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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 5 of the Provisional Agenda

INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON FOREST GENETIC RESOURCES

Eighth Session

Rome, 26–28 November 2024

REVIEW OF THE GLOBAL PLAN OF ACTION FOR THE CONSERVATION, SUSTAINABLE USE AND DEVELOPMENT OF FOREST GENETIC RESOURCES

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I. INTRODUCTION

1. At its Nineteenth Regular Session in 2023, the Commission on Genetic Resources for Food and Agriculture (Commission) considered the implementation and review of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources (Global Plan of Action). It also took note of the draft *Second Report on the State of the World's Forest Genetic Resources* (Second Report).

2. The Commission requested the Secretariat to consult Commission Members, National Focal Points (NFPs) for forest genetic resources (FGR) and regional networks on FGR to collect views on the need to revise the Global Plan of Action.[1] It recommended that FAO prepare, based on the outcome of the written consultation, a draft revised Global Plan of Action or other document, as appropriate, for consideration by the Intergovernmental Technical Working Group on Forest Genetic Resources (Working Group) at its Eight Session and the Commission at its Twentieth Regular Session. The FAO Council endorsed the Commission's recommendation.[2]

3. The document *Results of the written consultation on the review of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources*[3] presents views received through the written consultation. This document summarizes the inputs received and presents, based on these inputs, draft amendments to the Global Plan of Action for consideration by the Working Group. The document also presents, in *Appendix I*, a draft Resolution on *Reaffirming the World's Commitment to the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources*, which the Working Group may wish to recommend in addition to, or instead of, amendments to the Global Plan of Action.

II. BACKGROUND

4. The Global Plan of Action was agreed upon by the Commission in April 2013[4] on the basis of strategic priorities identified by the first report on *The State of the World's Forest Genetic Resources*.[5] It was subsequently adopted by the FAO Conference in June 2013.[6] The Global Plan of Action constitutes a rolling document that can be updated in line with any follow-up that the Commission may decide upon.

5. The Global Plan of Action identifies a total of 27 strategic priorities for action at national, regional and international levels for improving FGR management. The strategic priorities are grouped into four priority areas:

- Improving the availability of, and access to, information on FGR;
- Conservation of FGR (*in situ* and *ex situ*);
- Sustainable use, development and management of FGR; and
- Policies, institutions and capacity building.

6. The Global Plan of Action is voluntary and non-binding and should not be interpreted or implemented in contradiction with existing national legislation and international agreements where applicable. The relative priority of each strategic priority and associated actions may differ significantly in different countries and regions. Relative priority may depend on the genetic resources themselves, the natural environment or production systems involved, current management capacities, financial resources or policies already underway for FGR management.

[1] CGRFA-19/23/Report, paragraph 70.
[2] CL 174/REP, paragraph 33.
[3] CGRFA/WG-FGR-8/24/5/Inf.1.
[4] CGRFA-14/13/Report, *Appendix F*.
[5] FAO. 2014. *The State of the World's Forest Genetic Resources*. Rome. https://www.fao.org/3/i3825e/i3825e.pdf
[6] C 2013/REP, paragraph 77.

7. In 2017, the Commission adopted targets, indicators and verifiers for FGR to be used for monitoring the implementation of the Global Plan of Action. Summaries of FAO activities supporting the implementation of the Global Plan of Action are presented to each session of the Commission and the Working Group. In February 2019, the Commission also adopted a funding strategy for the implementation of the Global Plan of Action and endorsed the *Voluntary Guidelines for Preparing a National Strategy for Forest Genetic Resources*.

III. WRITTEN CONSULTATION

8. The revised draft of the Second Report was made available for information and comments on 1 July 2024. In response to the Commission's request, FAO developed an online form[7] to collect views on the need to revise the Global Plan of Action and circulated it on 2 July 2024 by electronic mail to the NFPs for FGR, the National Focal Points to the Commission, regional networks on FGR and international partners. The online form was made available in English, French and Spanish, and the inputs were invited by 30 August 2024. Views and written inputs were received from 11 NFPs for FGR[8], two NFPs to the Commission[9] and one international organization.[10]

9. Most respondents considered that the Global Plan of Action and its 27 strategic priorities remain highly relevant for continued action to improve FGR management. Some respondents expressed concerns regarding the lack of substantial progress in the implementation of the Global Plan of Action, in particular of Priority Area 1. Many considered a revision of or changes to the Global Plan of Action as not necessary. Others proposed changes, which are reflected in the section below.

10. Some respondents proposed to improve and simplify monitoring of and reporting on the implementation of the Global Plan of Action to ensure that an increasing number of countries will contribute to the monitoring efforts in the future. Some respondents expressed their expectation that with the new global information system on FGR the number of reporting countries would increase. It was also noted that countries still interpret definitions and concepts referred to in the Global Plan of Action in multiple ways.

IV. REVIEW OF THE GLOBAL PLAN OF ACTION

a) Improving the availability of, and access to information on forest genetic resources (Priority Area 1)

11. The views expressed on Priority Area 1 confirm that improving the availability of, and access to information on FGR remain a crucial area of work. This conclusion is also supported by the findings of the Second Report. The views expressed on the four strategic priorities under Priority Area 1 indicate that all the priorities remain relevant. Most respondents indicated that no changes are needed to the strategic priorities. However, some respondents proposed changes, which are reflected in the draft amendments contained in Table 1.

