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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Item 10.1 of the Provisional Agenda

Seventeenth Regular Session

Rome, 18–22 February 2019

REPORT OF THE FIFTH SESSION OF THE INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON FOREST GENETIC RESOURCES

Note by the Secretariat

The Commission, at its last session, requested its intergovernmental technical working groups to meet prior to its Seventeenth Regular Session. The Fifth Session of the Intergovernmental Technical Working Group on Forest Genetic Resources (Working Group) was held in Rome from 8 to 10 May 2018. The Working Group considered, *inter alia*, the status of implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources and the preparation of *The Second Report on the State of the World's Forest Genetic Resources*. The Working Group also explored cross-sectoral issues, such as access and benefit-sharing, digital sequence information, the draft work plan on micro-organism and invertebrate genetic resources and the contribution of genetic resources to food security and climate change adaptation. The Working Group also reviewed and revised the *Draft Revised Strategic Plan for the Commission on Genetic Resources for Food and Agriculture (2018–2027)*. The report of the Fifth Session of the Working Group is contained in this document, for consideration by the Commission.

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CGRFA 17



**Food and Agriculture
Organization of the
United Nations**

COMMISSION ON
GENETIC RESOURCES
FOR FOOD AND
AGRICULTURE

CGRFA/WG-FGR-5/18/Report

Fifth Session of the Intergovernmental Technical Working Group on Forest Genetic Resources

Rome, Italy, 8 – 10 May 2018

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

REPORT OF THE FIFTH SESSION

OF THE

INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON

FOREST GENETIC RESOURCES

Rome, Italy, 8 – 10 May 2018

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
Rome, 2018

The documents prepared for the Fifth Session of the Intergovernmental Technical Working Group on Forest Genetic Resources of the Commission on Genetic Resources for Food and Agriculture are available on the Internet at the following address:

<http://www.fao.org/forestry/86904/en/>

They may also be obtained from:

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I. INTRODUCTION

1. The Fifth Session of the Intergovernmental Technical Working Group on Forest Genetic Resources (Working Group) was held in Rome, Italy, from 8 to 10 May 2018. The members and alternates of the Working Group are contained in *Appendix B*. The list of delegates and observers is available on the FAO website.¹

II. OPENING OF THE SESSION AND ELECTION OF THE CHAIR, VICE-CHAIRS AND *RAPPORTEUR*

2. Mr Sibidou Sina (Burkina Faso), Chair of the Fourth Session of the Working Group, welcomed delegates and observers.

3. Ms Eva Müller, Director, Forestry Policy and Resources Division, welcomed delegates and observers. She noted that sustainable forest management and biodiversity remain high on the global agenda on sustainable development. She highlighted the first-ever UN Strategic Plan for Forests 2017–2030, adopted by the UN General Assembly in 2017, and noted that its Global Forest Goals 1 and 2 are of particular importance for forest genetic resources. She stressed that the implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources (Global Plan of Action) remains timely and highly relevant, and called upon members and observers to continue increasing awareness of the importance of forest genetic resources.

4. Ms Irene Hoffmann, Secretary, Commission on Genetic Resources for Food and Agriculture (Commission), welcomed delegates and observers. She stressed the need to address forest genetic resources in the broader context of biodiversity and to implement policies on forest genetic resources in harmony with other policies, including those addressing other genetic resources as well as the conservation and sustainable use of biodiversity. She highlighted the ongoing work of the Commission on *The State of the World's Biodiversity for Food and Agriculture*, and noted that this report, based on country reports, shows the necessity of interdisciplinary and cross-sectoral work.

5. The Chair informed the Working Group that, in line with Article III of the Statutes of the Working Group, Burkina Faso, Côte D'Ivoire and Equatorial Guinea (instead of the Congo, Eritrea and Zambia), Pakistan (instead of Viet Nam), Finland, Estonia and Norway (instead of France, the Russian Federation and Sweden) and Oman (instead of the Syrian Arab Republic) would participate in the session as Members.

6. The Working Group elected Ms Randi Johnson (United States of America) as Chair. The Working Group elected Mr Maman Adda (Niger), Mr K.M.A. Bandara (Sri Lanka), Mr Czeslaw Koziol (Poland), Mr Luis Gustavo Asp Pacheco (Brazil), Mr E. M. E. Mohamedain (Sudan) and Mr Martin Golman (Papua New Guinea) as Vice-Chairs. Mr Adda was elected as *Rapporteur*.

7. The Working Group stressed the importance of making documents available online at least two weeks before each session.

8. The Working Group adopted the Agenda, as contained in *Appendix A*.

III. STATUS OF IMPLEMENTATION OF THE *GLOBAL PLAN OF ACTION FOR THE CONSERVATION, SUSTAINABLE USE AND DEVELOPMENT OF FOREST GENETIC RESOURCES*

9. The Working Group considered the document *Status of Implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources*² and took note of the documents *Preliminary First Report on the Implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources*³, *Draft voluntary*

¹ <http://www.fao.org/forestry/86904/en/>

² CGRFA/WG-FGR-5/18/2.

³ CGRFA/WG-FGR-5/18/Inf.3.

