (ISIS) submitted information on components of biological diversity held ex-situ by the global community of zoological gardens. ISIS also submitted information on case histories on the zoo community's varied efforts to return benefit to range states. This information will constitute useful input to the meeting of the Panel of Experts on Access and Benefit-Sharing.

34. Five hundred and twenty zoological gardens and aquaria from fifty-one countries are voluntary members of ISIS, which is a network connecting these member institutions for the purpose of recording and sharing detailed information on specimens. The World Zoo Conservation Strategy (1995) estimates that these computerized specimen records together cover about forty percent of the living holdings of terrestrial vertebrate specimens held in the world's 1,000 recognized zoos. ISIS also serves as the Secretariat of the World Zoo Organization.

35. According to ISIS, it currently holds records of 275,000 living vertebrate specimens of 7,600 species. Condensed information on specimens registered with ISIS is published in its "Abstracts" in five categories: mammals, birds, reptiles, amphibians and fish. More detailed information on each specimen is held in the ISIS database. The "Abstracts" show the current living inventory of ISIS members, arranged by species and indicating the separate holdings of each zoo. Zoos are grouped by region. This information is also available on the public section of the ISIS website at: <http://www.isis.org>.

VII. INFORMATION PROVIDED BY MICROBIAL CULTURE COLLECTIONS

36. The World Federation for Culture Collections (WFCC) made an interim submission with respect to the microbial culture collections that are associated with WFCC. The Executive Secretary was advised that a note would be posted in WFCC Newsletter on this subject in order to obtain further information from the member culture collections. WFCC is a Multidisciplinary Commission of the International Union of Biological Sciences (IUBS) and a Federation within the International Union of Microbiological Societies (IUMS). WFCC has developed an international database on culture resources worldwide and has established the WFCC World Data Centre for Microorganism (WDCM). This data resource has records of nearly 500 culture collections from 55 countries. According to the information document submitted by WFCC to the third meeting of the Conference of the Parties (document UNEP/CBD/3/Inf.19), the registered collections held some 815,568 culture of microorganisms in 1994. Many other culture collections exist which are not registered within the WFCC database. In the above mentioned document some concern was also raised regarding the difficulty in identifying whether specific microorganisms were covered by the Convention or not. For example, information such as the date when a microorganism was collected, isolate and/or deposited in a culture collection may not be easy to track down or may not be available at all. The difficulties were also pointed out in cases in which the isolation of a specific type of microorganism involved the collaboration of a number of experts, who may separately isolate, characterize, identify, screen, preserve, store, distribute the microbial genetic resources and who may be located in different States.

37. Being aware of such problems, in a note to culture collections, requesting relevant information, WFCC called for some specific responses. The specific points raised in the note are:

- (a) Name of Collection;
- (b) Country in which collection is resident;
- (c) Approximate number of pre-CBD deposits [<100; >100; >1000; other];
- (d) Whether the following information is likely to be available: country of origin; name of depositor; date of deposit: [All available; Some available; None available]; and,
- (e) Comments: e.g. on type of data available; manpower required to get full data; data on cards/digital format.

VIII. CONCLUSION AND RECOMMENDATIONS

38. In light of the responses received, including those of FAO and the CGIAR Centres, some suggestions regarding the focus of future work may be made. The CGRFA, by its mandate, covers all components of biological diversity of relevance to food and agriculture. It has so far concentrated its consideration only on plant genetic resources for food and agriculture. With regard to those germplasm held in botanical gardens, it was reported that only a part is of immediate relevance to food and agriculture. The CGIAR Centres, on the other hand, clarified that their ex-situ collections of genetic resources, acquired by these Centres prior to the entry into force of the Convention, are of species of relevance to food and agriculture and come under the mandate of the CGRFA. It was further pointed out that in 1994, the CGIAR Centres brought their ex-situ germplasm collections into the International Network of Ex-situ Collections under the auspices of FAO. On this basis a possible focus of future work on resolving the issue of such ex-situ collections could be the plant genetic resources that are not of relevance to food and agriculture. Microbial culture collections could be another focus. The clarification of the scope may address some of the concerns raised by certain Parties on this subject.

39. The information obtained is wide ranging and, in many cases, has to do with the activities of the institutions, rather than the nature of the collections acquired in the way specified in the decision. In order to solicit better focused responses, a simple questionnaire could be considered, to accompany a reminder for the request for information. Any such questionnaire should build upon existing initiatives.

40. The Intersessional Meeting on the Operation of the Convention is invited to consider the following recommendations to the Conference of the Parties regarding future work on resolving ex-situ collections as specified in decision IV/8, paragraph 2:

The Intersessional Meeting on the Operation of the Convention,

Recommends to the Conference of the Parties that:

- i) Future work on the ex-situ collections as specified in decision IV/8, paragraph 2, may initially focus on the plant genetic resources other than those addressed by the CGRFA and on microorganisms;
- ii) The information gathering exercise be continued; and
- iii) The criteria in the Annex to this recommendation are provided to Governments and relevant organizations in order to guide their responses.

ANNEX

A questionnaire to solicit the relevant information may contain the following elements:

1. Number, types and status of relevant collections;
2. Approximate number of accession acquired, prior to the entry into force of or not in accordance with the Convention on Biological Diversity [<100; >100; >1000; other];
3. Whether the following information is likely to be available: country of origin; name of depositor; date of deposit; terms of access under which the material is available: [All available; Some available; None available];
4. Any relevant policies regarding collections that are not addressed by FAO CGRFA, where appropriate, in particular those addressing the issue of access to the relevant collections;
5. Information regarding the number of requests for information and the exchange of germplasm; and
6. Details of the benefits from shared germplasm.