12. The draft amendments are mainly related to the collection of traditional knowledge on FGR, including how this information should be gathered from Indigenous Peoples and local communities. Under Strategic Priority 4, it was further proposed that the Working Group should consider adding a reference to the CARE[11] and FAIR[12] principles. It was also noted that regional information systems are a cost-effective and rational approach for many countries. Currently, however, there is no separate strategic priority at the regional level under Priority Area 1. The Working Group may wish to consider the proposed amendments indicated in Table 1. The text proposed for deletion is shown stricken through, while new proposed text is underlined in square brackets.

[7] CGRFA/WG-FGR-8/24/5/Inf.1, *Appendix I*.
[8] Brazil, Burkina Faso, Canada, Czechia, Ecuador, Finland, Germany, Kenya, Netherlands (the Kingdom of), Norway and Poland.
[9] Central African Republic and Yemen.
[10] World Agroforestry (ICRAF)
[11] Collective benefit, Authority to control, Responsibility, Ethics
[12] Findable, Accessible, Interoperable, Reusable

Table 1. Summary of changes proposed to strategic priorities under Priority Area 1.

Strategic Priority 1: Establish and strengthen national FGR assessment, characterization and monitoring systems
Rationale: Information on FGR is inadequate in many countries. National forest inventories do not usually include the parameters needed for planning the sustainable management of FGR. Baseline information on the status, trends and characteristics of FGR is needed in order to allow the definition and regular review of priorities for sustainable use and conservation, as well as the development of tree domestication and improvement programmes [for wood and non-wood forest products]. **Action:** Promote species inventory and characterization. Promote mapping of the distribution of priority or important species populations. Reinforce the capacities of **national herbaria and botanic surveys** to support the development of knowledge on forest species. [Develop tools for harmonizing data collection and consolidating information]. Develop **technical standards, protocols and ~~documentation~~ [information] systems** for assessing, [characterizing] and monitoring the status of FGR [and its] management. Promote and support the development of **national and regional species checklists** and mechanisms for updating them regularly. **Develop networks of forest genebanks, information units and databases,** and enhance information management and sharing at national, [regional] and international levels.
Strategic Priority 2: Develop national and subnational systems for the assessment and management of traditional knowledge on FGR
Rationale: Traditional knowledge can make a significant contribution to sustainable development through practices such as local conservation and sustainable use of plants and can contribute to efforts to solve serious global problems such as climate change, desertification, and land and water degradation. There is therefore a need to preserve traditional knowledge of FGR by developing national assessments and improving documentation. **Action:** Promote national-level assessments and documentation of traditional knowledge related to the use and management of FGR ~~by local communities~~.[with the free, prior and informed consent of Indigenous Peoples and local communities.] Develop [and strengthen] national and subnational traditional knowledge registration mechanisms and ~~databases~~ [information systems] to [effectively assess, manage,] preserve, protect and promote traditional knowledge on FGR. [Develop standard protocols to harmonize the collection of traditional knowledge.] As appropriate, develop guidance on registering, accessing, storing and using traditional knowledge of FGR at national, subnational and local scales, with effective [and willing] participation of indigenous and local communities, taking into consideration similar initiatives under the CBD. [Promote the active participation of Indigenous Peoples and local communities in the collection, management, and application of traditional knowledge, and encourage dialogue and collaboration between Indigenous Peoples and local communities and authorities.]
Strategic Priority 3: Develop international technical standards and protocols for FGR inventories, characterization and monitoring of trends and risks
Rationale: Scientifically sound, realistic and policy-relevant indicators for defining a baseline and monitoring the status and trends of FGR and their management are lacking at global, regional and national levels. There is a need to develop and use standardized methods and protocols for

inventory, characterization and monitoring. There is also a need to enhance the coordination of research on the identification, mapping and characterization of species populations and to improve the impact of the results on FGR management policies.

Action: Develop global criteria and indicators for assessing the status and trends of FGR within national forest inventories and other forest-related programmes.

[Strengthen technical standards, international protocols and the application of standardized definitions for FGR inventories, characterization, and monitoring of trends and risks.] Develop protocols for participatory assessment and monitoring of FGR.

Strategic Priority 4: Promote the establishment and the reinforcement of FGR information systems (databases) to cover available scientific and traditional knowledge on uses, distribution, habitats, biology and genetic variation of species and species populations

Rationale: *The [Second Report on the] State of the World's Forest Genetic Resources* provides [a]~~the first~~ global overview of the diversity, status and trends of FGR and of national, regional and global capacity to manage these resources. Many [countries] ~~reports~~ indicate that there are important gaps in knowledge of FGR and that information at country level is scattered and difficult to access. Furthermore, research programmes suffer from a lack of adequate financial support, especially in developing countries. There is therefore an urgent need to improve access to information on FGR for all stakeholders, while also developing the knowledge base required for sustainable use and management of FGR. There is also a need to improve countries' financial support to research activities.

Action: Improve access to information by developing and strengthening information management and sharing mechanisms at national[, regional] and global levels. [The information should be collected following the CARE[13] and FAIR principles,[14] and integrate both scientific and traditional knowledge.]