*guidelines for preparing a national strategy for forest genetic resources*⁴ and *Draft funding strategy for the implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources*.⁵

10. The Working Group took note of the activities reported and acknowledged the progress made in the implementation of the Global Plan of Action. The Working Group took note of the *Preliminary First Report on the Implementation of the Global Plan of Action* and recommended that countries, regional networks and relevant international organizations that have not yet submitted their progress reports, be invited to do so by 31 August 2018 at the latest. The Working Group further recommended that an updated *First Report on the Implementation of the Global Plan of Action* be presented to the next session of the Commission, for its consideration.

11. The Working Group requested the Secretariat to invite National Focal Points on forest genetic resources, relevant regional networks and international organizations to submit comments on the *Draft voluntary guidelines for preparing a national strategy for forest genetic resources* by 31 July 2018, and to consolidate them in the light of comments received, for consideration by the Commission at its next session.

12. The Working Group took note of the *Draft funding strategy for the implementation of the Global Plan of Action*. It welcomed the proposed mainstreaming of the conservation and sustainable use of forest genetic resources across more holistic actions and activities developed to strengthen the implementation of sustainable forest management and forest-based adaptation and mitigation measures against climate change through established financing mechanisms. The Working Group asked the Secretariat to ensure that the REDD+ framework will be included in the document. The Working Group requested the Secretariat to prepare, based on comments received during the session, an updated draft of the Funding Strategy for consideration by the Commission at its next session.

13. The Working Group recommended that the Commission invite countries to continue implementing the Global Plan of Action, and encourage them to address the findings of the *First Report on the Implementation of the Global Plan of Action*, as appropriate. It also recommended that the Commission request FAO to continue coordinating and supporting the implementation of the Global Plan of Action, in collaboration with regional networks and relevant international organizations. The Working Group also recommended that the Commission encourage donors to support the implementation of the Global Plan of Action and its Funding Strategy.

IV. PREPARATION OF *THE SECOND REPORT ON THE STATE OF THE WORLD'S FOREST GENETIC RESOURCES*

14. The Working Group considered the document *Preparation of the Second Report on the State of the World's Forest Genetic Resources*⁶ and took note of the document *Draft guidelines for the preparation of country reports for The Second Report on the State of the World's Forest Genetic Resources*.⁷

15. The Working Group took note of the proposed outline and welcomed the timeline for the preparation of the Second Report and recommended them for approval by the Commission.

16. The Working Group reviewed the draft guidelines for preparing the country reports, and recommended that they state more clearly that the questions listed in the second section (complementary reports) serve the purpose of guiding the preparation of narratives beyond the provision of data that are submitted through completion of the online questionnaire (section 1). The Working Group expressed its concerns that the amount of data and information requested might deter some countries from submitting country reports. It recommended that FAO prioritize the data and information requested for the country reports, in particular the guiding questions of the complementary reports. The Working Group further recommended that FAO refrain from collecting any overall data

⁴ CGRFA/WG-FGR-5/18/Inf.4.

⁵ CGRFA/WG-FGR-5/18/Inf.5.

⁶ CGRFA/WG-FGR-5/18/3.

⁷ CGRFA/WG-FGR-5/18/Inf.6.

on forest resources as these data are already collected through the Global Forest Resources Assessment. Furthermore, the Working Group recommended to also develop an online portal for the submission and publication of country reports. The Working Group requested the Secretariat to ensure that the online system generates a copy of the submission for national use. It further recommended that the reporting guidelines allow countries to report implementation activities that have not yet generated concrete results. The Working Group recommended that the glossary of technical terms, which will be attached to the questionnaire, is further improved so as to clarify concepts such as *in situ* conservation in the context of planted forests. The Working Group requested the Secretariat to invite the National Focal Points on forest genetic resources to comment on the draft guidelines by 15 September 2018, and to finalize them in the light of comments received, for consideration by the Commission at its next session.

17. The Working Group considered the development of a global information system for forest genetic resources. It noted that the development of such an information system should be considered as a priority for making key data from the country reports publicly available. The Working Group also noted that the information system should enable countries to generate copies of the reports for their own use. The Working Group recommended that the Commission request FAO to initiate the development of a new global information system on forest genetic resources, subject to the availability of additional extra-budgetary resources. It also recommended that the Commission encourage FAO to consider ways to strengthen national and regional information systems on forest genetic resources, including by offering technical and financial assistance.

18. The Working Group acknowledged the interest of Bioversity International and the European Forest Institute to contribute to the development of a new global information system on forest genetic resources and to the preparation of the Second Report.

19. The Working Group stressed the need for capacity development and recommended that FAO support countries in the process of reporting for the preparation of the Second Report.

20. The Working Group recommended that the Commission call upon countries to submit their country reports for the preparation of the Second Report by 30 June 2020. It also recommended that the Commission request FAO to invite regional networks on forest genetic resources and relevant international organizations to contribute to the preparation of the Second Report. The Working Group noted the need for extra-budgetary resources and recommended that the Commission invite donors to support the preparation of the Second Report.

