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CONCEPT NOTE ON GLOBAL NETWORKING ON *IN SITU* CONSERVATION AND ON-FARM MANAGEMENT OF PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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I. INTRODUCTION

1. The Commission, at its Fourteenth Regular Session, requested FAO to prepare a concept note detailing the structure, functions and financial implications of the establishment of either a global network for *in situ* conservation and on-farm management of plant genetic resources for food and agriculture (PGRFA) or two networks separately addressing these areas, for consideration by the Working Group and the Commission at their next sessions. The Commission stressed that the concept note should consider “*means of improving and strengthening national and regional networks and means of avoiding duplication of efforts*”¹.

2. This document briefly reflects on the importance of *in situ* conservation and on-farm management of PGRFA, as well as on the need to better coordinate relevant activities and network in these two areas. It sets out a possible process which the Commission could host and which could lead to the establishment of a global networking mechanism for *in situ* conservation and on-farm management of PGRFA, a mechanism that should obviously be developed and owned by its future participants or members. The involvement of stakeholders active in *in situ* conservation and on-farm management of PGRFA is essential to the successful and efficient operation of a global networking mechanism.

II. BACKGROUND

3. As recent as at its Thirteenth Regular Session in 2011, the Commission reiterated the need for greater attention to crops essential for food security, and on-farm management of PGRFA, and requested FAO and the Governing Body of the International Treaty to support work in these areas. The Commission recognized the importance of establishing a global network for *in situ* conservation and on-farm management of PGRFA in coordination with the International Treaty, the Global Strategy for Plant Conservation of the Convention on Biological Diversity and other relevant stakeholders, and to avoid duplication of efforts².

4. In response, FAO initiated a consultation process, including through a global survey³, and the organization of technical workshops. While these consultations came to the conclusion that networking on *in situ* conservation and on-farm management was important and should be supported, it is noteworthy that none of the stakeholders has taken since the initiative to establish a global networking mechanism on *in situ* conservation and on-farm management. The reasons for this may be manifold; among them does not seem to be the perceived unimportance of *in situ* conservation or on-farm management of PGRFA.

The importance of *in situ* conservation and on-farm management of PGRFA

5. Considerable progress has been made in safeguarding and providing access to crop genetic diversity and wild crop relatives in *ex situ* germplasm collections. Over the years, desired traits found in PGRFA conserved *ex situ* have been successfully incorporated into improved varieties of many crops. However, the *ex situ* holdings of PGRFA are far from being representative of the full spectrum of genetic diversity of PGRFA. A significant proportion of PGRFA diversity is not available *ex situ*; it exists only in the wild, i.e. *in situ* and/or in farmers’ fields. Various drivers of genetic erosion, including, the introduction of new modern varieties, climate change and other drivers are increasingly threatening these resources. However, it is quite likely that the challenge of producing more food sustainably with fewer inputs, can only be met if breeders may continue to rely on a broad spectrum of diversity of PGRFA as sources of new traits, rather than only those that are conserved in genebanks.

¹ Fourteenth Regular Session of the Commission on the Genetic Resources for Food and Agriculture, Rome, Italy, 15-19 April 2013. CGRFA-14/13/Report, paragraph 96. <http://www.fao.org/docrep/meeting/028/mg538e.pdf>

² Thirteenth Regular Session of the Commission on the Genetic Resources for Food and Agriculture, Rome, Italy, 18-22 July 2011. CGRFA-13/11/Report, paragraph 41. <http://www.fao.org/docrep/meeting/024/mc192e.pdf>

³ A preliminary analysis of the global survey: On-farm management of plant genetic resources for food and agriculture: http://www.fao.org/fileadmin/templates/agphome/documents/PGR/ITWG/ITWG6/workshop/Preliminary_analysis-OFMSurvey.pdf