Promote the establishment ~~and maintenance~~[and regular updating] of FGR ~~databases~~ [information systems] at local, subnational, national, regional and global levels. [Promote collaboration between researchers, Indigenous Peoples and local communities, and governmental institutions to collect, validate and update data. Strengthen technical capacity for information system management.]

Improve access to information on forest species for a wide range of stakeholders, including ~~indigenous~~[Indigenous Peoples] and local communities.

b) *In situ* and *ex situ* conservation of forest genetic resource (Priority Area 2)

13. The views expressed on Priority Area 2 confirm that *in situ* and *ex situ* conservation of FGR are key to safeguard the genetic diversity of forest trees and other woody plant species. The views expressed on the seven strategic priorities under Priority Area 2 indicate that all of them remain relevant and the findings of the Second Report confirm that further action is needed in this area. The Working Group may wish to consider the proposed changes indicated in Table 2.

[13] Collective benefit, Authority to control, Responsibility and Ethics.
[14] Findable, Accessible, Interoperable, and Reusable.

Table 2. Summary of changes proposed to strategic priorities under Priority Area 2.

Strategic Priority 5: Strengthen the contribution of primary forests and protected areas to *in situ* conservation of FGR
Rationale: In the current context of increasing pressure on forest land and forest resources, primary forests and protected areas remain refuges for threatened FGR. A substantial proportion of wild and/ or endemic plants occur only in primary forests and protected forest areas. Only in those forests is the natural population genetic structure conserved. Natural processes involved in the dynamics of FGR resources are better assessed and understood in protected natural forests, which remain the best laboratories for studying species' ecology and biology. The contributions of primary forests and protected areas to the development of knowledge on plant species and to the conservation of FGR, therefore, need to be promoted. **Action:** Develop collaboration between institutions or programmes in charge of protected forest areas and those responsible for the development and use of FGR, such as national forest tree breeding centres, forest tree seed centres and other forest germplasm collection and conservation institutions operating at national or regional levels. Promote and reinforce the development of national FGR assessment and conservation activities in primary forests and protected areas and in conservation forests, with the participation of ~~indigenous~~[Indigenous Peoples] and local communities, as appropriate. [Enhance legislation, strengthen stakeholder engagement and increase the availability of human and financial resources to improve the management and monitoring of protected areas. Restore degraded forests and expand protected area networks, particularly in areas with threated FGR and to strengthen connectivity.] Manage genetic reserves within protected areas to maintain the evolutionary potentials of targeted species.
Strategic Priority 6: Promote the establishment and development of efficient and sustainable *ex situ* conservation systems, including *in vivo* collections and genebanks
Rationale: A comprehensive FGR conservation programme requires some combination of *in situ* and *ex situ* conservation. *Ex situ* conservation of FGR is mainly concerned with sampling as much as possible of the genetic variation that resides within and among populations of the target species. *Ex situ* conservation is, in many cases, the only option available for conserving the intraspecific genetic variation present in peripheral or isolated populations[15] that are seriously threatened by changes in land use and environmental conditions (drought, flooding, salinity, etc). The main objectives of an *ex situ* conservation programme for any particular species are: • to serve as a backup measure should *in situ* conservation measures be unworkable or unavailable; • to ensure that a wide range of the diversity available in the species is conserved; and • to manage the regeneration of the species outside its original natural range (provenance) in a more controlled way, with specific objectives for conservation or use. **Action:** Promote the documentation, characterization, regeneration and evaluation of FGR germplasm. Collect seeds that are representative of natural variation. Establish collections of improved seeds.

[15] FAO, FLD & IPGRI, 2004. *Forest genetic resources conservation and management. Vol. 3: In plantations and genebanks (ex situ).* Rome.

Promote the use of post-harvesting procedures[, technology and infrastructure] that maintain the quality of the seed before and after *ex situ* conservation.

[Promote the establishment of national, subregional and regional genebanks for FGR, as well as specialized nurseries and botanical gardens.][Encourage collaboration between research institutes, governments, local communities, and international organizations for the management and monitoring of collections.]

Promote and support the FGR conservation initiatives of ~~indigenous~~[Indigenous Peoples] and local communities.

Promote and develop mechanisms for the involvement of the private sector in the conservation of FGR.

Foster studies on seed collection, quality, conservation and reproduction.

Promote and encourage research on the conservation of recalcitrant-seed species.

Promote the establishment of incentives for *ex situ* conservation.

Strategic Priority 7: Support assessment, management and conservation of marginal and/or range limits forest species populations

Rationale: Marginal populations are fragile and more inclined to degradation than central populations, because they normally have less variation. Evolutionary forces can have particular effects on marginal populations and may lead to specific adaptations. Marginal populations should therefore have high priority in global and regional conservation strategies and programmes.

Action: Develop guidelines for the inventory and documentation of marginal forest species populations and promote their management and conservation through their integration into conservation networks and by emphasizing the participation of local communities.

[Carry out comprehensive field and remote-sensing studies to identify and document marginal and/or range limits populations.][Establish long-term monitoring systems to track population trends and risks.]

Support programme development [and collaboration] at global and regional levels to assess marginal populations and promote their conservation and evaluation in both *in situ* and *ex situ* conditions.