V. ACCESS AND BENEFIT-SHARING FOR FOREST GENETIC RESOURCES

21. The Working Group considered the document *Draft Explanatory Notes describing, within the context of the ABS Elements, the distinctive features of forest genetic resources*⁸ and took note of the information documents *Inputs by Members and Observers on Access and Benefit-sharing for Genetic Resources for Food and Agriculture*,⁹ *Outputs of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture*,¹⁰ *Proceedings of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture*¹¹ and *National focal point survey on access and benefit-sharing for genetic resources for food and agriculture*.¹²

22. The Working Group confirmed the relevance of the distinctive features of genetic resources for food and agriculture to forest genetic resources, as identified in Table 1 of document CGRFA/WG-FGR-5/18/4. It reviewed and revised the explanatory notes, as contained in *Appendix C* to this document, for consideration by the Team of Technical and Legal Experts on Access and Benefit-sharing and the Commission, at their next sessions.

⁸ CGRFA/WG-FGR-5/18/4.

⁹ CGRFA/WG-FGR-5/18/Inf.7.

¹⁰ CGRFA/WG-FGR-5/18/Inf.8.

¹¹ CGRFA/WG-FGR-5/18/Inf.9.

¹² CGRFA/WG-FGR-5/18/Inf.10.

23. The Working Group noted that the explanatory notes are not prescriptive and that the introductions to the explanatory notes, as contained in *Appendix C*, are important to understand their context and meaning. The Working Group therefore recommended that the Team of Technical and Legal Experts ensure that in consolidating the explanatory notes their context and meaning will not be changed.

24. The Working Group requested the Secretariat to make available, as soon as possible, to all Members of the Working Group the explanatory notes, as reviewed and revised by the Team of Technical and Legal Experts on Access and Benefit-sharing.

VI. “DIGITAL SEQUENCE INFORMATION”¹³

25. The Working Group considered the document, *Review of the draft exploratory fact-finding scoping study on “digital sequence information” on genetic resources for food and agriculture*.¹⁴

26. The Working Group thanked FAO for providing the *Draft exploratory fact-finding scoping study on “digital sequence information” on genetic resources for food and agriculture*¹⁵ for review by the Working Group. It welcomed the draft study as a comprehensive, informative, timely and useful report.

27. The Working Group noted that the term “digital sequence information” is very broad and that its use is potentially problematic, since there is no universally agreed definition and the term will evolve with further scientific developments. It noted that the potential implications of “digital sequence information” for the three objectives of the Convention on Biological Diversity (CBD) will be discussed at the Fourteenth Meeting of the Conference of the Parties and encouraged FAO to continue working closely with the CBD in this area.

28. The Working Group noted that the CBD Ad Hoc Technical Expert Group on Digital Sequence Information on Genetic Resources “agreed that more discussion on the terminology associated with this issue is required to find the balance between terminology that is adaptive and dynamic enough to accommodate scientific, technological, market and other change, and at the same time is clear and solid enough to provide legal certainty”.¹⁶

29. The Working Group invited its Members to provide further examples of the use of “digital sequence information” in the field of forest genetic resources to the Secretariat by 31 July 2018, for consideration in the finalization of the exploratory fact-finding scoping study. It recommended to postpone its discussions on digital sequence information to its next session to be able to take into account the results of the Fourteenth Meeting of the Conference of the Parties to the CBD.

VII. DRAFT WORK PLAN FOR THE SUSTAINABLE USE AND CONSERVATION OF MICRO-ORGANISM AND INVERTEBRATE GENETIC RESOURCES FOR FOOD AND AGRICULTURE

30. The Working Group considered the document *Draft work plan for the sustainable use and conservation of micro-organism and invertebrate genetic resources for food and agriculture*.¹⁷ It welcomed the draft work plan as a timely response to the importance of micro-organism and invertebrate genetic resources and their relevance to the forestry sector.

31. The Working Group reviewed the priority areas identified by the Commission at its last session (pollinators, in particular honey bees; soil micro-organisms and invertebrates; biological control agents; micro-organisms of relevance to ruminant digestion; and micro-organisms of relevance

¹³ The term is taken from decision CBD COP XIII/6 and is subject to further discussion. There is a recognition that there is a multiplicity of terms that have been used in this area (including, *inter alia*, “genetic sequence data”, “genetic sequence information”, “genetic information”, dematerialized genetic resources”, “*in silico* utilization”, etc.) and that further consideration is needed regarding the appropriate term or terms to be used.

¹⁴ CGRFA/WG-FGR-5/18/5.

¹⁵ CGRFA/WG-FGR-5/18/Inf. 11.

¹⁶ CBD/DSI/AHTEG/2018/1/4, paragraph 12.

¹⁷ CGRFA/WG-FGR-5/18/6

to food processing and agro-industrial processes)¹⁸ and recommended to revise the list of functional groups of micro-organisms and invertebrates in the draft work plan as given below:

CGRFA-18	Pollinators, in particular honey bees
CGRFA-19	Soil micro-organisms and invertebrates
CGRFA-20	Biological control agents, endophytes and symbionts
CGRFA-21	Organisms, including edible fungi, used as dietary components of food/feed
CGRFA-22	Food processing and agro-industrial fermentation processes
CGRFA-23	Micro-organisms of relevance to animal digestion

VIII. DRAFT STRATEGIC PLAN FOR THE COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE (2018-2027)

32. The Working Group reviewed and revised the document *Draft Revised Strategic Plan for the Commission on Genetic Resources for Food and Agriculture (2018–2027)*.¹⁹

33. The Working Group noted the progress made in the implementation of the Commission's Multi-Year Programme of Work (MYPOW) and recommended to revise the Session planning, as contained in *Appendix D*. It noted that the proposed cross-sectoral goals of the Commission build on the global assessments prepared under its guidance, the strategic priority areas, long-term goals and targets of the Commission's global action plans and other Commission activities undertaken in response to the global assessments.

