



The International Treaty

ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE



INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

FIRST MEETING OF THE EXPERT CONSULTATION ON THE GLOBAL INFORMATION SYSTEM ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

San Diego, USA, 7-8 January 2015

Report

1. Introduction

1. The first meeting of the Expert Consultation on the Global Information System on Plant Genetic Resources for Food and Agriculture (Consultation) took place in San Diego, USA, on 7-8 January 2015. The list of participants is attached as *Appendix 1* to this Report.

2. Opening of the meeting, adoption of the agenda

2. Dr Peter Bretting, on behalf of the hosting government, welcomed all participants. In his intervention, he expressed his appreciation for the choice of San Diego as the venue of the meeting, particularly in the light of other related events, such as the first Assembly of DivSeek, and the annual Plant and Animal Genomics Conference, which would give Treaty experts the opportunity to interact with multiple research communities and networks. Dr Bretting described the current status of ratification of the Treaty by the government of the USA and noted the support of the private sector. In relation to the scope of the Consultation, Dr Bretting explained the essential role of information associated to germplasm for improving use of the resource for plant breeding. He pointed to Grin-Global, a software suite developed in the USA that enables genebanks to store and make globally available information associated to germplasm as a contribution to the Global Information System (GLIS).

3. Dr Shakeel Bhatti thanked the government of Germany for providing funding for the Consultation, and outlined the scope and objectives of the Consultation, as set forth in Resolution 10/2013 of the Governing Body. The Consultation was tasked with advising the Secretary in the development of proposals for the effective establishment of the GLIS. In particular, the Consultation was to:

- (i) Facilitate the assessment of needs and advise the Secretary on the identification of activities and priorities for information exchange;
- (ii) Conduct a review of major ongoing initiatives, projects and programmes at national, regional and international levels of relevance for the development of Article 17 of the International Treaty;
- (iii) Identify information gaps on scientific, technical and environmental matters on plant genetic resources for food and agriculture (PGRFA);

- (iv) Identify best practices and appropriate methodologies for the strengthening of an effective GLIS;
 - (v) Conduct and publish the necessary background study papers, in cooperation with Contracting Parties and relevant stakeholders and subject to availability of resources, an online survey on the major components of the GLIS;
 - (vi) Advise the Secretariat on the drafting of the vision paper on the GLIS as a conceptual basis for a programme of work to be presented to the Governing Body at its next session for its consideration.
4. The Consultation adopted the agenda of the meeting as contained in *Appendix 2* to this Report.

3. Election of the Co-Chairpersons

5. The Consultation elected two Co-Chairpersons from among the experts, namely Mr Theo Van Hintum (The Netherlands) and Mr Eduardo Vaz de Mello Cajueiro (Brazil).

4. Core PGRFA data domains and information systems

6. The Secretariat introduced this agenda item by presenting the results of two surveys, one at the landscape level and another with a specific focus on genomics, as contained in document IT/COGIS-1/15/Inf.1.¹
7. The experts recalled that Article 17 foresees the development and strengthening by Contracting Parties of the GLIS based on existing information systems and advised the Secretariat in reviewing the vision paper to refer to:
- a) existing sources of germplasm (eg. *ex situ* collections, *in situ* crop wild relatives, on-farm resources and other sources) and their relationship with the Multilateral System of Access and Benefit-Sharing of the Treaty (MLS);
 - b) the value addition activities (e.g. characterization, evaluation, phenotyping and genotyping); and
 - c) the major uses of the information.

Appendix 4 of this Report contains a diagram of the above elements that the experts recommended the Secretariat to integrate into the Vision Paper to be presented at the Sixth Session of the Governing Body.

8. At the same time, and in line with the additional terms of reference for the Consultation, the experts further advised that the assessment of information-related needs and the establishment of priorities for information exchange would require further surveys, more targeted to particular user groups and with clearer explanations of concepts such as open access information. The Consultation also indicated that other research methods, such as face-to-face meetings, could be used to solicit information, views and opinions from users and to allow them to participate in the design of the GLIS.
9. In the views of the experts, future surveys should also consider a broader range of users that may have different levels of familiarity with the Treaty.
10. In conjunction with the results of the survey on genomics, the experts noted that the background study paper on genomics and plant genetic resources prepared by the Secretariat outlined a number of relevant technological developments that impact on the conservation and

¹ <http://www.planttreaty.org/sites/default/files/cogis1Inf1.pdf>

utilization of germplasm.² In the views of the experts, the linking up of the GLIS with the genomics information domain, and the underlying research and user communities, should improve the information associated with PGRFA in the MLS in line with Article 13.2a of the Treaty.