6. Failure to ensure adequate conservation and management of critically important components of PGRFA may result in permanent loss of these resources. This is especially the case for PGRFA that are largely conserved outside genebank collections, such as crop wild relatives (CWR) and wild food species that are growing in nature, as well as the local crop diversity maintained on-farm by small-scale farmers. Being adapted to specific ecosystems, climatic conditions and (in the case of crops and varieties) farming practices, these PGRFA are increasingly subject to various threats. Just as the habitats of CWR and other wild plants are being lost along with the ecosystem services they provide, the prevalence of monocropping is adversely impacting on the diversity of crops in farmers' fields. The PGRFA that are found *in situ* and the crop diversity maintained on-farm represent a diverse and rich repository of traits. This category of PGRFA, their habitats and the agricultural systems they constitute and on which human populations rely for sustainable agriculture, environmental protection and livelihoods therefore require safeguarding and a much higher valorisation than is currently the case.

7. Despite the significant progress that has been made in the systematic conservation of PGRFA in *ex situ* genebanks, this approach alone is still inadequate to provide effective conservation and management of all categories of potentially useful PGRFA. Firstly, it is unlikely that *ex situ* conservation will ever be sufficiently comprehensive as to conserve the full spectrum of genetic diversity of all plant populations relevant to food and agriculture. Genebank collections may also be lost in times of civil strife and natural disasters, or due to sub-standard management. PGRFA conserved *in situ* and/or managed sustainably on-farm are therefore serving as a large repository and natural back-up for *ex situ* collections worldwide. Conserving plants *in situ* and through on-farm management also facilitates the continued adaptation and evolution of diversity, i.e. the creation of variants that are better suited to address environmental and climatic changes. *In situ* and *ex situ* conservation complement and do not exclude each other.

Current status of the management of PGRFA outside of genebanks

8. There is a resurgent interest in paying attention to the conservation and sustainable use of PGRFA *in situ* and on-farm. Within the FAO's new Strategic Framework, in particular Strategic Objective 2, *Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner*, *in situ* conservation and on-farm management of PGRFA form the basis of a number of important products and services. Bioversity International as well as other Centres of the CGIAR Consortium are currently implementing several multi-country activities related to both, *in situ* conservation and on-farm management of PGRFA.⁴ Other global entities, such as the Benefit-sharing Fund of the International Treaty on Plant Genetic Resources for Food and Agriculture, support relevant initiatives and projects supporting *in situ* conservation and on-farm management⁵. However, the increased interest in this area has yet to result in comprehensive strategies for *in situ* conservation and on-farm management of PGRFA.

The need for a global networking mechanism

9. Currently, there is no overarching platform or network that provides coordination of or aligns efforts for the *in situ* and on-farm conservation of PGRFA. A global networking mechanism, whether in the form of one or two separate networks, could potentially fill this gap. It could promote improved *in situ* conservation and on-farm management of PGRFA by facilitating collaboration, coordination and the exchange of information and experience between organizations, projects and stakeholders. It could help to avoid duplications of efforts and assure complementarities and synergies among on-going activities. It could also stimulate the creation of strategic partnerships among stakeholders and raise awareness of the need to conserve PGRFA. The usefulness of a global networking mechanism

⁴ CGIAR Research Programs (CRPs), including CRP1.1 Dryland Systems; CRP1.2 Humidtropics; CRP1.3 Aquatic Agricultural Systems; CRP2 Policies, Institutions and Markets; CRP3.4 Roots, Tubers and Bananas; CRP7 Climate Change, Agriculture and Food Security.

⁵ For an overview of projects approved, see <http://planttreaty.org/content/benefit-sharing-fund>

for *in situ* conservation and on-farm management might ultimately depend on the broad participation of those who are actively involved in relevant activities, be it governments or any other stakeholders.