34. The Working Group recommended that the Commission update the MYPOW and Session planning on a regular basis and review the Strategic Plan as necessary. It thanked the Governments of Switzerland and Norway for their support to the MYPOW Multi-donor Trust Fund and recommended that the Commission encourage other donors to follow their example.

IX. CLOSING STATEMENTS

35. Mr Hiroto Mitsugi, Assistant Director-General, Forestry Department, congratulated the Working Group on its accomplishments. He noted that the discussions and recommendations of the Working Group provide valuable contributions to the implementation of the United Nations Strategic Plan for Forests. Coming from the Thirteenth Session of the United Nations Forum on Forests, he added that the implementation of the Global Plan of Action is highly relevant for enhancing sustainable forest management. He reiterated the willingness of the FAO Forestry Department to provide technical support to countries for the implementation of the Global Plan of Action.

36. Ms Hoffmann thanked delegates and observers for their contributions and active participation. She noted that continued efforts are needed to implement the Global Plan of Action. She expressed satisfaction about the results of the session and emphasized their importance to the work of the Commission.

37. The Chair thanked members and observers for their work and recommendations. She also thanked the Rapporteur and the Secretariat as well as other FAO staff for their contributions to the success of the session.

¹⁸ CGRFA/16/17/Report Rev.1, paragraph 79.

¹⁹ CGRFA/WG-FGR-5/18/7

APPENDIX A

**AGENDA OF THE FIFTH SESSION OF THE
INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON FOREST
GENETIC RESOURCES**

Rome, 8 - 10 May 2018

1. Election of the Chair, the Vice-Chair(s) and the *Rapporteur*
2. Adoption of the agenda and timetable
3. Status of implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources
 - 3.1 Preliminary First Report on the Implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources
 - 3.2 Draft voluntary guidelines for preparing a national strategy for forest genetic resources
 - 3.3 Draft funding strategy for the implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources
4. Preparation of *The Second Report on the State of the World's Forest Genetic Resources*
5. Access and benefit-sharing for forest genetic resources
6. "Digital sequence information"
7. Draft work plan for the sustainable use and conservation of micro-organism and invertebrate genetic resources for food and agriculture
8. Draft Revised Strategic Plan for the Commission on Genetic Resources for Food and Agriculture (2018–2027)
9. Any other matters
10. Adoption of the Report

APPENDIX B

**MEMBERS AND ALTERNATES OF THE INTERGOVERNMENTAL TECHNICAL
WORKING GROUP ON FOREST GENETIC RESOURCES, ELECTED BY THE
COMMISSION AT ITS SIXTEENTH REGULAR SESSION**

<i>Composition (no. of countries per region)</i>	<i>Country</i>
Africa (5)	Congo Eritrea Morocco Niger Zambia <i>First Alternate:</i> Togo <i>Second Alternate:</i> Swaziland
Asia (5)	China Lao People's Democratic Republic Republic of Korea Sri Lanka Viet Nam <i>First Alternate:</i> Thailand <i>Second Alternate:</i> Indonesia
Europe (5)	France Italy Poland Russian Federation Sweden <i>First Alternate:</i> Finland <i>Second Alternate:</i> United Kingdom
Latin America and the Caribbean (5)	Argentina Brazil Cuba Ecuador Peru <i>First Alternate:</i> Costa Rica <i>Second Alternate:</i> Panama
Near East (4)	Iran (Islamic Republic of) Sudan Syrian Arab Republic Yemen <i>First Alternate:</i> Jordan <i>Second Alternate:</i> Lebanon
North America (2)	Canada United States of America
Southwest Pacific (2)	Papua New Guinea Vanuatu <i>First Alternate:</i> Fiji <i>Second Alternate:</i> Solomon Islands

APPENDIX C

EXPLANATORY NOTES, DESCRIBING WITHIN THE CONTEXT OF THE ABS ELEMENTS, THE DISTINCTIVE FEATURES OF FOREST GENETIC RESOURCES

The Working Group reviewed and revised the draft explanatory notes, as given below, for further consideration by the Team of Technical and Legal Experts on Access and Benefit-sharing and the Commission, at their next sessions.