11. The experts recommended that the Governing Body in its interaction with the various stakeholders should conceptualise a GLIS that can receive, store or reference and make publicly available on PGRFA, including multi-crop passport descriptors and other associated non confidential information such as characterization, evaluation, genotype, phenotype, currently non-digitized data and any other relevant data for work with PGRFA. This would require the development of data standards, incentives to contribute, and a data sharing policy.

12. While the experts noted the wide range of different types of data available about PGRFA, they placed particular emphasis on genomics because of their recent prominence. The experts noted that the GLIS should contain links to genomic data, preferably sequence data, because such data greatly enhance the value of PGRFA. In the views of the experts, high resolution genomic information will improve conservation and use of PGRFA. In addition, genomic information should be mined to develop molecular markers that could then be used to follow the inheritance of linked traits during the breeding cycle, reducing phenotyping requirements.

13. Experts noted that, as challenges arise from the sheer data volume, the varying quantity and quality of data analysis methods, the GLIS will have to be capable of receiving, collating and where needed storing or referencing data from diverse and decentralised sources.

14. Under this agenda item, there was an opportunity for experts of relevant institutions to present their activities and views on PGRFA information systems. As cooperation with the Clearing House Mechanism (CHM) of the Convention on Biological Diversity (CBD) is prescribed by Article 17 of the Treaty, a representative of the CBD Secretariat, Mr Matthew Dias, illustrated the scope and objectives of the CBD CHM, including the ABS CHM of the Nagoya Protocol, its current status and plans for future expansion. In the presentation of Mr Dias, it was clarified that the CHM is based on a network of national mechanisms, and that the CHM benefits from outreach and capacity building activities. In recognition of the distinct functions and scope of application of the CHM and the GLIS, as dictated by the respective underlying instruments, the experts recommended that the two systems closely interact on overlapping activities, such as capacity building and dissemination of information.

15. An expert of Bioversity International, namely Ms Elizabeth Arnaud, presented a case for developing collaboratively components on in situ conservation and on-farm management of PGRFA, as complementary to existing ex situ information and as a contribution to the implementation of Article 17 of the Treaty. Ms Arnaud explained that the key objectives of a component of the GLIS for in situ conservation and on-farm management should be to provide information about PGRFA located in situ and on-farm to meet the needs of target users (custodian farmers, research organizations, NGOs, national authorities, international organizations, global treaties and conventions) and to monitor changes in this diversity, both of which would support decision-making processes by different targeted users. In positively appraising Ms Arnaud's proposal, the experts suggested to consider in situ conservation and on-farm management as separate components within the GLIS.

5. The Permanent Unique Identifiers for PGRFA

16. The Consultation acknowledged the urgency of adopting some sort of Permanent Unique Identifiers (PUIs), as well as best practices and methodologies for their deployment as an essential element for the development of the GLIS. It noted the proposal presented by the Secretariat and contained in document IT/COGIS-1/15/3³, for Digital Object Identifiers as a candidate PUI type

² http://www.planttreaty.org/sites/default/files/ITPGRFA_BS005e.pdf

³ <http://www.planttreaty.org/sites/default/files/cogis1w3.pdf>

for the GLIS, and advised that additional research be undertaken by the Secretariat on other PUI types by consulting with appropriate parties and relevant stakeholders before the next session of the Governing Body.

17. The experts suggested to form a task force composed of experts who would volunteer to indicate individuals and organizations to consult with, and to review the research undertaken by the Secretariat and propose standards.

6. The draft Vision Paper and the elements of the Vision

18. The experts reviewed the document IT/COGIS-1/15/5⁴. In relation to the Vision Paper, they made the following recommendations for its improvement:

- That data quality be considered a key objectives of the GLIS;
- That duplication issues among existing information systems be addressed;
- That the GLIS secures the link to the collection holder as the primary source of information;
- That the relationship between the GLIS and the MLS provisions in the Treaty be clarified;
- That an improved facility to document germplasm in the MLS be included in the GLIS;
- That developing country perspectives on the generation and use of PGRFA information be adequately reflected;
- That the GLIS be based on a system of incentives for user groups to contribute to the System;
- That the GLIS include mechanisms to stimulate the community-oriented production of information;
- That any information facility operating under the GLIS focus on tangible information products and services of value to different user groups;
- That an MLS facility to operationalize Article 13.2a of the Treaty and the corresponding provisions of the Standard Material Transfer Agreement (SMTA), associated with a system of PUIs, be given high priority.

19. The Consultation reviewed the draft Vision as contained in *Appendix 3* to this Report. It further recommended that the Vision be presented together with other initiatives on linked open data for global food security to the meeting of the G8 in 2015.

20. The Co-Chairpersons of the Consultation agreed to capture, with the assistance of the Secretariat, the detailed aspects that the experts discussed in relation to the Vision Paper in notes that they would share with the experts.

