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INTERGOVERNMENTAL TECHNICAL WORKING GROUP ON FOREST GENETIC RESOURCES

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DRAFT GUIDELINES FOR THE PREPARATION OF COUNTRY REPORTS FOR *THE SECOND REPORT ON THE STATE OF THE WORLD'S FOREST GENETIC RESOURCES*

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I. INTRODUCTION

1. At its Sixteenth Regular Session in 2017, the Commission on Genetic Resources for Food and Agriculture (the Commission) adopted targets, indicators and verifiers for forest genetic resources to be used as assessment tools for monitoring the implementation of *The Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources* (the Global Plan of Action).¹ The Commission also adopted a schedule for monitoring the implementation of the Global Plan of Action, including the main steps required for the preparation of *The Second Report on the State of the World's Forest Genetic Resources* (Second Report).

2. The schedule envisages that the preparation of the Second Report and the Second Report on the implementation of the Global Plan of Action (Second Implementation Report) will be carried out in parallel. This document presents draft guidelines for countries to prepare their country report for the Second Report.

II. COUNTRY REPORTS

3. The primary source of data and information for the preparation of the Second Report will be country reports on forest genetic resources. The National Focal Points on forest genetic resources (NFPs) are expected to coordinate the preparation of the country reports. The draft guidelines presented in *Appendix* to this document consist of two sections explaining the data and information that countries are expected to submit to FAO by June 2020.

4. The first section of the guidelines explains the data and information needed regarding the implementation of the Global Plan of Action. This section, i.e. a questionnaire, was developed in consultation with the NFPs and regional networks on forest genetic resources in 2017 and it is based on the targets, indicators and verifiers for forest genetic resources. The NFPs were invited to fill in the questionnaire by January 2018 for the preparation of the First Report on the Implementation of the Global Plan of Action (First Implementation Report). As part of the reporting process for the Second Report, the filled questionnaire will be made available to the NFPs and they only need to update changes occurred in the data and information since January 2018.

5. The second section of the guidelines describes complementary information that is needed for the preparation of the Second Report. This section was developed by revising the 2010 guidelines for the preparation of country reports for the first report on *The State of the World's Forest Genetic Resources*². The complementary information follows the proposed structure of the Second Report. Countries are not requested to provide any detailed data that they have submitted to FAO as part of other reporting processes (e.g. the Global Forest Resources Assessment³).

6. For the preparation of the Second Report, the data and information provided through the country reports will be complemented with data and information obtained from other relevant assessments and data providers, as well as from scientific literature.

¹ CGRFA-16/17/Report, paragraph 74.

² <http://www.fao.org/forestry/37198/en/>

³ Global Forest Resources Assessment 2020. Guidelines and specifications. Forest Resources Assessment Working Paper 189, FAO, Rome. <http://www.fao.org/3/I8699EN/i8699en.pdf>

APPENDIX

DRAFT GUIDELINES FOR THE PREPARATION OF COUNTRY REPORTS FOR *THE SECOND REPORT ON THE STATE OF THE WORLD'S FOREST GENETIC RESOURCES*

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I. INTRODUCTION

1. Forest genetic resources refers to the heritable materials maintained within and among trees and other woody plant species that are of actual or potential economic, environmental, scientific or societal value. These species provide wood and non-wood forest products, and they contribute towards sustainable development in many ways. Trees and other woody plants species also maintain ecosystem services and fulfil environmental functions. There are approximately 60,000 tree species in the world but only few of them have been studied in any depth for their present and future potential. Globally, around 2,400 species of trees, shrubs, palms and bamboo are actively managed for products and/or services, and approximately 700 tree species are subject to tree improvement

2. The *Global Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources* (Global Plan of Action)⁴ was adopted by the FAO Conference at its Twenty-eighth Session in June 2013⁵. It was developed in response to the findings of the first report on *The State of the World's Forest Genetic Resources*⁶ (First Report) and agreed by the Commission on Genetic Resources for Food and Agriculture (the Commission) at its Fourteenth Regular Session in April 2013⁷ based on the strategic priorities identified by the Intergovernmental Technical Working Group on Forest Genetic Resources (the Working Group).

3. At its Sixteenth Regular session in 2017, the Commission adopted targets, indicators and verifiers for forest genetic resources to be used as assessment tools to monitor the implementation of the Global Plan of Action.⁸ The Commission also adopted a schedule for monitoring the implementation of the Global Plan of Action, including the main steps required for the preparation of *The Second Report on the State of the World's Forest Genetic Resources* (Second Report).

4. In January 2018, countries submitted data and information for the First Report on the Implementation of the Global Plan of Action (First Implementation Report). The monitoring schedule envisages that the preparation of the Second Implementation Report and the Second Report will be carried out in parallel.

5. This document presents guidelines for the preparation of the country report on forest genetic resources. It also provides additional information on the reporting format and process.

II. PURPOSE OF THE GUIDELINES

6. These guidelines constitute the main reference document for the preparation of country reports on forest genetic resources. They have been designed by FAO to assist countries in gathering and submitting relevant data and information for the preparation of the Second Report.

III. SCOPE, STRUCTURE AND CONTENT OF COUNTRY REPORTS

Scope

7. Countries are invited to report on forest genetic resources within their national jurisdictions. They should report on the genetic resources of trees and other woody plants species which are currently managed and/or used in the forestry sector (including agroforestry systems) or which could potentially

⁴ <http://www.fao.org/3/a-i3849e.pdf>

⁵ C 2013/REP, paragraph 77.

⁶ <http://www.fao.org/3/a-i3825e.pdf>

⁷ CGRFA-14/13/Report, paragraph 52.

⁸ CGRFA-16/17/Report, paragraph 74.

be used, and which are managed in both natural and planted forests, as well as in other wooded lands not classified as “forests” by the FAO’s Global Forest Resources Assessment⁹.

8. Countries should not report on the genetic resources of trees and other woody plant species that are used in the agriculture sector and that are included in their reports on plant genetic resources for food and agriculture. Domesticated fruit trees and their varieties, coffee or oil palm, for example, are not considered as forest genetic resources in the preparation of the Second Report.

9. At its Fourth Session in 2016, the Working Group discussed the scopes of the Implementation Reports and the Second Report. It stressed that the information to be collected for the Second Report should cover the state of the forest genetic resources themselves to provide a more comprehensive assessment.¹⁰ This was considered important as the Implementation Reports mainly focus on the state of conservation, use and development of forest genetic resources. Therefore, countries are expected to cover both scopes in their country reports on forest genetic resources.

Structure

10. A country report consists of two elements, 1) a structured questionnaire, and 2) a complementary report. The questionnaire was developed in consultation with the National Focal Points (NFPs) and regional networks on forest genetic resources in 2017 and it is based on the targets, indicators and verifiers for forest genetic resources. The questionnaire is presented in Annex 1.

11. Annex 2 of the guidelines presents the outline of the complementary report. Following the proposed structure of the Second Report, Annex 2 explains complementary information that is needed for the preparation of the Second Report. It was developed by revising the 2010 guidelines for the preparation of country reports for the First Report.