Distinctive features of forest genetic resources

1. Governments may wish to take into account the following aspects of forest genetic resources (FGR) when dealing with access and benefit-sharing for FGR:
 - FGR are often undomesticated species and populations.
 - Forest species migrate on their own (albeit slowly) and do not recognize borders.
 - There is a long history of moving species around the world. Many plantation programmes depend on exotic species (e.g. *Pinus*, *Eucalyptus*, *Gmelina*, etc).
 - Many of the benefits derived from forests are “ecosystem services” and are difficult to value. Unlike production crops, it is difficult to put a monetary value on what may come from a breeding or restoration programme.
 - The benefits derived from tree breeding take decades to realize. Breeding intervals range from 10 to 15 years, plantation ages can range from 8 to 40 years. A temperate forest tree breeding programme would need close to 35 years to see any real economic value from a material transfer (maybe less if the seed could be sold for increased value, but the economic benefit is not well-documented).
 - Unlike agricultural crops, a forest does not generally produce a new crop every year; however, there is a growing number of high value non-timber forest products (including fruit, seed and leaf material) that can contribute to food security.
 - Disease resistance is a key trait for which exotic germplasm is often needed. Aspects to consider:
 - o sometimes the benefits are simply establishment of a healthy forest, with no plans for harvest in some cases;
 - o often the disease for which resistance is sought through breeding programmes originates from the same region as the germplasm (i.e. the problem originated from the source of the resistance).
2. The following draft explanatory notes aim to (i) provide relevant background information to policy-makers developing, adapting or implementing ABS measures in countries that are regulating their own genetic resources and (ii) clarify some of the issues raised in the ABS Elements as they are relevant to FGR, underlining the voluntary and non-prescriptive nature of the explanatory notes.

Background information on forest genetic resources

3. ABS policy-makers may find it useful to receive some background information on the use and exchange of FGR.¹ Explanatory notes should therefore explain that:

The exploration, assessment and movement of forest reproductive material have a long history in the forest sector. Early provenance trials revealed the existence of “geographical races” within tree species and also that the initial origin of the seed has a major influence on the survival and performance of tree planting efforts. Numerous international provenance trials have been established for many tree species to test the performance of tree germplasm from different countries/regions. Subsequently, the results of these provenance trials have had a large influence on the demand of certain seed sources as compared to others and were a reason for many germplasm transfers between countries and regions. Provenance trials have also provided incentives for the conservation of FGR. Provenance testing is not complete in all species and all countries.

One of the main uses of FGR is direct use as reproductive material (in the form of seeds, cuttings and other propagating parts of a tree) for reforestation, afforestation or establishment of agroforestry systems. The extent to which FGR are used in systematic exploration and breeding programmes varies greatly among different tree species. Systematic exploration and improvement started some 50 years ago for several fast-growing tree species used in plantation forestry (e.g. pines, acacias, eucalypts) in industrial and smallholder plantings. For various temperate and boreal tree species, exploration and assessment efforts started more than 200 years ago, although more systematic improvement programmes were initiated in the course of the twentieth century. More recently, tree breeding has begun to encompass a range of biotechnological techniques, including marker-assisted breeding.

For the majority of other tree species, improvement efforts still remain limited and are mostly restricted to provenance trials and the selection of seed stands. In general, forest tree breeding is limited by long generation intervals and breeding cycles such that most species are still within the first generations of genetic improvement. However, genetic gains per generation can be quite substantial due to the fact that forest tree species are undomesticated with high levels of genetic diversity thus providing the opportunity of high selection intensity. Some species such as tropical eucalypts, acacias and some pines are progressing relatively rapidly because of shorter generation intervals (typically less than ten years) and early selection techniques. The genepools of tree species in breeding programmes can have large effective population sizes and often have highly fragmented populations. According to the level of improvement involved, reproductive material of forest tree species may be obtained from a wide variety of sources. For example, the collection of seeds from wild stands and natural populations for mass propagation of plantations or forest regeneration is still common.

Additionally, seed orchards, special facilities associated with organized breeding programmes, are managed specifically for seed production. The genetic material produced in these orchards has usually been tested and selected in trials across different sites and climatic conditions, and may be optimized for specific commercial traits such as wood volume, pulp yield, biomass yield or leaf oils. Large-scale nurseries producing tree seedlings and/or cuttings are often managed by large companies or state agencies, but small-scale nurseries operated by farmers and local communities are often the main source of tree seedlings in rural areas, especially in areas where no commercial forestry is practised.

Some *ex situ* collections of FGR have been established for conservation and research purposes and are usually managed by public or semi-public research institutions. While the movement of FGR around the world has a long history and the proportion of exotic forest reproductive material used for plantation and afforestation is quite high, considerable differences exist between species with regard to their involvement in international exchange of germplasm and the extent to which they have spread outside their natural distribution ranges. For example, several fast-growing plantation species, such as acacias, pines and eucalypts, have been moved

¹ See [Background Study Paper No. 44](#).

extensively throughout the world and are now cultivated far beyond their natural distribution ranges. Also, some tropical high-value specialty timber species such as mahogany, Spanish cedar and teak are grown as exotics in many countries.

Although the exchange of some species, such as agroforestry tree species, may have taken place on a smaller scale, their distribution to countries beyond their native ranges has played an important role in the development of the sector. However, for many species exchange of genetic material has been limited to date, and takes place mainly at a regional level or between countries sharing the same climatic conditions. Various species are also used largely within their natural habitats in native forests and are only exchanged very occasionally, for example for specific research purposes.

In all these cases, it should be noted that the capture of any economic value takes time. Unlike most agronomic crops, trees must be grown for many years before they can be harvested for food or fibre. Often the economic benefits arising from the transfer of genetic material are hard to determine since they have to do with forest health and other ecosystem goods and services.