7. Advice on the development of the Programme of Work

21. The Consultation recommended that the Secretariat make use of a Roadmap to implement the revised draft Vision, as the basis for the Programme of Work for the consideration of the Governing Body at its next session. The Roadmap should be based on the annotations to the draft Vision that the Consultation made, as reflected in *Appendix 3* to this Report. The experts decided to establish a task force, composed of experts who would volunteer to further review the draft Roadmap. The task force would complete its work by March 2015. In relation to the Programme of Work, the Consultation also indicated that a periodic assessment of progress and identification of baseline indicators for the monitoring of progress would be needed.

22. In relation to the proposal made in document for the establishment of a Scientific Advisory Committee, the experts suggested that such a Committee assist the Secretariat in the long-term task functions related to the implementation of the GLIS. The Consultation also recommended that the composition include genebank management and taxonomy expertise. The

⁴ <http://www.planttreaty.org/sites/default/files/cogis1w5.pdf>

amended draft terms of reference are in *Appendix 5* to this Report.

8. Other business

23. The Consultation dealt with no other business.

9. Adoption of the Report

24. The Consultation approved this Report and the Appendixes thereto.

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Appendix 2**CONSULTATION ON THE GLOBAL INFORMATION SYSTEM ON PLANT GENETIC
RESOURCES FOR FOOD AND AGRICULTURE****AGENDA**

1. Opening of the meeting
2. Adoption of the agenda and timetable
3. Election of the Co-Chairpersons
4. Core PGRFA data domains and information systems
5. The Permanent Unique Identifiers for PGRFA
6. The draft Vision Paper and the elements of the Vision
7. Advice on the development of the Programme of Work
8. Other business
9. Adoption of the Report

Appendix 3**Annotated Vision for the Global Information System on PGRFA**

The Global Information System for PGRFA integrates and augments existing systems to create the global entry point to information and knowledge for strengthening the capacity for PGRFA conservation, management and utilization.

The development of a truly effective Global Information System as foreseen in the International Treaty involves, *inter alia*: strengthening existing systems and, where gaps remain, establishing new systems and initiatives; promoting inter-connectivity among systems; and providing overarching mechanisms to ensure ready access to the information and services provided. This translates into the following objectives:

1-To create a web-based platform with use-oriented entry points to PGRFA information

Annotations:

- a. To create the technical infrastructure needed for the development of the Platform
- b. To engage with FAO, the CBD and other organizations to build on the experience accumulated on the development of global portals
- c. To define use case scenarios for target groups and set up mechanisms to get feedback from them
- d. To create a prototype of the global portal able to receive feedback from the users on the SMTA material

2-To provide a comprehensive overview and facilitate access to sources of PGRFA and associated information

Annotations:

- a. To create an index of sources of information, knowledge and other materials
- b. To strengthen the capacity of genebanks and other providers to document their holdings and to facilitate information access
- c. To allow quick access to information on the material available in the Multilateral System of Access and Benefit-sharing (MLS) at accession level

3-To promote and facilitate interoperability among existing systems by providing clear principles, technical standards and appropriate tools

Annotations:

- a. To develop a common standard for Permanent Unique Identifiers applied to PGRFA
- b. To develop further capacity building material, including e-learning materials
- c. To recommend common standards for data and metadata and develop further standards (eg for phenotypic) based on existing experiences in other sectors
- d. To link PGRFA open data

4-To promote transparency on the rights and obligation of users for sharing and accessing PGRFA associated information

Annotations:

- a. To analyze the institutional, organizational, policy and legal factors for PGRFA information access, exchange and use
- b. To understand the applicability of models used in other initiatives and parts of the Treaty like the MLS and DivSeek.

5-To create and enhance opportunities for communication and international and multidisciplinary collaboration to increase knowledge about and add value to PGRFA