12. The complementary report should begin with an executive summary presenting its main contents, findings and conclusions. A list of abbreviations and acronyms used in the complementary report should also be included. A section acknowledging the contributions of national experts and stakeholders can also be included.

13. The following structure is recommended for the main body of the complementary report:

Chapter 1. Value and importance of forest genetic resources

Chapter 2. State of forests

Chapter 3. State of other wooded lands

Chapter 4. State of diversity between trees and other woody plant species

Chapter 5. State of diversity within trees and other woody plants species

Chapter 6. *In situ* conservation of forest genetic resources

Chapter 7. *Ex situ* conservation of forest genetic resources

Chapter 8. The state of use

Chapter 9. The state of genetic improvement and breeding programmes

Chapter 10. Management of forest genetic resources

⁹ Global Forest Resources Assessment 2020. Terms and Definitions. Forest Resources Assessment Working Paper 188, FAO, Rome. <http://www.fao.org/3/I8661EN/i8661en.pdf>

¹⁰ CGRFA/WG-FGR-4/16/Report, paragraph 19.

Chapter 11. Institutional framework for the conservation, use and development of forest genetic resources

Chapter 12. International and regional cooperation on forest genetic resources

Chapter 13. Recommended actions for the future

14. A list of references used in the text should be included at the end of the complementary report. Additional data and information can be included as annexes.

Content

15. The questionnaire was designed to track the responses of countries to the Global Plan of Action (see Part A of the questionnaire in Annex 1), as well as the state of conservation, use and development of forest genetic resources (see Part B of the questionnaire in Annex 1). It consists of 31 questions formulated based on the verifiers adopted by the Commission. As part of the questionnaire, countries can also provide, as appropriate, comments and additional information. Countries should aim to answer all questions. In case the needed data and/or information is not available for answering a question, there is an option to indicate this situation.

16. A questionnaire pre-filled with the data and information submitted earlier will be made available to those NFPs who contributed to the preparation of the First Implementation Report. They will only need to update changes occurred in the data and information since January 2018.

17. Annex 2 of these guidelines provides a chapter-by-chapter guidance on topics and issues that should be covered in the complementary report. It also includes questions which facilitate the writing of different chapters. A glossary of technical terms is provided in Annex 3.

18. It is recognized that countries may not manage and collect information on forest genetic resources at national level but at sub-national level. Therefore, the country reports can be based on data and information collected at national and/or sub-national levels. However, sub-national data and information should be merged at national level, especially when filling in the questionnaire, so that the country reports reflect the state of forest genetic resources at national level, not at sub-national levels. In the complementary report, case studies or other examples can be presented based on sub-national data as text boxes, for example.

IV. SUBMISSION OF THE COUNTRY REPORTS

19. FAO has created an online reporting system for answering the questionnaire which can be accessed through the following link: <http://www.openforis.org/fgr/login>. It is recommended to only use the Chrome browser for accessing the questionnaire.

20. The online reporting system was created using the Collect tool of Open Foris (see <http://www.openforis.org> for further information). Each NFP will be provided with a username and a password for accessing the reporting system. NFPs can change the password after they have logged into the reporting system for the first time. NFPs and their alternates have access only to the reporting template of their own country. They can contact the Secretariat of the Working Group if they experience any problems in answering the online questionnaire.

21. The list of species countries reported for the First Report have been incorporated into the online questionnaire as a pull-down list for questions 11-26. In case there is a need to add species to the list, the NFPs should contact the Secretariat of the Working Group.

22. It is recommended that the NFPs compile the necessary data and information, and also consult relevant national experts and institutions in their country before filling the online questionnaire and preparing the complementary report. Furthermore, the National Coordinating Mechanism on forest genetic resources, or similar arrangement, may find it useful to establish a specific working group to compile data and information for the country report, and to write its different chapters.

23. Once the filled questionnaire has been cleared by a relevant authority, the NFPs should submit the questionnaire in the online reporting system. The NFPs are able to view the report after the submission. The filled questionnaire will remain stored in the reporting system for use by the NFPs in the next reporting round.

24. The complementary report must be submitted as an official government document, in one of the FAO official languages. It should be submitted by email to FO-ITWG-FGR@fao.org as a MS-WORD or a PDF document and accompanied by an electronic copy of the submission letter.

V. PROCESS AND TIMELINE

25. Following the Seventeenth Regular Session of the Commission in February 2019, FAO will invite Members of the Commission to update their nominations of NFPs, and to submit their country progress reports for the preparation of the Second Report. The list of the nominated NFPs is available on the FAO website¹¹. **The country reports should be submitted to FAO by 30 June 2020.**

26. Subject to the availability of extra-budgetary funds, FAO is planning to organize regional and/or sub-regional consultations in late 2019 and early 2020 to provide technical support to countries for the preparation of the country reports. After countries have submitted their reports in June 2020, FAO will conduct data and information analyses and syntheses for different chapters of the Second Report. FAO is planning to organize expert meetings on selected topics in early 2021 and to prepare draft chapters of the SoW-FGR-2 in late 2021.

27. In early 2022, FAO will prepare a draft of the Second Report for review by the Working Group at its Seventh Session. Following the comments provided by the Working Group, FAO will finalize the draft Second Report for consideration by the Commission at its Nineteenth Regular Session which is scheduled to be held in early 2023.

28. The FAO contact for this reporting process is:

Mr Jarkko Koskela
Secretary of the Intergovernmental Technical Working Group on Forest Genetic Resources
Forestry Officer (Forest Genetic Resources & Biodiversity)
Forestry Policy and Resources Division
Forestry Department
FAO
Viale delle Terme di Caracalla
00153 Rome, Italy
Email: FO-ITWG-FGR@fao.org

¹¹ List of National Focal Points for forest genetic resources is available at:
<http://www.fao.org/forestry/fgr/64583/en/>

ANNEX 1

**QUESTIONNAIRE FOR SUBMITTING SPECIFIC DATA AND
INFORMATION ON FOREST GENETIC RESOURCES**

**Part A: Responses of countries to the Global Plan of Action for the Conservation,
Sustainable Use and Development of Forest Genetic Resources**

Target A.1: Availability of data and information on FGR is increased

Indicator A.1.1: Extent of national FGR inventories or similar arrangements
Verifier A.1.1.1: Number and list of countries with operational national FGR inventories or similar arrangements
<p>Question 1: Does your country have an operational national (or sub-national) FGR inventory (-ies)?</p> <p><input type="checkbox"/> Yes If yes, please indicate the year when it was established: _____</p> <p>If yes, please indicate the areas of work/activities documented by the national FGR inventory:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Conservation of FGR <input type="checkbox"/> Production of forest reproductive material <input type="checkbox"/> Research and development efforts (provenance trials, tree breeding etc) <input type="checkbox"/> FGR transferred internationally <input type="checkbox"/> Other (please specify under Comments) <p><input type="checkbox"/> No, but a process for establishing a national FGR inventory has been initiated</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Information not available</p>
Comments / additional information:
<p>Notes for reporting: This verifier focuses on the existence of a national FGR inventory as a mechanism or process, not on the completeness of the inventory. In case the exact establishment year is not known, or if the national FGR inventory was developed over many years, the establishment year can be estimated based on the available information. The establishment of a national FGR inventory can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.</p>