Legal, policy and administrative measures, including existing practices

4. The ABS Elements refer to specific legal administrative or legislative measures that may already exist for ABS for certain subsectors of genetic resources for food and agriculture (GRFA). Reference is made, in particular, to the Treaty. Explanatory notes should therefore explain:

The Treaty covers all plant genetic resources for food and agriculture. Its Multilateral System of Access and Benefit-sharing (MLS) covers also a few tree crops (apple [*Malus*]; breadfruit [*Artocarpus*]; citrus [incl. *Poncirus* and *Fortunella* as root stock]; coconut [*Cocos*]) and some forages that are woody plant species. Under the Treaty, access to these genetic resources shall be provided pursuant to a Standard Material Transfer Agreement (SMTA) for the purpose of utilization and conservation for research, breeding and training for food and agriculture, provided that such purpose does not include chemical, pharmaceutical and/or other non-food/feed industrial uses.²

5. The ABS Elements also refer to commercial or research practices for the use and exchange of genetic resources for research and development, which some of the subsectors may have already developed, and encourage governments to consider these practices in the development of ABS measures.³ Explanatory notes should therefore explain:

Tree breeding is sometimes carried out by cooperatives to pool the resources of collaborators through joint breeding programmes. Governments may wish to reflect this common *modus operandi* of modern tree breeding in their ABS measures with a view to encourage and support through them the pooling of FGR and facilitate the sharing of benefits arising from their utilization, including through cooperation agreements that go beyond ABS.

Identification and consultation of relevant governmental entities and non-governmental stakeholders holding, providing or using GRFA

6. The ABS Elements recommend consulting government entities and non-governmental stakeholders holding, providing or using GRFA.⁴ Explanatory notes should explain that:

The competent authority for ABS will often not be the authority that is responsible for the forest sector. As most stakeholders in the forest sector have limited knowledge of ABS and the implications of ABS for their sector, consultations could help to raise the awareness among stakeholders and allow policy- and decision-makers to get an insight into the specificities of forest research and development and existing use and exchange practices of the subsector.

² Treaty, Article 12.3(a).

³ ABS Elements, paragraph 15.I.c.

⁴ ABS Elements, paragraph 15.II.

Integration of ABS measures with broader food security and sustainable agricultural development policies and strategies

7. The ABS Elements recommend to consider ABS for GRFA in the wider context of sustainable agricultural development and food security.⁵ Explanatory notes should therefore explicitly refer to specific forest policies and legislation that could either integrate or refer to relevant provisions for ABS for FGR:

Trees have an important role in contributing to food security. They rarely provide a complete diet, but the supply of fruits, nuts and leaves is crucial to complement agricultural production, especially during drought, famine, disasters and conflicts. Natural forests are also critical for the survival of forest-dwellers, including many indigenous peoples. Forests provide key goods and services to the agricultural community in that they help deliver clean water to agricultural lands and provide habitats for pollinators. Farmers increase food security by retaining trees on agricultural land, by encouraging natural regeneration and by planting trees and other forest plants. For most of the year, herders in arid and semi-arid lands depend on trees as a source of fodder for their livestock. Thus, forests, trees and agroforestry systems contribute to food security and nutrition in many ways, even though such contributions are often poorly reflected in national development and food security strategies. There is the potential to reduce poverty and increase food security through commercial forestry. Thus, ABS measures for FGR should form part of broader food security considerations and relevant forestry policies.

Forests provide various ecosystem services and FGR are important in both adaptation to and mitigation of climate change. Some traits related to adaptation, such as drought tolerance, are and will be of increasing importance, including for relevant selection and breeding programmes using local and exotic materials. In this context, marginal forest populations are especially important for conservation and use of valuable FGR. Research in genetic diversity is crucial as it facilitates the identification and use of the most suitable materials in reforestation and restoration projects, contributing to the mitigation of climate change in the future.

The risk of spreading pests and diseases through transfer of tree germplasm is often considerable. Restricting the spread of these pests and diseases continues to be a major challenge and is the objective of phytosanitary measures. Such measures, as well as codes of practice, could make reference to ABS for FGR, with a view to reduce the bureaucratic burden and streamline administrative procedures.

Integration of implementation of ABS measures into the institutional landscape

8. ABS measures often cut across different subsectors and GRFA, which are often the responsibility of different ministries and competent authorities. The ABS Elements suggest to consider using existing administrative structures in the subsectors for the implementation of ABS measures, rather than creating new and additional administrative layers.

Existing arrangements for forest governance could be used for the implementation of ABS measures for FGR. Examination of existing and past practices demonstrates that the implementation of ABS measures differs widely by country and by entity within a country. In some countries, a central authority may oversee the implementation of ABS measures and the ABS competence for FGR could be delegated to the national forest agency or forest research institute, given its expertise, its knowledge of stakeholders and its responsibility for the implementation of other FGR-related rules or regulations. In other countries the authority is not centralized and the ABS measures vary widely from only the use of phytosanitary certificates to an official agreement on terms of benefit.

⁵ ABS Elements, paragraph 15.III.

Flows of germplasm, including international flows

9. The ABS Elements recommend that in developing, adapting and implementing ABS measures, the relevance of germplasm flows should be considered.⁶ Explanatory notes should explain that:

Over the last 200 years, genetic resources for forest trees have been increasingly transferred, within and outside of species' native distribution ranges, for forestry and for research and development. Transferred germplasm has been deployed to grow trees for numerous purposes, ranging from the production of wood and non-wood products to the provision of ecosystem services, such as the restoration of forests for biodiversity conservation, climate change mitigation and watershed management.