III. TOWARDS A GLOBAL NETWORKING MECHANISM ON *IN SITU* CONSERVATION AND ON-FARM MANAGEMENT

10. While the Commission may initiate a global networking mechanism for *in situ* conservation and on-farm management and provide a platform for such networks to meet and to coordinate, it will be pivotally important to involve in the very early stages of the establishment of such networking mechanism all potential members and participants, including governmental as well as nongovernmental organizations, farmers and breeders, international partner organizations as well as the private sector, indigenous and local communities as well as civil society organizations. Decisions on the functions, governance structures and budget requirements of the networking mechanism ought to be taken jointly by those who decide to contribute to and to be part of it.

Potential Functions of global network(s)

11. The establishment of a global networking mechanism on *in situ* conservation and on-farm management of PGRFA could help to enhance coordination and collaboration among stakeholders at various levels and thereby contribute to the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture (Second GPA) and to meeting the Aichi Biodiversity Targets of the Convention on Biological Diversity (CBD).⁶

12. One global networking mechanism on *in situ* conservation and on-farm management of PGRFA could facilitate coordination and collaboration where the two approaches overlap. While *in situ* conservation and on-farm management of PGRFA have different targets, usually involve different stakeholders and require different approaches, the two conservation approaches overlap in important areas. These overlapping areas include important genetic resources in the wild/weedy/crop spectrum of plant species around farmers' fields, especially in centers of crop genetic diversity. Also, farming communities often harvest wild plant species for food. It may therefore be argued, that while the two areas have unique features, there are significant areas of overlap and complementarity.

13. A joint networking mechanism addressing both, *in situ* conservation and on-farm management, could also help to emphasize the commonalities of the two approaches and contribute to more cohesive interactions between the two. This would also allow to create a joint focal point to relevant international instruments and policy processes as well as to *ex-situ* global mechanisms. A joint network could also improve linkages between conservation, on the one hand, and the use of conserved materials, i.e. plant breeding and farming, on the other.

14. The core functions of a global network for *in situ* conservation and on-farm management could include:

- **Awareness-raising** at global, regional and national levels of the critical importance of PGRFA existing outside the *ex situ* conservation realm. This function would apply to several socio-economic domains including food and nutritional security, safeguarding of the environment, income generation and improved livelihoods;
- **Sharing of information and experience;**
- **Strengthening of partnerships and linkages** that could foster viable “communities of practice” for the conservation, management and sustainable use, of PGRFA outside of genebanks;

⁶ The targets for the Strategic Plan for Biodiversity 2011–2020 (Aichi Targets): <http://www.cbd.int/sp/targets/> Targets and indicators for plant genetic resources for food and agriculture as agreed by the Commission: <http://www.fao.org/docrep/meeting/028/mg538e.pdf> (Annex C)

- **Generation, coordination and implementation of tools, initiatives and interventions** that could be relevant to *in situ* conservation and on-farm management of PGRFA;
- **Implementation of evidence-based interventions** in the areas of *in situ* conservation and on-farm management, with a view to demonstrate **positive impacts at the country-level**; and
- **Mainstreaming the conservation of PGRFA in nature reserves** and other protected areas.

Potential activities - short term

15. The global network could demonstrate the relevance and value of these functions through a work programme setting out core specific activities, for example:

- **Identification of global conservation priorities for PGRFA**, and work towards establishing a strategic and systematic global approach in line with the priorities established;
- **Identification of joint *in situ* and on-farm initiatives** of diverse stakeholders and sectors in the areas of *in situ* conservation *and* on-farm management; and
- **Awareness-raising activities** and presentation of the activities of the network on the occasion of forthcoming relevant events (such as conferences of international instruments; scientific conferences etc.).