Indicator A.1.2: Extent of up-to-date national FGR information systems
Verifier A.1.2.1: Number and list of countries with up-to-date national FGR information system(s) or other similar arrangements
<p>Question 2: Does your country have an up-to-date national (or sub-national) FGR information system(s)?</p> <p><input type="checkbox"/> Yes If yes, please indicate the year when it (or the first one) was established: _____</p> <p>If yes, please indicate the areas of work/activities recorded in the information system(s):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Conservation of FGR <input type="checkbox"/> Production of forest reproductive material <input type="checkbox"/> Research and development efforts (provenance trials, tree breeding etc) <input type="checkbox"/> FGR transferred internationally <input type="checkbox"/> Other (please specify under Comments) <p><input type="checkbox"/> No, but a process for establishing a national FGR information system has been initiated</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Information not available</p>
Comments / additional information:
Notes for reporting: The establishment of a national FGR information system can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.

Target A.2: National *in situ* and *ex situ* systems for FGR conservation are strengthened

Indicator A.2.1: Extent of national <i>in situ</i> conservation systems
Verifier A.2.1.1: Number and list of countries with operational national <i>in situ</i> conservation systems
<p>Question 3: Does your country have an operational national (or sub-national) <i>in situ</i> conservation system(s) for FGR?</p> <p><input type="checkbox"/> Yes If yes, please indicate the year when it was established: _____</p> <p>If yes, please indicate different components of the conservation system:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>In situ</i> conservation units of FGR <input type="checkbox"/> Protected areas <input type="checkbox"/> Forests managed for production of wood and/or non-wood products <input type="checkbox"/> Other (please specific under Comments) <p><input type="checkbox"/> No, but a process for establishing a national <i>in situ</i> conservation system has been initiated</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Information not available</p>

Comments / additional information:
Notes for reporting: This verifier focuses on the existence of a national <i>in situ</i> conservation system (or programme) for FGR, not on the completeness of the conservation network.

Indicator A.2.2: Extent of national <i>ex situ</i> conservation systems
Verifier A.2.2.1: Number and list of countries with operational national <i>ex situ</i> conservation systems
<p>Question 4: Does your country have an operational national (or sub-national) <i>ex situ</i> conservation system(s) for FGR?</p> <p><input type="checkbox"/> Yes If yes, please indicate the year when it was established: _____</p> <p>If yes, please indicate different components of the conservation system:</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Ex situ</i> conservation stands <input type="checkbox"/> Field collections <input type="checkbox"/> Storage facilities for seed, pollen or other tissue <input type="checkbox"/> Other (please specific under Comments) <p><input type="checkbox"/> No, but a process for establishing a national <i>ex situ</i> conservation system has been initiated</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Information not available</p>
Comments / additional information:
Notes for reporting: This verifier focuses on the existence of a national <i>ex situ</i> conservation system (or programme) for FGR, not on the amount of FGR conserved <i>ex situ</i> .

Target A.3: Tree seed and breeding programmes, as well as extension efforts on FGR use, are reinforced, including for conservation collections

Indicator A.3.1: Extent of national tree seed programmes
Verifier A.3.1.1: Number and list of countries with operational national tree seed programmes or similar arrangements
<p>Question 5: Does your country have an operational national (or sub-national) tree seed programme(s)?</p> <p><input type="checkbox"/> Yes If yes, please indicate the year when it was established: _____</p>

<input type="checkbox"/> No, but a process for establishing an operational national tree seed programme has been initiated <input type="checkbox"/> No <input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting: The establishment of a national tree seed programme can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.

Indicator A.3.2: Extent of tree breeding programmes
Verifier A.3.2.1: Number and list of countries with operational tree breeding programmes
<p>Question 6: Do public entities, private companies and/or other stakeholders operate a tree breeding programme (or programmes) in your country?</p> <input type="checkbox"/> Yes If yes, please indicate the main stakeholder group operating tree breeding programme(s) <ul style="list-style-type: none"> <input type="checkbox"/> Public entities <input type="checkbox"/> Private companies <input type="checkbox"/> Private-public partnerships <input type="checkbox"/> Other stakeholders (please specify under Comments) <input type="checkbox"/> No, but a process for establishing a tree breeding programme (or programmes) has been initiated <input type="checkbox"/> No <input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting: If “Other stakeholders” are the main group operating tree breeding programme(s), please identify them under the Comments section. The establishment of a tree breeding programme can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.

Indicator A.3.3: Extent of extension efforts promoting appropriate use of FGR
Verifier A.3.3.1: Number and list of countries with ongoing extension programmes or activities on FGR use
<p>Question 7: Does your country have an extension programme (or programmes) that organizes extension activities on FGR use on a regular basis?</p> <input type="checkbox"/> Yes If yes, please indicate the year when it (or the first such programme) was established: _____

<p>If yes, please indicate the targeted FGR users of the extension programme:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Farmers <input type="checkbox"/> Local communities <input type="checkbox"/> Forest owners <input type="checkbox"/> Others (please specify under Comments) <input type="checkbox"/> No, but a process for establishing an extension programme (or programmes) on FGR use has been initiated <input type="checkbox"/> No <input type="checkbox"/> Information not available
<p>Comments / additional information:</p>
<p>Notes for reporting: The establishment of an extension programme can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.</p>

Target A.4: National coordination mechanisms on FGR are created, and national strategies for FGR conservation and use are developed and implemented

<p>Indicator A.4.1: Extent of national coordination mechanisms on FGR</p>
<p>Verifier A.4.1.1: Number and list of countries with national coordination mechanisms on FGR</p>
<p>Question 8: Does your country have a national (or sub-national) coordination mechanism(s) on FGR?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <ul style="list-style-type: none"> If yes, please indicate the year when it was established: _____ If yes, please indicate the stakeholders involved in the national FGR coordination mechanism: <ul style="list-style-type: none"> <input type="checkbox"/> Farmers <input type="checkbox"/> Forest owners <input type="checkbox"/> Private sector <input type="checkbox"/> Non-governmental organizations <input type="checkbox"/> Governmental organizations (including state-owned enterprises) <input type="checkbox"/> Research organizations (including universities) <input type="checkbox"/> Relevant ministries <input type="checkbox"/> Others (please specify under Comments) <input type="checkbox"/> No, but a process for establishing a national coordination mechanism on FGR has been initiated <input type="checkbox"/> No <input type="checkbox"/> Information not available
<p>Comments / additional information:</p>

Notes for reporting: The establishment of a national coordination mechanism on FGR can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.

Indicator A.4.2: Extent of national strategies for FGR conservation and use

Verifier A.4.2.1: Number and list of countries implementing national strategies for FGR conservation and use

Question 9: Does your country have a national strategy (or sub-national strategies) for FGR conservation and use?