Acacia seeds from Asia and Oceania were exported to southern Africa. *Eucalyptus camaldulensis* and *Eucalyptus globulus* were introduced from Australia to 91 and 37 other countries, respectively. *Theobroma cacao* was introduced from the neotropics to tropical regions of Africa and Asia beginning in the sixteenth century. Provenance trials of many species were established within the last century and typically included seeds from various countries that were established in other countries. Although in more recent times the documentation of germplasm transfer of agroforestry trees to support agricultural practices has improved, much information, especially on the origin of provenances, is still unknown.

Possible implications of the scope of ABS measures

10. The ABS Elements stress that ABS measures need to be clear as to which GRFA are covered by relevant access provisions and which are not.⁷ This consideration applies likewise to the temporal and the subject-matter scope of ABS measures. Explanatory notes should explain that:

FGR often reach the market in a form in which they may be used as a commodity (e.g. for planting or for food) or for research and development. Some countries are concerned that commodities that have been accessed without prior informed consent (PIC) and mutually agreed terms (MAT) could end up being used for research and development. Their ABS measures therefore regulate access to genetic resources for both: use as a commodity and for research and development. However, regulating access to FGR used as a commodity may have a significant impact on trade of forest reproductive material. If ABS measures do not regulate access to commodities, they could still require the user to request a permit and share benefits should the intention change and the commodities be used for research and development.

Provenance trials as “utilization”?

11. Access to genetic resources for their “utilization”, as defined by the Nagoya Protocol, will usually trigger the application of ABS measures. “Utilization”, according to the Nagoya Protocol, means “to conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology”.⁸ The ABS Elements point out that it may be difficult in some cases to decide whether a GRFA is utilized within the meaning of the Nagoya Protocol.⁹ Explanatory notes should explain:

Provenance trials that help to identify seedlings best adapted to the conditions of a specific planting site may simply serve the purpose of reforestation and the production of wood or non-wood products on sites that are similar to the test environment. On the other hand, provenance research is an important component of tree breeding and is often considered

⁶ ABS Elements, paragraph 15 I.e.

⁷ ABS Elements, paragraph 36.

⁸ Nagoya Protocol, Article 2.

⁹ ABS Elements, paragraph 46-48.

“research and development”.¹⁰ ABS measures should therefore draw a clear line between FGR-related activities that could be considered “utilization” and those that are not.

ABS arrangements

12. The ABS Elements mention that GRFA are often exchanged in the framework of close working collaborations and partnerships, with many stakeholders acting as intermediaries in the value chain, i.e. being neither the original provider nor the end user of a specific GRFA. Explanatory notes should explain:

If ABS measures consider provenance trials as “utilization” they could still accommodate this specific form of research and development by providing for the possibility of concluding framework agreements that authorize access to and utilization of a range of FGR for such trials and addressing benefit-sharing for all partners contributing to the trials.

Benefit-sharing for FGR

13. Monetary benefits to be shared under ABS arrangements may include various forms, such as access fees, up-front payments, salaries, etc. In the case of FGR, the time span between access to the resource and the generation of benefits may be extremely long. Explanatory notes should explain:

While ABS arrangements will sometimes require that monetary benefits be shared as they accrue, some countries may consider opportunities for non-monetary benefit-sharing since time spans between access to FGR and the generation of benefits may be extremely long. Sharing data is one way to provide value in many cases. Countries may wish to consider monetary benefit-sharing exemptions to promote work on endangered tree species.

Creating legislative, administrative and policy measures for ABS for FGR

14. If ABS measures in countries that are regulating their own genetic resources establish subsector-specific rules for specific subsectors of genetic resources, such as FGR, there will be a need to define the scope of application of these rules. Explanatory notes should explain:

If ABS legislative, administrative or policy measures in countries that are regulating their own genetic resources provide for subsector-specific provisions for FGR, policy-makers will have to look into the scope of “FGR”. Issues to be considered include whether FGR-specific ABS measures should apply to all FGR that contribute directly or indirectly to food security. FGR could thus include all established use and exchange practices for forest reproductive and genetic material (e.g. seeds, seedlings, rooted cuttings, genes) ranging from tree species providing tree fruits, other edible products for humankind and cattle, and/ or species providing other services relevant to food and agriculture (e.g. erosion control; water storage and filtration; soil fertility improvement; wind shelter; biodiversity conservation; bee forage for honey; nitrogen fixation; shade, etc.) to trees that allow foresters to generate income from non-food forest products (e.g. timber, fibre, clothing, shelter, energy, tannin, resin, ecotourism, etc.). In many cases, trees will of course serve several purposes at the same time or their originally envisaged purpose will change, which may raise the question of how access to FGR for utilization should be regulated in such cases.

¹⁰ See Koskela, J., Vinceti, B., Dvorak, W., Bush, D., Dawson, I.K., Loo, J., Kjaer, E.D., Navarro, C., Padolina, C., Bordács, S. et al. 2014. Utilization and transfer of forest genetic resources: a global review. *Forest Ecology and Management*, 333: 22–34.