[Strengthen habitat connectivity, including through ecological corridors, for the conservation of marginal and/or range limits populations.]

Strategic Priority 8: Support and develop sustainable management and conservation of FGR on farmland

Rationale: Farmers contribute to FGR management and conservation on-farm in traditional land-use systems such as agroforestry systems. They therefore influence the interspecific and intraspecific diversity of species in the landscape. FGR managed in traditional agroforestry systems are seriously threatened by a lack of regeneration resulting from the increasing pressure on forest resources and current trends in agricultural intensification. There is a need to address the issue of on-farm management of FGR in countries where agroforestry is a common practice.

Action: Develop methodological tools for on-farm management and conservation of important agroforestry species.

Assess the status of conservation and management of important agroforestry species at national and regional levels.

Provide technical support [, capacity building and incentives] to promote on-farm sustainable management and use of FGR[, including through partnerships between the agricultural and forestry sectors].

[Evaluate and improve traditional agroforestry systems.]

[Develop guidelines and sustainable management programmes that integrate agroforestry and FGR conservation and use.]

[Raise awareness among farmers on the benefits of on-farm sustainable management, conservation and use of FGR.]

Strategic Priority 9: Support and strengthen the role of forests managed by ~~indigenous~~[Indigenous Peoples] and local communities in the sustainable management and conservation of FGR.

Rationale: Forests managed by ~~indigenous~~[Indigenous Peoples] and local communities often have a stronger role in maintaining genetic resources than protected areas do. Forest management by ~~indigenous~~[Indigenous Peoples] and local communities has been shown to be one of the most effective means of combining conservation with ~~poverty alleviation~~[wealth creation]. There is a need for greater recognition and support for this role in countries where this type of management is relevant.

Action: Assess the status of conservation and management of FGR in forests managed by ~~indigenous~~[Indigenous Peoples] and local communities.

Provide technical support [and capacity building] for the sustainable management and conservation of FGR in forests managed by ~~indigenous~~[Indigenous Peoples] and local communities.

[Encourage the development of and provide financial resources for FGR conservation led and managed by Indigenous Peoples and local communities.]

[Ensure Indigenous Peoples and local communities have equitable representation and participation in decision-making related to FGR, and their tenure rights are recognized and respected.]

Strategic Priorities 10: Identify priority species for action

Rationale: Because of the complexity of the subject, FGR management is better handled using a species approach. Processes involved in genetic diversity dynamics determine species adaptation and performance in a given environment. Understanding and developing FGR using a species approach is regarded as a useful option. Given the high number of forest species present in each country, it is impossible to develop research activities or programmes for all forest species. Priority species should be identified at national and subnational levels, and these priorities should be shared in existing regional and international fora so as to provide better focus and more efficient resource use**.**

Action: Promote research networks focusing on important species at national, regional and international levels.

Update priority species lists regularly at both country and regional levels.

Provide international support for the development of guidelines for species prioritization and for the identification of priority areas of research.

The prioritization of species could focus on species, populations or varieties that have reduced populations and are in danger of extinction, or on species of diverse current and future value, including those of strategic, scientific and economic importance. The values of these species, populations, breeds or varieties could be linked to socioeconomic, gender, food security or climate change adaptation factors, or to sacred or cultural significance at local, national and international levels.

[Develop standardized criteria for the prioritization of species.]

[Take into account relevant international programmes and conventions in identifying priority species for actions.]

Strategic Priority 11: Develop and implement regional *in situ* conservation strategies and promote ecoregional networking and collaboration

Rationale: The ecosystem approach is a way to manage entire ecosystems in a holistic manner without excluding other management and conservation approaches such as area-based management tools and single-species conservation practices. Ideally, all these approaches should be integrated, through regional networks when appropriate.

Regional strategies for conservation of FGR, including regional networks of *in situ* genetic conservation units and corridors of priority species, are needed in order to ensure the dynamic conservation of key FGR and their evolutionary abilities for the future. Definition and implementation of regional conservation strategies provide a good justification for coordination and collaboration at regional level. Investment in joint activities at regional level may often be more efficient and cost-effective than the multiplication and duplication of activities at national level.

Action: [Analyse gaps in the existing conservation efforts for the establishment of new *in situ* conservation units.]

Develop methodologies for the preparation of regional strategies for conservation of FGR, including principles for their implementation, taking into account existing experiences and using existing regional networks relevant to FGR.

[Promote research programmes which address regional knowledge gaps.] [Conduct studies on the impact of climate change on the seed maturity of priority species to assess the renewal capacities of different forest ecosystems.]

Promote ecosystem-based partnerships and regional collaboration to develop species genetic resources conservation and evaluation programmes (*in situ* and *ex situ*) in line with commitments under existing international regulations.

Mobilize resources by involving existing regional economic and environmental organizations.

c) Sustainable use, development and management of forest genetic resources (Priority Area 3)

14. The views expressed on Priority Area 3 confirm that sustainable use, development and management of FGR remain an important area of work. The findings of the Second Report confirm that further action is needed in this area. Table 3 contains changes proposed by respondents to strategic priorities under Priority Area 3. The Working Group may wish to consider the proposed amendments.

Table 3. Summary of changes proposed to strategic priorities under Priority Area 3.