- Yes
 - If yes, please indicate the year when it (or the first such strategy) was prepared: _____
 - If yes, please indicate the areas of work covered by the strategy:
 - Conservation of FGR
 - Use of FGR
 - Development of FGR
- No, but a process for preparing a national strategy for FGR conservation and use has been initiated
- No
- Information not available

Comments / additional information:

Notes for reporting: The process for preparing a national strategy for FGR can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented. In case the preparation of the national strategy has been initiated, please indicate under Comments if the strategy will cover all areas of work (i.e. conservation, use and development of FGR) or only some of them.

Indicator A.4.3: Extent to which national strategies contribute to the implementation of regional or sub-regional FGR conservation strategies

Verifier A.4.3.1: Number and list of countries whose national strategy contribute to the implementation of regional or sub-regional FGR conservation strategy

Question 10: If your country has a national strategy for FGR, is it aligned with a regional or sub-regional FGR conservation strategy (-ies)?

- Yes
- No, but a process for aligning the national FGR strategy with a regional conservation strategy has been initiated
- No
- Information not available

Comments / additional information:

Notes for reporting: In case no regional or sub-regional FGR conservation strategy exist, please indicate this under Comments. The process for aligning the national FGR strategy with a regional conservation strategy can be reported as “initiated” if a project or other action for this purpose has been approved or is being implemented.

Part B: State of conservation, use and development of forest genetic resources

Target B.1: Forest genetic resources are regularly assessed and characterized

Indicator B.1.1: Assessment of FGR

Verifier B.1.1.1: Number and list of species for which an up-to-date national distribution range is available

Question 11: Please indicate those species for which an up-to-date national distribution range is available:

- To be indicated from the list of species incorporated in the online questionnaire

Comments / additional information:

Notes for reporting: A distribution map can be considered as up-to-date if less than 10 years have passed since the national distribution area of a species was assessed or re-documented.

Indicator B.1.2: Characterization of FGR

Verifier B.1.2.1: Number and list of species which have been characterized based on non-molecular information (e.g. provenance trials, ecological or climatic zonation)

Question 12: Please indicate those species which have been characterized based on non-molecular information:

- To be indicated from the list of species incorporated in the online questionnaire

Comments / additional information:

Notes for reporting: A species can be reported here when a large part of its genetic resources have been evaluated; it is not necessary that all populations or provenances of a species within a country have been characterized. Species for which characterization efforts have been started only recently can also be reported here.

Verifier B.1.2.2: Number and list of species which have been characterized based on molecular information (e.g. range-wide sampling of populations for molecular marker studies)
Question 13: Please indicate those species which have been characterized based on molecular information: <input type="checkbox"/> To be indicated from the list of species incorporated in the online questionnaire
Comments / additional information:
Notes for reporting: A species can be reported here when a large part of its genetic resources have been evaluated; it is not necessary that all populations or provenances of a species within a country have been characterized. Species for which characterization efforts have been started only recently can also be reported here.

Target B.2: Forest genetic resources are conserved *in situ*, and complementary *ex situ* measures have been implemented

Indicator B.2.1: Amount FGR conserved <i>in situ</i>
Verifier B.2.1.1: Number and list of species included in <i>in situ</i> conservation programmes
Question 14: Please indicate those species which have been included in <i>in situ</i> conservation programme(s) in your country: <input type="checkbox"/> To be indicated from the list of species incorporated in the online questionnaire
Comments / additional information:
Notes for reporting:
Verifier B.2.1.2: Number of <i>in situ</i> conservation units by species
Question 15: Please indicate the number of <i>in situ</i> conservation units for each of the species in your country: <input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: In case the information on the units is not available, “n/a” should be indicated in the table.
Verifier B.2.1.3: Area (ha) designated and managed for <i>in situ</i> conservation by species
Question 16: Please indicate the area (in hectares) of <i>in situ</i> conservation units for each of the species in your country:

<input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: The area by species should be indicated in hectares and with an accuracy of one decimal, e.g. 50.4 ha. In case the information on the units is not available, “n/a” should be indicated in the table.

Indicator B.2.2: Amount FGR conserved <i>ex situ</i>
Verifier B.2.2.1: Number and list of species included in <i>ex situ</i> conservation programmes
Question 17: Please indicate those species which have been included in <i>ex situ</i> conservation programme(s) in your country:
<input type="checkbox"/> To be indicated from the list of species incorporated in the online questionnaire
Comments / additional information:
Notes for reporting:
Verifier B.2.2.2: Number of <i>ex situ</i> conservation units by species
Question 18: Please indicate the number of <i>ex situ</i> conservation units for each of the species in your country:
<input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: In case the information on the units is not available, “n/a” should be indicated in the table.
Verifier B.2.2.3: Area (ha) designated and managed for <i>ex situ</i> conservation by species
Question 19: Please indicate the area (in hectares) of <i>ex situ</i> conservation units for each of the species in your country:
<input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: The area by species should be indicated in hectares and with an accuracy of one decimal, e.g. 50.4 ha. In case the information on the units is not available, “n/a” should be indicated in the table.
Verifier B.2.2.4: Number of <i>ex situ</i> accessions (in seed and clone banks) by species

<p>Question 20: Please indicate the number of <i>ex situ</i> accessions for each of the species in your country:</p> <p><input type="checkbox"/> To be added to the online table listing all selected species</p>
<p>Comments / additional information:</p>
<p>Notes for reporting: In case the information on the accessions is not available, “n/a” should be indicated in the table.</p>

Target B.3: Use and development of FGR are enhanced

<p>Indicator B.3.1: Species included in tree seed and breeding programmes (including international breeding cooperation and efforts carried out by the private sector)</p>
<p>Verifier B.3.1.1: Number and list of species included in national tree seed programmes</p>
<p>Question 21: Please indicate those species which have been included in a national (or sub-national) tree seed programme(s) in your country:</p> <p><input type="checkbox"/> To be indicated from the list of species incorporated in the online questionnaire</p>
<p>Comments / additional information:</p>
<p>Notes for reporting:</p>
<p>Verifier B.3.1.2: Number and list of species included in tree breeding programmes</p>
<p>Question 22: Please indicate those species which have been included in a tree breeding programme in your country:</p> <p><input type="checkbox"/> To be indicated from the list of species incorporated in the online questionnaire</p>
<p>Comments / additional information:</p>
<p>Notes for reporting:</p>

<p>Indicator B.3.2: Production of forest reproductive material</p>
<p>Verifier B.3.2.1: Area (ha) and number of seed stands by species</p>
<p>Question 23: Please indicate the area and number of seed stands by species in your country:</p> <p><input type="checkbox"/> To be added to the online table listing all selected species</p>
<p>Comments / additional information:</p>

Notes for reporting: The area of seed stands by species should be indicated in hectares and with an accuracy of one decimal, e.g. 176.3 ha. In case the information on the seed stands is not available, “n/a” should be indicated in the table.
Verifier B.3.2.2: Area (ha) and number of seed orchards by species
Question 24: Please indicate the area and number of seed orchards by species in your country: <input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: The area of seed orchards by species should be indicated in hectares and with an accuracy of one decimal, e.g. 35.6 ha. In case the information on the seed orchards is not available, “n/a” should be indicated in the table.
Verifier B.3.2.3: Amount (average number per year) of planting stock produced through macro and micropropagation by species
Question 25: Please indicate the amount (average number per year) of planting stock produced through macro and/or micropropagation by species in your country: <input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: In case the information on the planting stock produced is not available, “n/a” should be indicated in the table.