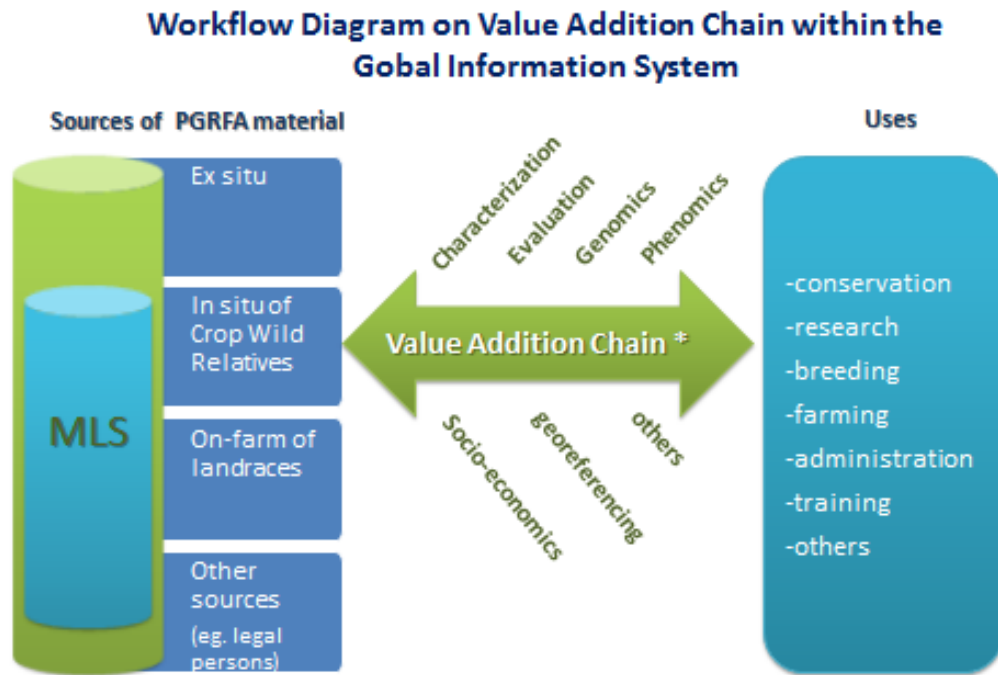
Annotations:

- a. To identify and create tools for communication and collaboration (media, mailing lists, etc)
- b. To conduct focused surveys with a wide range of users
- c. To strengthening the linkages with relevant communities to concentrate research on core collections (Maybe move to 2)

6-To provide capacity strengthening opportunities to conserve, manage and use PGRFA and associated information and knowledge

Annotations:

- a. To convey and support regional meetings and scientific conferences related to new technologies and themes
- b. To provide access to capacity building materials
- c. To support the training of staff in the area of bioinformatics in collaboration with relevant partners
- d. To design mechanisms to promote training opportunities across institutions (training of trainers, match-making)
- e. To provide training for the genebank managers of the future

Appendix 4

* The value and impact may be higher if resources are concentrated on particular PGRFA material

Appendix 5**Terms of Reference for the Scientific Advisory Committee on the Global Information System of Article 17****Objectives**

The Governing Body provides guidance on the development and strengthening of the Global Information System, to facilitate the exchange of information, based on existing information systems, on scientific, technical and environmental matters related to plant genetic resources for food and agriculture (PGRFA).

The Scientific Advisory Committee (Committee) shall advise the Secretary on:

- a) general recommendations on the development and deployment of the Global Information System and its components;
- b) the Roadmap for the implementation of the priority activities;
- c) pilot activities for the Global Information System and, upon request of the Secretary, other initiatives and actions to sustain the operation of the Global Information System, and the further update of the Programme of Work.

In particular, the Committee shall provide scientific advice to the Secretary on the following items:

1. the effectiveness and efficiency of the Global Information System as a mechanism to promote advice regarding scientific, technical and environmental cooperation on PGRFA matters;
2. the exchange of PGRFA-related information and the transfer of publicly available expertise, technology and scientific cooperation;
3. scientific and technical components of the Global Information Systems and its Programme of Work as recommended by the Governing Body;
4. cooperation with other relevant international and regional scientific and technical cooperation and technology transfer initiatives, including the Access and Benefit-sharing Clearing House Mechanism of the Nagoya Protocol;
5. means to facilitate the implementation of the Global Information System at the national level and the establishment of a Stakeholder Platform;
6. scientific, technical and environmental cooperation and benefits of all the Treaty activities, including the Multilateral System and Access and Benefit-sharing and the Programme of Work on Sustainable Use.

Subject to the availability of financial resources, the Committee will hold two meetings per biennium.

Composition

The Committee is composed of:

- up to 2 scientific experts from each Region, nominated by the Vice-chairpersons of the Governing Body of each respective Region;
- 10 additional scientific and technical experts appointed by the Secretary, taking into account the balance of stakeholder technical expertise.

The members shall be selected for their scientific expertise and understanding of the Global Information System and the International Treaty, taking into account the need for specialized and in-depth expertise including: bioinformatics and molecular genetics; the 'omics, in particular

genomics, phenomics and proteomics; management of environmental and geo-spatial data about plant genetic resources; scientific, taxonomy, crop wild relatives and genebank management and ex-situ conservation of PGRFA, technical cooperation; capacity-building; information exchange and data sharing; and partnerships with other organizations, institutions and initiatives.

The Committee shall elect its Co-chairpersons from among the experts.

The Secretariat of the International Treaty will facilitate and coordinate the work of the Committee, and prepare and service its meetings. It will also report to the Governing Body.