APPENDIX D

SESSION PLANNING FOR CGRFA-19

Sectoral matters

Animal genetic resources	<ul style="list-style-type: none"> • Advance preparation of <i>The Third Report on the State of the World's Animal Genetic Resources for Food and Agriculture</i> and report on progress made • Prepare document on the implementation and possible updating of the (Second) Global Plan of Action for Animal Genetic Resources • Prepare FAO progress report on the implementation of the Global Plan of Action for Animal Genetic Resources • Prepare brief report on the status and trends of animal genetic resources
Aquatic genetic resources	<ul style="list-style-type: none"> • Develop follow-up to <i>The State of the World's Aquatic Genetic Resources for Food and Agriculture</i> • Prepare "in brief" version of <i>The State of the World's Aquatic Genetic Resources for Food and Agriculture</i> • Publish country reports submitted for the preparation of <i>The State of the World's Aquatic Genetic Resources for Food and Agriculture</i>
Forest genetic resources	<ul style="list-style-type: none"> • Prepare FAO progress report on the implementation of the Global Plan of Action for Forest Genetic Resources • Present the Second Implementation Report and <i>The Second Report on the State of the World's Forest Genetic Resources</i>
Micro-organisms and invertebrates	<ul style="list-style-type: none"> • Review of work on micro-organisms and invertebrates • Follow-up on previous recommendations by the Commission on this matter
Plant genetic resources	<ul style="list-style-type: none"> • Prepare FAO progress report on the implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture • Prepare update on the preparation of <i>The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture</i>

Cross-sectoral matters

<i>The State of the World's Biodiversity for Food and Agriculture</i>	<ul style="list-style-type: none"> • Prepare progress report on the implementation of the follow-up to <i>The State of the World's Biodiversity for Food and Agriculture</i>
Access and benefit-sharing	<ul style="list-style-type: none"> • Prepare review of existing access and benefit-sharing instruments and their impact on genetic resources for food and agriculture and define future work • Follow-up on previous recommendations by the Commission on this matter
Biotechnologies	<ul style="list-style-type: none"> • Review of work on biotechnologies for the conservation and sustainable utilization of genetic resources for food and agriculture
"Digital sequence information"	<ul style="list-style-type: none"> • Follow-up on previous recommendations by the Commission on this matter
Climate change	<ul style="list-style-type: none"> • Status of preparation of the global assessment of the role of genetic resources for food and agriculture for climate change adaptation and mitigation • Follow-up on previous recommendations by the Commission on this matter
Food security, nutrition and health	<ul style="list-style-type: none"> • Follow-up on previous recommendations by the Commission on this matter • Concept note on biodiversity for food and agriculture and human health
Management	<ul style="list-style-type: none"> • Prepare progress report of the Strategic Plan, MYPOW review
Other matters	<ul style="list-style-type: none"> • Invite international instruments and organizations to report on their work in supporting the activities of the Commission and collate their inputs

APPENDIX E

LIST OF DOCUMENTS**Working documents**

Document symbol	Title
CGRFA/WG-FGR-5/18/1 Rev.1	Provisional agenda
CGRFA/WG-FGR-5/18/1 Add.1	Provisional annotated agenda and timetable
CGRFA/WG-FGR-5/18/2	Status of implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources
CGRFA/WG-FGR-5/18/3	Preparation of <i>The Second Report on the State of the World's Forest Genetic Resources</i>
CGRFA/WG-FGR-5/18/4	Draft explanatory notes describing, within the context of the ABS Elements, the distinctive features of forest genetic resources
CGRFA/WG-FGR-5/18/5	Review of the draft exploratory fact-finding scoping study on "digital sequence information" on genetic resources for food and agriculture
CGRFA/WG-FGR-5/18/6	Draft work plan for the sustainable use and conservation of micro-organism and invertebrate genetic resources for food and agriculture
CGRFA/WG-FGR-5/18/7	Draft Revised Strategic Plan for the Commission on Genetic Resources for Food and Agriculture (2018–2027)

Information documents

Document symbol	Title
CGRFA/WG-FGR-5/18/Inf.1	Information note for participants
CGRFA/WG-FGR-5/18/Inf.2	Statutes of the Intergovernmental Technical Working Group on Forest Genetic Resources, and Members and Alternates elected by the Commission at its Sixteenth Regular Session
CGRFA/WG-FGR-5/18/Inf.3	Preliminary First Report on the Implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources
CGRFA/WG-FGR-5/18/Inf.4	Draft voluntary guidelines for preparing a national strategy for forest genetic resources

CGRFA/WG-FGR-5/18/Inf.5	Draft funding strategy for the implementation of the Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources
CGRFA/WG-FGR-5/18/Inf.6	Draft guidelines for the preparation of country reports for The Second Report on the State of the World's Forest Genetic Resources
CGRFA/WG-FGR-5/18/Inf.7	Inputs by Members and Observers on Access and Benefit-Sharing for Genetic Resources for Food and Agriculture
CGRFA/WG-FGR-5/18/Inf.8	Outputs of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture
CGRFA/WG-FGR-5/18/Inf.9	Proceedings of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture
CGRFA/WG-FGR-5/18/Inf.10	National focal point survey on access and benefit-sharing for genetic resources for food and agriculture
CGRFA/WG-FGR-5/18/Inf.11	Draft exploratory fact-finding scoping study on "digital sequence information" on genetic resources for food and agriculture
CGRFA/WG-FGR-5/18/Inf.12	List of documents
CGRFA/WG-FGR-4/16/Inf.13	List of delegates and observers