Indicator B.3.3: State of tree breeding programmes
Verifier B.3.3.1: Testing and selection cycle by species
Question 26: Please indicate the state of a tree breeding programme by indicating the generation number for species included in breeding programmes: <input type="checkbox"/> To be added to the online table listing all selected species
Comments / additional information:
Notes for reporting: The generation number should be indicated as 1, 1.5, 2 etc. It should refer to the material that has already been deployed for the establishment of seed orchards or mass propagation using vegetative techniques, not to the material that is still under breeding and/or testing. In case the information is not available, “n/a” should be indicated in the table.

Target B.4: Policies and capacities supporting FGR conservation and sustainable use are strengthened

Indicator B.4.1: Integration of FGR conservation and use into relevant national policies
Verifier B.4.1.1: Number of countries which have integrated FGR conservation and use into their national forest programme and/or national forest policy
<p>Question 27: Have FGR conservation and use been integrated into a national (or sub-national) forest programme(s) and/or national (or sub-national) forest policy (-ies) in your country?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No, but a process for integrating FGR conservation and use into a national forest programme and/or national forest policy has been initiated <input type="checkbox"/> No, because my country does not have a national forest programme and/or national forest policy <input type="checkbox"/> No <input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting:
Verifier B.4.1.2: Number of countries which have integrated FGR conservation and use into their national biodiversity action plans and/or related policies
<p>Question 28: Have FGR conservation and use been integrated into a national (or sub-national) biodiversity action plan(s) and related policies in your country?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No, but a process for integrating FGR conservation and use into a national biodiversity action plan has been initiated <input type="checkbox"/> No, because my country does not have a national biodiversity action plan <input type="checkbox"/> No <input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting:
Verifier B.4.1.3: Number of countries which have integrated FGR conservation and use into their national adaptation strategies for climate change
<p>Question 29: Have FGR conservation and use been integrated into a national (or sub-national) adaptation strategy (-ies) for climate change in your country?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yes <input type="checkbox"/> No, but a process for integrating FGR conservation and use into a national adaptation strategy for climate change has been initiated <input type="checkbox"/> No, because my country does not have a national adaptation strategy for climate change <input type="checkbox"/> No

<input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting:

Indicator B.4.2: Participation in regional/sub-regional collaboration on FGR
Verifier B.4.2.1: Number of countries participating in regional/sub-regional networks on FGR
Question 30: Is your country a member of a regional and/or sub-regional network(s) on FGR?
<input type="checkbox"/> Yes If yes, please indicate in which network(s): _____ <input type="checkbox"/> No, but my country is considering joining a regional and/or sub-regional network(s) <input type="checkbox"/> No <input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting:

Indicator B.4.3: Participation in international research and development cooperation on FGR
Verifier B.4.3.1: Number of countries and national organizations participating in international R&D cooperation on FGR
Question 31: Is your country participating in international research and development collaboration on FGR?
<input type="checkbox"/> Yes If yes, please indicate the number of national organizations currently participating: ____ <input type="checkbox"/> No, but my country and its national organizations have sought opportunities for participating in international R&D cooperation on FGR <input type="checkbox"/> No, my country and its national organizations are currently not participating in international R&D cooperation on FGR but have done so during the past 5 years <input type="checkbox"/> No <input type="checkbox"/> Information not available
Comments / additional information:
Notes for reporting: The names of the national organizations (including government and non-governmental organizations, universities and other relevant organizations) can be provided under Comments.

ANNEX 2

PROPOSED OUTLINE OF THE COMPLEMENTARY REPORT**THE SECOND REPORT ON****THE STATE OF THE WORLD'S FOREST GENETIC RESOURCES****[NAME OF THE COUNTRY]****[MONTH, YEAR]**

Preface

Acknowledgements

Abbreviations and Acronyms

Executive summary

Part 1: The contributions of forest genetic resources to sustainable development

Chapter 1. Value and importance of forest genetic resources

The main objective of this chapter is to present an overview of your country and its economic, environmental, social and cultural conditions as they relate to forests and the forest sector. More specifically, this chapter should describe the current and potential contributions of forest genetic resources to sustainable development, and in particular to sustainable forest management and its seven elements, adaptation and mitigation of climate change, food security, nutrition and poverty alleviation. Information on the following topics or issues should be presented:

- The role of forests and the forest sector in the national economy
- Economic, environmental, social and cultural values of forest genetic resources
- The contributions of forest genetic resources towards relevant Sustainable Development Goals

The following questions are provided to guide countries in preparing the content of this chapter:

- 1.1. What is the role of the forest sector in the national economy?
- 1.2. What are the main roles of forests in your country (supply of wood and non-wood products, provisioning of ecosystem services, etc)
- 1.3. What are the specific economic, environmental, social and cultural values of forest genetic resources in your country?
- 1.4. What are the contributions of forest genetic resources to sustainable development in your country?
- 1.5. What are the priorities and needs of your country to enhance these contributions?
- 1.6. What is the perception of different stakeholders on the importance of forest genetic resources?
- 1.7. What are the constraints in your country to increasing awareness on the value and importance of forest genetic resources?

Part 2: State of diversity in forests and woodlands

Chapter 2. State of forests

The main objective of this chapter is to present an overview of the state of forests in your country and review the trends that are shaping them. Countries can decide the levels of details provided but it is recommended to only focus on the overall findings with relevance to forest genetic resources based on the data the country has provided to FAO for the 2020 Global Forest Resources Assessment. The chapter should also identify the main drivers of change, and analyse their consequences specifically for forest genetic resources. Information on the following topics or issues should be presented:

- State of forests and trends in their management
- Drivers of change in the forest sector, and their consequences for forest genetic resources
- Challenges and opportunities for forest genetic resources in forests

The following questions are provided to guide countries in preparing the content of this chapter:

- 2.1. What is the state of forests?
- 2.2. What are the trends in affecting forests and their management in your country?
- 2.3. What are the drivers of change in the forest sector in your country, and what are their consequences for forest genetic resources?
- 2.4. What challenges and opportunities these trends and drivers create for the conservation, use and development of forest genetic resources?

Chapter 3. State of other wooded lands

The main objective of this chapter is to present an overview of the state of other wooded lands and trees outside of forests in your country and review the trends that are shaping them. The chapter should also identify the main drivers of change, and analyse their consequences specifically for forest genetic resources. Information on the following topics or issues should be presented:

- State of other wooded lands and trends in their management
- Drivers of change in other wooded lands, and their consequences for forest genetic resources
- Challenges and opportunities for forest genetic resources in other wooded lands

The following questions are provided to guide countries in preparing the content of this chapter:

- 3.1. What is the state of other wooded lands?
- 3.2. What are the trends in affecting other wooded lands and their management in your country?
- 3.3. What are the drivers of change in other wooded lands in your country, and what are their consequences for forest genetic resources?
- 3.4. What challenges and opportunities these trends and drivers create for the conservation, use and development of forest genetic resources?