Strategic Priority 12: Develop and reinforce national seed programmes to ensure the availability of genetically appropriate tree seeds in the quantities and of the (certified) quality needed for national plantation programmes
Rationale: Countries reported that large plantations are being established to serve many purposes, including the production of timber biofuel and fibres, and the provision of various environmental services such as reclamation of degraded land and soil and water management. However, most developing countries lack adequate forest seed supply systems. This jeopardizes the success and performance of plantation programmes in these countries. This concern is highlighted in most countries' reports and was identified as a priority area for action by most regional consultations. **Action:** Promote the establishment of, and support to, national tree seed supply systems[, including tree seed centres and related programmes.] [Develop capacity building programmes, awareness campaigns and incentive programmes to encourage the production and use of genetically appropriate tree seeds.] Enhance **collaboration** between tree seed centres, and **develop common quality seed standards**, to facilitate the exchange of forest reproductive material within regions and support national afforestation programmes. [Enforce certification and traceability systems for tree seeds.] [Develop efficient distribution networks to deliver tree seeds for end-users.]
Strategic Priority 13: Promote restoration and rehabilitation of ecosystems using genetically appropriate material
Rationale: Millions of square kilometres of degraded and disturbed forest land are attracting attention from many national and international organizations and agencies as potential sites for restoration or rehabilitation, but little attention is typically paid to the importance of selecting appropriate genetic sources to produce planting material. The challenge of matching adapted populations to current and future environmental conditions is often complicated by the extent and the type of degradation and disturbance involved, which may require field testing and/or predictive modelling. **Action:** Support and conduct research to identify key variables for choosing populations that are well-matched to current and future conditions at degraded sites. [Support and equip research centres with adequate laboratories to conduct new studies aimed at identifying key variables that will allow the selection of populations adapted to current and future conditions in degraded sites.] Develop guidelines and decision-support tools for selecting appropriate genetic composition of planting materials. [Develop protocols for the restoration and rehabilitation of ecosystems that ensure the use of appropriate genetic material.] Develop and implement monitoring protocols to assess the viability and resilience of tree populations over time at rehabilitated sites.
Strategic Priority 14: Support climate change adaptation and mitigation through proper management and use of FGR
Rationale: The current growing concern about climate change and its effects on ecosystems and the performance of forest-related production systems challenges stakeholders in FGR

management to better understand forest species and mechanisms for adaptation to current and future climate changes. Genetic diversity is needed in order to ensure that species can adapt, as well as to allow for artificial selection and breeding to improve productivity. Thus, genetic diversity, including diversity among species, is the key to the resilience of forest ecosystems and the adaptation of forest species to climate change.

Action: Develop subnational, national and regional standard methods and guidelines for the identification, selection and use of species population conservation units, based on environmental and sociocultural factors, which are the main determinants of the status of forest and agroforestry ecosystem diversity.

Assist countries in their efforts to improve the conservation and sustainable use of FGR in the face of climate change by:

- promoting best practices in FGR management, specifically in the fields of conservation, exploration, testing, breeding and sustainable use; ~~and~~
- promoting FGR's contributions to environmental sustainability through the development and use of well-suited genetic material~~.~~[;]
- [conducting studies on the impact of climate change on FGR, identifying the most vulnerable species and potential risks to forests; and]
- [conducting studies to identify genotypes with adaptation potential; and]
- [conducting studies on the genetic basis of climate resilience in tree populations.]

Strategic Priority 15: Promote appropriate use of [new and] emerging technology to support the conservation, development and sustainable use of FGR [Alt: Promote the use of new technologies to enhance and develop the level of FGR conservation and to support their sustainable use]

Rationale: Tree improvement activities remain limited to a few economically important tree species, not only because of financial constraints but also because of trees' specific characteristics. Trees are long-lived perennial species, with long regeneration cycles and late sexual maturity. Because of these characteristics, improvement and breeding research in tree species require more time than is required for the equivalent activities in other crops. New technologies, as appropriate, such as genomics and micro-propagation, can help accelerate the selection process and unlock the huge potential of forest trees. These new technologies have proved to be useful for understanding forest ecosystem dynamics, including genetic processes. They can orientate appropriate practical measures for sustainable conservation, management, restoration and rehabilitation.

Action: Promote the use of emerging technology [, including related to the establishment of gene banks,] to support the conservation and sustainable use of FGR, as well as tree improvement programmes, and to enhance the use of quality FGR in forestry programmes.

Assess available technologies and their effectiveness for use in *in situ* and *ex situ* conservation and in the development of the genetic resources of priority species.

[Promote responsible use of technology, including low-tech approaches, that are accessible, affordable, and culturally appropriate.]

Strategic Priority 16: Develop and reinforce research [and development] programmes on tree breeding, domestication and bioprospection in order to unlock the full potential of FGR [Alt: Establish and strengthen research programmes on the reproduction, domestication and bioprospecting of forest tree species to maximize the benefits of FGR]

Rationale: In addition to timber, forests provide many other commodities that are important to local communities and to national economies. The importance of medicinal plants, fodder plants and food plants is increasingly recognized and strongly reflected in many country reports. In many developing countries, a large proportion of the population makes use of medicinal plants for health

care. Free grazing is still a common practice in many developing countries, and forests are often an essential source of fodder. These various resources are still harvested from wild plants in forest lands and in some cases are under threat due to over-exploitation. Domestication of such plants will improve the supply of the targeted products while reducing the vulnerability of their genetic resources.