Potential activities – long term

16. In the longer term, the network could take on additional responsibilities. It could, for example:

- Promote **research**, including **community-based research**, to identify conservation practices to be deployed at local levels. Such research could help to demonstrate that its benefits directly support the ultimate custodians of PGRFA, who are involved in day-to-day management of crops and varieties;
- **Support access to and disseminate innovative technology**, relevant for, *inter alia*, surveying and assessing inter- and intra-specific diversity and its interaction in agro-ecological systems as well as in natural ecosystems, spatial analysis and phenotyping to identify varieties with climate-adapted traits;
- **Identify and monitor threats and vulnerabilities** associated with *in situ* conserved and/or on-farm managed PGRFA;
- **Act as a clearinghouse**, including for the validation and sharing of information and research findings, connecting local conservation practitioners, farmers, and plant breeders through their national PGRFA programmes to the relevant information resources and service providers maintained at national, regional, and international levels;
- **Leverage resources** and explore sustainable mechanisms for fundraising to support all activities relevant to *in situ* conservation and on-farm management of PGRFA.

Possible governance structure

17. For the success of any network, it will be essential that it is created together with the stakeholders who are supposed to contribute to and benefit from it. The functions, governance structures as well as the programme of work of the network should therefore be defined in a participatory process with all stakeholders involved, including governments, farmer, breeder and science organizations, the civil society and the private sector.

18. In considering the establishment of a network, numerous governance options may be considered. The wide range of potential stakeholders, ranging from governments to farmer organizations and civil society is challenge and opportunity at the same time. If the network includes such a wide range of stakeholders as members, it might be important to clearly define the roles of the different stakeholders as well as the mechanisms through which they interact in the network, consult each other and take decisions.

First steps: Multi-stakeholder meeting

19. While it is premature to consider in any detail governance structures, functions and specific future activities of a networking mechanism, it might be important to consider next steps that will allow the different stakeholders to consider the need for as well as the modalities of the networking mechanism. One such step could consist in holding an informal multi-stakeholder dialogue convened by FAO at the request of the Commission. Subject to the availability of the necessary extra-budgetary funds, the meeting could be held prior to the next session of the Working Group. Such a dialogue which could involve all relevant stakeholders, including governments, could be an important step towards the establishment of a network and, at the same time, inform and shape the Commission's further work on this matter.

Financial implications

20. Convening a 3-day informal multi-stakeholder dialogue on the establishment of a networking mechanism on *in situ* conservation and on-farm management would incur the following costs:

Direct Costs of the Meeting (interpretation, messengers)	US\$ 35,000
Document preparation	US\$ 30,000
Documentation (translation/printing)	US\$ 50,000
Total	US\$ 115,000

These costs do not include travel and accommodation costs for participants from developing countries.

IV. CONCLUSIONS

21. There is an urgent need for focused global attention on *in situ* conservation and on-farm management of PGRFA, as a necessary complement to *ex situ* activities. The risk of the fragmentation of on-going conservation efforts, uneven access to the conservation of resources, and attrition of isolated efforts in support of the conservation of the relatively untapped reservoir of PGRFA components to be found in CWR species, wild harvested species, landraces, and traditional varieties threatens the availability of these resources, at a time when these resources are increasingly needed for crop improvement and stability and diversity of agro-ecosystems.

22. To address the conservation challenge, a global network for *in situ* conservation and on-farm management requires the active participation of all relevant stakeholders. The network, its governance structure, functions and work areas should therefore be developed together with these stakeholders.

23. Recognizing that *in situ* conservation of wild crop- and food-related genetic resources and on-farm management of PGRFA have different targets, involve different stakeholders and require different approaches, it is recommended that the global network carefully take these differences into account, and ensure that both aspects are reflected adequately in its functions and activities.

24. The establishment of a global network is a daunting endeavour that requires due deliberation, significant investments of resources, the buy-in of stakeholders and the agreement of the stakeholders involved on a shared vision. In an initial phase, a multi-stakeholder dialogue could be convened to discuss the modalities of a global network, including its governance structure and future activities.

25. Subject to the availability of the necessary extra-budgetary funds, the Commission may wish to convene an informal stakeholder dialogue, preceding the next meeting of the Working Group, to consider the establishment of a networking mechanism and, possibly, the functions, governance structure and concrete activities of such mechanism.