Chapter 4. State of diversity between trees and other woody plant species

The main objective of this chapter is to provide information on the diversity of tree and other wooded plant species that are considered as “forest genetic resources” and managed or utilized in the forestry context (including agroforestry) in your country. The chapter should also review trends that are shaping these species and identify the main drivers of change. Information on the following topics or issues should be presented:

- Number of tree and other woody plant species (shrubs, palms and bamboo) that are considered as “forest genetic resources” and managed or utilized in the forestry context (including agroforestry) in your country
- Number of native and introduced species managed or utilized in the forestry context (including agroforestry) in your country
- Number of species which are considered threatened in your country
- Trends in the number of species in our country
- Drivers of change in the number of species

The following questions are provided to guide countries in preparing the content of this chapter:

- 4.1. How many tree and other woody plants species are considered as “forest genetic resources” in your country?
- 4.2. How many of these species are native (including naturalized species) and introduced?
- 4.3. How many species are considered as threatened in your country?
- 4.4. What are the trends in the number of species in your country?
- 4.5. What are the drivers of change affecting these species in your country?

Chapter 5. State of diversity within trees and other woody plants species

The main objective of this chapter is to provide information on the current state of genetic diversity in tree and other wooded plant species that are considered as “forest genetic resources” and managed or utilized in the forestry context (including agroforestry) in your country. The chapter should also review trends that are shaping the genetic diversity of these species. Furthermore, it should describe efforts made to obtain information on the genetic diversity and to characterize forest genetic resources. Information on the following topics or issues should be presented:

- State of genetic diversity in trees and other wooded plant species in the country
- Inventories of forest genetic resources
- Patterns in the geographic distribution of genetic diversity in trees and other wooded plant species
- Characterization and monitoring of forest genetic resources
- Trends in the genetic diversity
- Capacity-building and research needs to increase the availability on information on forest genetic resources

The following questions are provided to guide countries in preparing the content of this chapter:

- 5.1. What actions have been, or are being taken, for assessing and analysing the genetic diversity of trees and other wooded plant species in your country?
- 5.2. Are there patterns in the geographical distribution of genetic diversity in trees and other woody plant species?
- 5.3. What current and emerging technologies have been, or are being used, for assessing and analysing the genetic diversity in your country?
- 5.4. What are the trends in the genetic diversity?
- 5.5. What methods are used for the characterization of forest genetic resources in your country?
- 5.6. What are the needs, challenges and opportunities for increasing the availability of information on forest genetic resources in your country?
- 5.7. What are the priorities for capacity-building and research in this area?

Part 3: State of forest genetic resources conservation

Chapter 6. *In situ* conservation of forest genetic resources

The main objective of this chapter is to describe the current state of *in situ* conservation of forest genetic resources, and the needs, challenges and opportunities for improving it in your country. The chapter should provide information that complements the species-specific data countries submit through the questionnaire. Information on the following topics or issues should be presented:

- State of *in situ* conservation efforts in your country
- Approaches used for *in situ* conservation (e.g. specific *in situ* conservation units, conservation of forest genetic resources in forests and other wooded lands managed for multiple-uses, conservation of forest genetic resources within protected areas)
- Organization of *in situ* conservation efforts at national (or sub-national) level(s), including main players and stakeholders
- Criteria applied for identifying or establishing new *in situ* units or areas for the conservation of forest genetic resources
- Needs, challenges and opportunities for improving *in situ* conservation of forest genetic resources
- Priorities for capacity-building and research in this area

The following questions are provided to guide countries in preparing the content of this chapter:

- 6.1. How would you assess the state of *in situ* conservation of forest genetic resources in your country?
- 6.2. What approaches are being used for *in situ* conservation of forest genetic resources in your country?
- 6.3. How is *in situ* conservation of forest genetic resources organized in your country?
- 6.4. Who are the main players / stakeholders of *in situ* conservation?
- 6.5. What the criteria are applied for identifying or establishing new *in situ* units or areas for the conservation of forest genetic resources?
- 6.6. What are the needs, challenges and opportunities for improving *in situ* conservation of forest genetic resources?
- 6.7. What are the priorities for capacity-building and research in this area?

Chapter 7. *Ex situ* conservation of forest genetic resources

The main objective of this chapter is to describe the current state of *ex situ* conservation of forest genetic resources, and the needs, challenges and opportunities for improving it in your country. This chapter should also describe how the *ex situ* conservation efforts complement, or are linked to, the *in situ* conservation efforts. The chapter should provide information that complements the species-specific data countries submit through the questionnaire. Information on the following topics or issues should be presented:

- State of *ex situ* conservation efforts in your country
- Approaches used for *ex situ* conservation (e.g. *ex situ* conservation stands, provenance and progeny trials, seed banks, clonal collections etc)
- Organization of *ex situ* conservation efforts at national (or sub-national) level(s), including main players and stakeholders
- Criteria applied for establishing new *ex situ* units or collecting new accessions
- Transfers of germplasm within and outside of the country for *ex situ* conservation
- Needs, challenges and opportunities for improving *in situ* conservation of forest genetic resources
- Priorities for capacity-building and research in this area

The following questions are provided to guide countries in preparing the content of this chapter:

- 7.1. How would you assess the state of *ex situ* conservation of forest genetic resources in your country?
- 7.2. What approaches are being used for *ex situ* conservation of forest genetic resources in your country?
- 7.3. How is *ex situ* conservation of forest genetic resources organized in your country?
- 7.4. Who are the main players / stakeholders of *ex situ* conservation?
- 7.5. What the criteria are applied for establishing new *ex situ* units or collecting new accessions?
- 7.6. Please describe transfers of tree germplasm within and/or outside of your country for *ex situ* conservation
- 7.7. What are the needs, challenges and opportunities for improving *ex situ* conservation of forest genetic resources?
- 7.8. What are the priorities for capacity-building and research in this area?

Part 4: State of use, development and management of forest genetic resources

Chapter 8. The state of use

The main objective of this chapter is to describe the current state of forest genetic resources use, and the needs, challenges and opportunities for increasing it in your country. This chapter should also describe how the selection, production, delivery and deployment of forest reproductive material is organized in your country. The chapter should provide information that complements the species-specific data countries submit through the questionnaire. Information on the following topics or issues should be presented:

- Use of forest genetic resources for different purposes
- National (or sub-national) strategies, guidelines and recommendations for using forest genetic resources
- Selection and production of forest reproduction material
- The role of registered seed stands, seed orchards and other sources in supplying of forest reproductive material
- Certification of forest reproductive material
- Organization of FGR development efforts at national (or sub-national) level(s), including main players and stakeholders
- Delivery and deployment of forest reproductive material
- Trends in the demand for forest reproductive material
- Transfers of germplasm within and outside of the country
- Needs, challenges and opportunities for improving in situ conservation of forest genetic resources
- Priorities for capacity-building and research in this area

The following questions are provided to guide countries in preparing the content of this chapter:

- 8.1. How, and for what purposes, forest genetic resources are used in your country?
- 8.2. Are there national (or sub-national) strategies, guidelines and recommendations for using forest genetic resources in your country?
- 8.3. From which sources forest reproductive material is sourced in your country?
- 8.4. Are there grant schemes or other incentive mechanisms that promote the use of certain forest reproductive material?