Action: ~~Assess and evaluate~~ [Evaluate] the contributions of forest species to environmental services (soil and water conservation, carbon sequestration, etc.).

[Assess the current and future environmental, cultural and economic value of ecosystem services.]

Assess and evaluate the contributions of priority forest species to important national production sectors (timber, fruits, fodder, vegetable oil, vegetables, medicines, etc.).

Develop programme-based multipurpose tree breeding for priority species. Promote participatory approaches by involving local communities in selection and breeding programmes for priority species, based on farmers' desired traits.

[Support collaborative research projects between academic institutions, research centres and industrial partners.]

[Support research on forest ecosystem dynamics, species, population autoecology, FGR and their derivatives, including through investments in advanced research infrastructure and innovative technologies.]

[Provide training for researchers, technicians, and students on tree breeding, domestication and bioprospection.]

[Establish standardized protocols for genetic evaluation, improvement, bioprospecting, and domestication of forest species, ensuring comparable and consistent methodologies.]

[Develop research programmes on pests and diseases affecting FGR and on the genetic diversity of priority forest species.]

[Establish partnerships between academic institutions, research centres and universities to share knowledge and resources.]

Strategic Priority 17: Develop and promote networking and collaboration among concerned countries to combat invasive species (animals, plants and microorganisms) as well as diseases and pests affecting FGR

Rationale: Invasive species are increasingly being noted as major threats to FGR. The major threats come from plant species that have the capacity to invade natural and/or slightly disturbed forest associations and become predominant, often displacing whole ecosystems and species. Pests and diseases affecting forests and trees are predicted to become an increasing threat as the effects of climate change become more prominent and the movement of plant material across countries and continents accelerates.

Action: Review existing standards and protocols, where appropriate, and, when needed, propose ~~voluntary protocols~~ [national or international regulation] for the movement of forest plant material across countries and regions, to avoid the spread of invasive organisms.

Promote national assessments of invasive alien species and their effects on FGR, using a regional or ecosystem approach.

Work with the International Plant Protection Convention to include FGR in existing biosecurity regulations and integrate concerns about FGR. Promote the development of research on pests and diseases that affect FGR. [Establish standardized protocols for the monitoring, control and eradication of invasive species affecting FGR.] [Develop and implement early warning systems for the rapid identification and effective response to the emergence of new invasive species or outbreaks of diseases and pests affecting FGR.] [Create regional and international platforms for exchanging information, best practices and management strategies and for coordinating actions against invasive species, diseases and pests.] [Encourage the development of value chains which contribute towards the control and/or eradication of invasive species affecting FGR.]

d) Policies, institutions and capacity building (Priority Area 4)

15. The views expressed on Priority Area 4 indicate that policy and institutional frameworks, including capacity-building and international collaboration, are crucial for enhancing the management of FGR. While the Second Report shows that countries have made progress in this area, it also indicates that continued action is needed. Table 4 contains changes proposed by respondents to strategic priorities under Priority Area 4, for consideration by the Working Group.

Table 4. Summary of changes proposed to strategic priorities under Priority Area 4.

Strategic Priority 18: Develop national strategies for *in situ* and *ex situ* conservation of FGR and their sustainable use
Rationale: Countries often lack adequate policies and programmes addressing *in situ* and *ex situ* conservation of FGR. Given the large number of stakeholders involved in many ways in the use, development and management of FGR at national level, it is useful to develop national strategies and programmes that provide an appropriate framework for action. **Action:** Develop policy tools, where appropriate, to provide national frameworks for action for the sustainable *in situ* and *ex situ* conservation of FGR. Develop or strengthen institutional capacities with respect to *in situ* and *ex situ* conservation of FGR to enable the implementation of existing or future national strategies for the conservation of FGR, including genebanks [and botanic gardens.] [Strengthen national strategies that integrate *in situ* and *ex situ* conservation, as well as the sustainable use of FGR.] [Promote the involvement of experts in the development of national strategies for *in situ* and *ex situ* conservation of FGR and their sustainable use.]
Strategic Priority 19: Update FGR conservation and management needs and integrate them into wider policies, programmes and frameworks of action at national, regional and global levels
Rationale: Many countries reported that due to the scarcity of financial and human resources, FGR will be best managed if relevant needs and priorities are taken care of by wider national forestry and land-use programmes and policies ~~(e.g. national forest inventories and protected areas)~~, in line with

[the United Nations Strategic Plan for Forests 2017–2030 and] the ~~Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets~~.[Kunming-Montreal Global Biodiversity Framework.]

Action: Promote the review of national policy and legal frameworks on forests and the integration into them of key concerns related to FGR.

Review and align forest and land-use policies and programmes, where appropriate, to better integrate the FGR dimension and contribute to climate change mitigation and adaptation.

[Promote the integration of FGR into National Biodiversity Strategies and Action Plans (NBSAPs) and National Adaptation Plans (NAPs).]

Amend national biosecurity regulations, where appropriate, to integrate concerns about FGR.