- 8.5. What is the role of registered seed stands, seed orchards and other sources in the supply of forest reproductive material?
- 8.6. Does the supply of forest reproductive material meet the demand in your country?
- 8.7. What are the trends in the demand for forest reproductive material?
- 8.8. How is the information on forest reproductive material certified for national (or sub-national) and international trade, and what rules are used for this purpose?
- 8.9. How much forest reproductive material your country exports and/or imports?
- 8.10. In case your country has a national (or sub-national) tree seed programme, how is it organized, and who are the main players and stakeholders?
- 8.11. What are the needs, challenges and opportunities for increasing the use of forest genetic resources?
- 8.12. What are the priorities for capacity-building and research in this area?

Chapter 9. The state of genetic improvement and breeding programmes

The main objective of this chapter is to describe the current state of tree improvement and breeding programmes in your country, as well as the needs, challenges and opportunities in this area. This chapter should also describe how tree improvement and breeding programmes are organized in your country, who are the main players and stakeholders. The chapter should provide information that complements the species-specific data countries submit through the questionnaire. Information on the following topics or issues should be presented:

- Approaches used for tree improvement and breeding
- Prioritization of uses and traits in tree improvement and breeding
- Organization of tree improvement and breeding programmes
- Use of current and emerging technologies in tree improvement and breeding
- Transfers of germplasm within and outside of the country for research and development
- Needs, challenges and opportunities for tree improvement and breeding
- Priorities for capacity-building and research in this area

The following questions are provided to guide countries in preparing the content of this chapter:

- 9.1. What are the approaches used for tree improvement and breeding in your country?
- 9.2. What uses and traits are prioritized in tree improvement and breeding?
- 9.3. How are tree improvement and breeding programmes organized in your country, and who are the main players and stakeholders?
- 9.4. What current and emerging technologies used in tree improvement and breeding?
- 9.5. How much of tree germplasm is transferred within and outside of the country for research and development purposes?
- 9.6. What are the issues related to access and benefit-sharing?
- 9.7. What are the needs, challenges and opportunities for tree improvement and breeding?
- 9.8. What are the priorities for capacity-building and research in this area?

Chapter 10. Management of forest genetic resources

The main objective of this chapter is to describe how genetic considerations are taken into account in managing natural and planted forests, as well as other wooded lands, in your country. In this chapter, the needs, challenges and opportunities for improving the management of forest genetic resources should be identified. Furthermore, the consequences of the changes in the forest sector, as identified in Chapter 1, for forest genetic resources and their management should be reviewed. The chapter should

also provide any other relevant information on the management of forest genetic resources.

Information on the following topics or issues should be presented:

- Management of forest genetic resources in natural and planted forests, and in other wooded lands
- Consequences of the changes in the forest sector for forest genetic resources and their management
- Needs, challenges and opportunities for improving the management of forest genetic resources
- Priorities for capacity-building and research in this area

The following questions are provided to guide countries in preparing the content of this chapter:

- 10.1. How genetic considerations are taken into account, at practical level, in managing natural and planted forests, as well as other wooded lands, in your country?
- 10.2. How are the current and emerging technologies used in the management of forest genetic resources in your country?
- 10.3. Who are the main actors/ stakeholders for managing natural and planted forests, as well as other wooded lands at national (or sub-national) level(s)
- 10.4. What are the needs, challenges and opportunities for improving the management of forest genetic resources in your country?
- 10.5. What are the priorities for capacity-building and research in this area?

Part 5: State of capacities and policies

Chapter 11. Institutional framework for the conservation, use and development of forest genetic resources

The main objective of this chapter is to describe the current state of capacities, institutions and policies related to the conservation, use and development of forest genetic resources in your country. This chapter should also identify needs, challenges and opportunities for strengthening the national (or sub-national) institutions and policies on forest genetic resources. The chapter should provide information that complements the data countries submit through the questionnaire. Information on the following topics or issues should be presented:

- National coordination mechanisms and other institutions dealing with forest genetic resources
- Policies and strategies relevant to forest genetic resources
- Legislation and regulations related to forest genetic resources
- State of research and development on forest genetic resources
- State of education and training (including extension efforts) related to forest genetic resources
- Organization of FGR research, development, education and training at national (or sub-national) level(s), including main players and stakeholders
- Needs, challenges and opportunities for strengthening the national (or sub-national) institutions and policies on forest genetic resources
- Priorities for capacity-building in this area

The following questions are provided to guide countries in preparing the content of this chapter:

- 11.1. If your country has a national coordination mechanism on forest genetic resources, how does it operate, and what is its structure?

- 11.2. Please describe the main institutions and stakeholders involved in the conservation, use and development of forest genetic resources in your country.
- 11.3. How different stakeholders are involved in decision-making related to FGR management?
- 11.4. Does your country have specific policies and strategies on forest genetic resources
- 11.5. Has your country developed specific legislation and/or regulations on forest genetic resources?
- 11.6. Has your country established specific legislation or regulations on forest genetic resources?
- 11.7. What is the state of research and development on forest genetic resources in your country?
- 11.8. What is the state of education and training on forest genetic resources in your country?
- 11.9. What are the needs, challenges and opportunities for strengthening the national (or sub-national) institutions and policies on forest genetic resources?
- 11.10. What are the priorities for capacity-building in this area?

Chapter 12. International and regional cooperation on forest genetic resources

The main objective of this chapter is to describe your country's involvement in international and regional cooperation on forest genetic resources. It should explain how your country has benefitted from the international and regional cooperation, and how your country has contributed to the international and regional cooperation, including possible financial support provided to other countries. This chapter should also identify needs, challenges and opportunities for strengthening this cooperation from your country's point of view. The chapter should provide information that complements the data countries submit through the questionnaire. Information on the following topics or issues should be presented:

- International and regional projects on forest genetic resources the country has been involved since 2013.
- Application of results and benefits derived from the international and regional cooperation in the country
- Needs, challenges and opportunities for strengthening the international and regional cooperation on forest genetic resources

The following questions are provided to guide countries in preparing the content of this chapter:

- 12.1. Please describe the international and regional projects on forest genetic resources your country has been, or is, involved since 2013?
- 12.2. How has your country benefitted from the international and regional cooperation on forest genetic resources?
- 12.3. What contributions has your country provided to the international and regional cooperation on forest genetic resources?
- 12.4. How have the results and/or benefits from the international and regional cooperation been applied for the conservation, use and development of forest genetic resources in your country?
- 12.5. What are the needs, challenges and opportunities for strengthening the international and regional cooperation on forest genetic resources?