Strategic Priority 20: Develop collaboration and promote coordination of national institutions and programmes related to FGR

Rationale: There is a need to build synergy at national level between coordination units and national focal points of the various international programmes and conventions to enable efficient information sharing and resource use and to provide better support to efforts to address national priorities for FGR.

Action: Enhance cooperation and synergies between national authorities and national focal points in charge of FGR-related international programmes and conventions (e.g. CBD, United Nations Convention to Combat Desertification, climate change, access and benefit-sharing, Global Forest Resources Assessment, national forest programmes).

Create national consultation frameworks, such as permanent national commissions for FGR, to enhance sustainable management of FGR within national development and research programmes.

[Strengthen or establish, as appropriate, a national coordinating entity or an inter-institutional committee that facilitates communication and collaboration between stakeholders related to the management and conservation of FGR.]

Strategic Priority 21: Establish and strengthen educational and research capacities on FGR to ensure adequate technical support to related development programmes

Rationale: Many countries reported that technical and scientific capacities on FGR are weak. University curricula on issues such as FGR conservation, tree breeding and management of non-~~timber~~[wood] forest products are rare in many countries. Research and education need to be strengthened in all areas of FGR management in most countries, in particular in developing countries and countries in economic transition. Establishing, strengthening and maintaining research and educational institutions is a key factor in the development of national capacities to plan and implement priority activities in the sustainable use, development and conservation of FGR.

Action: Develop appropriate training modules to support the management and use of the genetic resources of forest plants that are important sources of [wood and] non-~~timber~~[wood] forest products.

Develop inter-sector and inter-institutional collaboration to make use of available scientific and technical information to ensure that the content of training modules is appropriate.

Organize training workshops on recent technological developments, as well as exposure visits for scientists and technicians and training courses for decision-makers and forest managers.

Strengthen national research and education programmes and capacity on FGR and promote regional connectivity and collaboration between institutions.

Reinforce the capacity and operation of national herbaria to support the development of knowledge on forest species.

Develop [, and improve the accessibility of,] training modules or curricula that address FGR management. This could lead to: 1) the identification of medium- and long-term needs for qualified human resources to support national development and research activities on FGR; 2) the development of extension and education modules with special emphasis on modern technology (e.g. biotechnology), to support national education capacity on forestry and FGR management.

[Develop research centres focussed on FGR and its conservation, with advanced technology and adequate laboratories to support educational and research efforts.]

Strategic Priority 22: Promote the participation of ~~indigenous~~[Indigenous Peoples] and local communities in FGR management in the context of decentralization

Rationale: Many developing countries have a decentralized country administration or are undergoing a decentralization process. In such countries, natural resources management, including FGR management, should take this context into consideration. In some cases, regulation measures are decided at province or state level. In countries where this is the case, there is a need to provide appropriate technical support to decentralized administrations in order to enable them to review or develop policy tools that ensure sustainable use and management of FGR, including protection, preservation and sustainable use of FGR for maintaining customary use by indigenous and local communities.

Action: Develop, strengthen or review local policies related to the management of forests, to increase awareness of FGR among local communities and to properly address the need for sustainable management, development and use of FGR at decentralized level.

Develop adequate human resources to support the proper management of FGR within ongoing decentralization processes and to enhance the contribution of FGR to local development.

[Develop FGR conservation policies, strategies, training programmes and awareness campaigns that involve indigenous and local communities.]

[Develop participatory funding mechanisms and economic incentives for community-led FGR initiatives.]

[Develop benefit-sharing mechanisms for FGR.]

Strategic Priority 23: Promote and apply mechanisms for germplasm exchange at regional level to support research and development activities, in agreement with international conventions

Rationale: Transfer and exchange of forest genetic material are regulated under international agreements, which, in some cases, can limit access to proper material and subsequently prevent research programmes from delivering results that are likely to have a real impact.

Action: Improve member countries' awareness and understanding of existing international regulations on genetic material exchange.

In compliance with national legislation and international regulations, improve or develop adapted national and regional exchange regulations that ensure that records are kept of the source and

transfer of forest genetic material for research purposes, and promote mechanisms to facilitate access to material for scientific work within the region.

Strengthen and encourage regional ~~networking on~~ [collaboration to facilitate] the exchange of forest genetic material [, including to address needs related to climate change mitigation].

[Raise awareness among researchers and institutions about the importance of compliance with international regulations and ethical principles.]

Strategic Priority 24: Reinforce regional and international cooperation to support education, knowledge dissemination, research, and conservation and sustainable management of FGR

Rationale: One of the most common constraints to research activities on FGR is a lack of adequate financial and human resources. Member countries therefore recommend strengthening international and regional cooperation to better support education and research activities on the conservation and sustainable management of FGR.

Action: Promote the establishment or strengthening of networks [and partnerships – including between countries, non-governmental organizations and research institutions –] that share information, experiences [, best practices] and theoretical and practical knowledge on FGR and their management.

Identify international channels for financial support (e.g. climate-related funds). [Establish financial and technical mechanisms to support regional and international cooperation.]

[Promote regional collaboration for developing best practices related to sustainable FGR use and establishing early warning systems for transboundary threats.]

Strategic Priority 25: Encourage the establishment of network activities and support the development and reinforcement of international networking and information sharing on FGR research, management and conservation

Rationale: Most regional consultation workshops identified networking as a priority for action that would improve information and experience sharing among stakeholders at global level

Action: Establish better linkages and mechanisms to enhance coordination and collaboration between institutions on technology, policy implementation and ~~information sharing~~[the sharing of information and best practices].

[Support existing international networks that share knowledge on FGR research and conservation.]

Strategic Priority 26: Promote public and international awareness of the roles and values of FGR

Rationale: Many countries reported that decision-makers and the general public are not well aware of the importance of FGR. Needs and priorities for action at country, regional and international levels will be better supported by stakeholders if effective awareness-raising activities are developed and supported.

Action: ~~Develop advocacy measures and tools to e~~[E]nsure effective communication and information sharing related to the sustainable management and use of FGR [using various approaches, including traditional media, digital platforms, education materials, social networks, documentaries and scientific publications].

[Develop awareness raising events to promote the importance of FGR and collect feedback.]

Support international campaigns to raise awareness of the status and trends of FGR and their contribution to the ~~Millennium~~[Sustainable] Development Goals, including contributions to food security, ecotourism potential, poverty alleviation and environment sustainability, and subsequently seek to develop wide support at government and institutional levels and among the general public.

Organize training on FGR for forestry technicians and administration managers.

Strategic Priority 27: Strengthen efforts to mobilize the necessary resources, including financing, for the conservation, sustainable use and development of FGR

Rationale: Most countries reported that the conservation, sustainable use and development of FGR lack adequate funding. Efforts need to be made at national and international levels to ensure that strategic priorities are successfully translated into actions within existing and/or new programmes.

Action: ~~Develop efforts to assist~~ [Support] countries and stakeholders to design appropriate programmes and policies for the conservation, sustainable use and development of FGR and ~~to secure~~ [mobilize] adequate and sustainable funding, particularly in developing countries and countries with economies in transition.

Encourage countries and stakeholders to explore new funding opportunities, including climate change and biodiversity-related funds. Support the creation of sustainable incentives for conservation and sustainable use activities related to FGR.

[Promote the establishment of public-private partnerships to diversify funding sources for FGR management.]

[Promote the creation of innovative financing mechanisms, such as dedicated conservation funds or carbon credits.]

[Develop a financial plan for the conservation and management of FGR, identifying investment priorities and diversified funding sources.]

[Conduct a cost-benefit analyses on investment in the conservation and management of FGR.]

V. GUIDANCE SOUGHT

16. The Working Group may wish to:

i. review the Global Plan of Action, consider the draft amendments contained in this document and recommend that the Commission invite the Director-General to bring the updated Global Plan of Action to the attention of the Conference for its consideration and adoption;

ii. recommend that the Secretariat update the introduction of the Global Plan of Action (Part I), the introductions of its Priority Areas and the Summary Table, as necessary; and

iii. review and revise, as appropriate, the draft Resolution contained in *Appendix I* and recommend that the Commission invite the Director-General to bring the Resolution to the attention of the Conference, for its consideration and adoption.

APPENDIX I

Reaffirming the World's Commitment to the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources

Draft Resolution

THE CONFERENCE,

Recalling the adoption of the *Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources* (Global Plan of Action)[16] as the key milestone in international efforts to enhance the management of the genetic resources of forest trees and other woody plants species important for forestry, including agroforestry;

Welcoming *The Second Report on the State of the World's Forest Genetic Resources*;

Recognizing the important contributions of forest genetic resources to the 2030 Agenda for Sustainable Development and the United Nations Strategic Plan for Forests 2017–2030, as well as to globally agreed instruments on biodiversity, climate change and desertification;

Affirming that the Global Plan of Action continues to serve as the key policy framework for enhancing the management of forest genetic resources at national, regional and international levels;

[**Adopts** the revised Global Plan of Action, as recommended by the Commission on Genetic Resources for Food and Agriculture;]

Invites Members to:

- **develop** or **strengthen** national policies, strategies and action plans, as appropriate, for the management of forest genetic resources;
- **strengthen** their efforts to implement the Global Plan of Action and **report** the progress made to FAO;
- **gather** more comprehensive information on the conservation, use and development of forest genetic resources to advance the management of these resources;
- **pay** due attention to genetic aspects in the management of both natural and planted forests to maintain and enhance their adaptability, productivity and resilience under climate change;
- **integrate** forest genetic resources into relevant national policies and strategies on forests, biodiversity, climate change and desertification;

Requests the Organization to:

- **continue** facilitating and supporting the implementation of the Global Plan of Action and the country reporting process to monitor the progress made in this regard;
- **continue** its efforts to increase international awareness of the Global Plan of Action and the importance of forest genetic resources;
- **promote** the work on forest genetic resources when implementing its corporate strategies on biodiversity mainstreaming and climate change;
- **ensure** that all relevant units of the Organization in headquarters and regional, subregional and country offices are supportive to the implementation of the Global Plan of Action in the context of the FAO Strategic Framework;
- **continue** to pursue extra-budgetary resources to support the implementation of the Global Plan of Action.

Calls on all partners and stakeholders, including donors, to collaborate on the implementation of the Global Plan of Action.

[16] C 2013/REP, paragraph 77.