Part 6: Challenges and opportunities

Chapter 13. Recommended actions for the future

The main objective of this chapter is to summarize the challenges and opportunities for forest genetic resources based on the information presented in the other chapters. It also make recommendations for further actions to strengthen the conservation, use and development of forest genetic resources in your

country, as well as to increase the international and regional cooperation. The recommended actions should be structured following the four priority areas of the Global Plan of Action:

- Availability of information on forest genetic resources
- Conservation of forest genetic resources
- Use, development and management of forest genetic resources
- Policies, institutions and capacity-building

References

Annexes

ANNEX 3

GLOSSARY OF TECHNICAL TERMS

Characterization based on non-molecular information refers to the description and evaluation of FGR based on information obtained from field observations, provenance trials or ecological/climatic zonation of species' distribution range within a country, for example. The characterization of FGR is typically done at the level of populations or provenances. In general, genetic resources are characterized based on traits that are usually heritable, easy to observe by the eye and expressed across different environments.

Characterization based on molecular information refers to the description and evaluation of FGR based on information obtained through molecular markers and/or genomic approaches.

Designated means that an area has been assigned to *in situ* and/or *ex situ* conservation of FGR by law or other arrangement, depending on how a country (or state) has organized its work on FGR.

Ex situ accession refers to a sample of FGR stored in a seed bank or a genotype held in a clonal collection.

Ex situ conservation of FGR refers to the conservation of genetic resources of trees and other woody plant species outside of their natural habitats.

Ex situ conservation unit refers to a range of *ex situ* genetic conservation areas of forest trees and other woody plants species (e.g. *ex situ* conservation stands, provenance and progeny trials, and breeding populations).

Extension programmes or activities refers to training and communication efforts targeted to users of FGR (farmers, local communities, forest owners, etc) with an aim to help them enhance their use of FGR to derive economic and other benefits. Extension activities may include short-term training courses and workshops, field trips, exhibitions, media campaigns and dissemination of information through leaflets, posters and guidelines, or even development of on-line tools.

Forest genetic resources (FGR) refers to the heritable materials maintained within and among tree and other woody plant species that are of actual or potential economic, environmental, scientific or societal value.

Forest reproductive material refers to any plant tissue that is created by sexual or asexual means (e.g. seeds, pollen and cuttings) and used for the production of new trees or other woody species.

In situ conservation of FGR refers to the maintenance of viable populations of trees and other woody plant species in their natural surroundings.

In situ conservation unit refers to a range of *in situ* genetic conservation areas of forest trees and other woody plants species (e.g. gene reserve forests, genetic conservation units or stands, gene management units or zones, and evolutionary conservation units or stands).

International research and development cooperation refers to global, regional and sub-regional research projects (or project proposals), tree breeding programmes and other R&D efforts.

Macropropagation refers to vegetative propagation of planting stock from cuttings, grafting or air-layering.

Micropropagation refers to vegetative propagation of planting stock by *in vitro* technology producing plantlets, micropropagules or somatic embryos.

National adaptation strategy for climate change refers to a national adaptation strategy, action plan and/or programme(s) for climate change.

National biodiversity action plan refers to a national strategy, action plan and/or programme(s) for the conservation and sustainable use of biological diversity.

National distribution range of a species refers to area(s) within a country where a species is growing naturally, and where it might have been introduced.

National forest programme refers to a wide range of approaches that are used to develop and/or revise forest policy and related strategy (or strategies) at the national or sub-national levels, and to facilitate their implementation.

National forest policy is typically a government document which presents a vision or goals on forests (and trees) and their use shared by government and other stakeholders.

National (or sub-national) coordination mechanism on FGR refers to a range of approaches that are used to coordinate the work on FGR at national or sub-national levels. Various stakeholders (e.g. farmers, forest owners, private sector, non-governmental organizations, research organizations and relevant ministries) are typically represented in such national coordination mechanism. Examples of national coordination mechanisms include national (or sub-national) FGR programmes and national (or sub-national) committees or working groups on FGR.

National (or sub-national) *ex situ* conservation programme (or system) for FGR refers to an *ex situ* conservation programme of FGR that is undertaken and coordinated by a designated national (or sub-national) agency working in collaboration with various stakeholders. An *ex situ* conservation programme is often based on a combination of *ex situ* conservation stands, field collections (e.g. clonal archives and stool beds) and storage facilities for seed, pollen or other tissue.

National (or sub-national) FGR information system refers to a database (or databases) and other electronic documentation systems (off-line or on-line) that is used by a national FGR inventory to gather, store and/or make available the data and information on FGR. A national FGR information system is up-to-date when the data and information are updated periodically (e.g. annually) or whenever new data and information have become available.

National (or sub-national) FGR inventory (-ies) refers to a mechanism that gathers data and information, often from several data-providers within a country, on areas and facilities managed for the conservation of FGR and the production of forest reproductive material, as well as related research and development (R&D) efforts, for example. A national (or sub-national) FGR inventory is operational when the collection of data and information is repeated frequently, and when the data and information are processed, stored and made available to support policymaking, management of FGR and R&D efforts.

National (or sub-national) *in situ* conservation programme (or system) for FGR refers to a long-term *in situ* conservation programme of FGR that is undertaken and coordinated by a designated national (or sub-national) agency working in collaboration with various stakeholders. Typically, the main aim of such conservation programme is to establish and maintain a network of *in situ* conservation units for FGR in a country (or state).

National (or sub-national) strategy (-ies) for FGR conservation and use presents the country's (or its states') vision and goals for the conservation and use of FGR, and describes how it intends to achieve these goals. A national (or sub-national) strategy for FGR conservation and use typically reflects both binding (e.g. the Convention on Biological Diversity) and non-binding (e.g. the Global

Plan of Action for the Conservation, Sustainable Use and Development of Forest Genetic Resources) international commitments made by the country.

National (or sub-national) tree seed programme refers to a mechanism (or mechanisms) that oversees and/or coordinates the selection, procurement, documentation, storage and testing of forest reproductive material at national or sub-national levels. Such mechanism typically brings together an official body responsible for approving basic material and maintaining a national or sub-national register of this material, as well as other stakeholders (public and private) involved in the selection, procurement, storage and testing of forest productive material.

Operational means that a programme and/or activities are being implemented, and that relevant stakeholders provide inputs and/or meet regularly.

Regional or sub-regional FGR conservation strategy refers to a vision and goals for the conservation of FGR that a group of countries may have agreed in the context of regional or sub-regional networks or other collaboration platforms on FGR.

Regional or sub-regional network on FGR refers to a regional or sub-regional network, programme or working group that promote international collaboration on forest genetic resources.

Seed stand refers to a delineated population of trees or other woody plant species that is identified and registered by a relevant national (or sub-national) authority for producing forest reproductive material.

Seed orchards refers to a plantation of selected individuals of trees or other woody plant species (identified by clone, family or provenance) that is specifically managed for seed production.

Tree breeding programme refers to systematic efforts based on the application of genetic principles and practices to develop improved trees. Tree breeding programmes may be public, private or private-public partnerships, and they may operate at sub-national, national, regional or global scales.