Food and Agriculture Organization of the United Nations

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

International Workshop on Access on Benefit-sharing for Genetic Resources for Food and Agriculture

Rome, Italy, 10 – 12 January 2018

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

OUTPUTS OF THE INTERNATIONAL WORKSHOP ON ACCESS AND BENEFIT-SHARING FOR GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Rome, Italy, 10 – 12 January 2018

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2018

The documents prepared for the outputs of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture are available on the Internet at the following address:

http://www.fao.org/nr/cgrfa/cgrfa-meetings/abs/en/

TABLE OF CONTENTS

		Paragraphs
I.	Opening of the workshop	1 – 7
II.	Session I: Introduction	8 – 9
III.	Session II: Country implementation and experiences	10 – 12
IV.	Session III: Access and Benefit-sharing and the distinctive features of genetic resources for food and agriculture	13 – 14
V.	Session IV: closure of the workshop	15 – 17

Appendices

I. Programme

II. Outputs for subsequent elaboration into non-prescriptive explanatory notes, describing within the context of the ABS Elements, the distinctive features and specific practices of different subsectors of genetic resources for food and agriculture

III. List of participants

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

OUTPUTS OF THE INTERNATIONAL WORKSHOP ON ACCESS AND BENEFIT-SHARING FOR GENETIC RESOURCES FOR FOOD AND AGRICULTURE

Rome, Italy, 10 – 12 January 2018

I. OPENING OF THE WOWKSHOP

1. The International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture (Workshop) was held in Rome, Italy from 10 to 12 January 2018. The programme of the workshop is contained in *Appendix I* to this report. The meeting was organized by the Secretariat of the Commission on Genetic Resources for Food and Agriculture (Commission) in collaboration with the Secretariats of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) and the Convention on Biological Diversity (CBD).

2. Mr William Wigmore (Cook Islands), Chair of the Commission, welcomed participants. He reminded the participants that the Commission, at its last session, requested the Secretariat to convene, in collaboration with the Secretariats of the Treaty and the CBD, an "international workshop to assist countries to identify and raise awareness of distinctive features and specific practices of subsectors of genetic resources for food and agriculture in the context of the Elements to facilitate domestic implementation of access and benefit-sharing for different subsectors of genetic resources for food and agriculture (ABS Elements)"[1]. He also noted that the Commission had agreed to produce non-prescriptive explanatory notes describing, within the context of the ABS Elements, the distinctive features and specific practices of different subsectors of genetic resources for food and agriculture (GRFA), to complement the ABS Elements and that it had mandated the Workshop to provide outputs for subsequent elaboration into non-prescriptive explanatory notes.

3. Mr René Castro Salazar, Assistant Director-General, Climate, Biodiversity, Land and Water Department, FAO, opened the meeting. Mr Castro Salazar welcomed participants; he noted that access to GRFA and the fair and equitable sharing of benefits derived from these genetic resources are at the heart of FAO's and the Commission's mandates. He stressed that benefit-sharing is equally important as it provides an important incentive as well as a reward for the conservation and sustainable use of genetic resources. He pointed out that that the workshop provided not only a forum for participants to exchange information, experiences and views but would also contribute to providing outputs for the subsequent elaboration of non-prescriptive explanatory notes describing the distinctive features and specific practices of different subsectors of genetic resources for food and agriculture.

4. Ms Irene Hoffmann, Secretary of the Commission, thanked participants for attending the meeting and provided a brief history of the Commission's work on access and benefit-sharing (ABS). She stressed that the workshop was a meeting to exchange views, to brainstorm, to listen to each other and to develop a better understanding of ABS. She echoed the comments made by Mr Castro Salazar and reiterated that the Commission is committed to ABS as well as to the sustainable use and conservation of genetic resources for food and agriculture.

5. Ms Kathryn Garforth, Programme Officer, Nagoya Protocol Unit, Convention on Biological Diversity, welcomed participants and conveyed her keenness with regard to the outcomes from the workshop and how they would allow for the further elaboration of explanatory notes to the ABS Elements. She encouraged participants to share their experiences in order to be able to draw on those

[1] CGRFA-16/17/Report, paragraph 25.

experiences and better understand how ABS and genetic resources for food and agriculture are related to one another.

6. Mr Kent Nnadozie, Secretary, International Treaty on Plant Genetic Resources for Food and Agriculture, expressed his gratitude for the continued collaboration with the Commission and the Convention on Biological Diversity. He noted that ABS remains a fundamental area of work and that the programme of the workshop features an ideal combination of multi-disciplinary and multi-sectoral expertise that combines the presentation of progress of the international frameworks with the review of selected national experiences with ABS implementation.

7. The opening addresses are contained in the *Proceedings of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture.*

II. SESSION I: INTRODUCTION

8. The first session provided an introduction to the Nagoya Protocol, the Treaty and the ABS Elements. Ms Kathryn Garforth, Programme Officer, CBD gave an introduction to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity (Nagoya Protocol). This was followed by Mr Daniele Manzella, Technical Officer, Treaty who provided an introduction to the Treaty. Mr Dan Leskien, Senior Liaison Officer, Commission presented the ABS Elements.

9. The presentations are contained in the *Proceedings of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture*.

III. SESSION II: COUNTRY IMPLEMENTATION AND EXPERIENCES

10. The second session was devoted to country implementation of ABS measures and related experiences. Mr Sélim Louafi, Senior Research Fellow, CIRAD, France, and Mr Eric Welch, Professor and Director of the Center for Science, Technology & Environmental Policy Studies, Arizona State University, United States of America presented first results of a country survey on ABS for GRFA. Mr Pierre du Plessis, Senior Consultant, Centre for Research Information Action, Namibia presented Namibia's Access and Benefit-Sharing and Associated Traditional Knowledge Law. Mr Gurdial Singh Nijar, former Professor of Law, University of Malaya, Malaysia, then presented the access and benefit-sharing legislation of Malaysia, followed by Ms Elzbieta Martyniuk, Professor of Warsaw University of Life Sciences/ Professor of the National Research Institute of Animal Production, Poland, who presented the Regulation (EU) No 511/2014 on Compliance Measures for Users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union.

11. The session continued the following day with a presentation by Mr Henry Philippe Ibanez de Novion, Director of the Genetic Heritage Department, Vice-President of the ABS National Competent Authority-CGEN, Ministry of Environment, Brazil, on the national implementation of access and benefit-sharing in Brazil. He was followed by Ms Lamis Chalak, Professor, Faculty of Agronomy, The Lebanese University, Head of the National Committee for Plant Genetic Resources, Ministry of Agriculture, Lebanon who presented the proposed regulations on access and benefit-sharing for biological and plant genetic resources of Lebanon. Mr Brad Sherman, Professor of Law, Australian Research Council Laureate Fellow, University of Queensland, Australia, presented the access regime of Australia for biological and genetic resources.

12. The presentations of Session II are contained in the *Proceedings of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture*.

IV. SESSION III: ACCESS AND BENEFIT-SHARING AND THE DISTINCTIVE FEATURES OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE

13. During the third session, participants considered the document Developing non-prescriptive explanatory notes, describing within the context of the ABS Elements the distinctive features and specific practices of different subsectors of genetic resources for food and agriculture.[2] Participants identified distinctive features of the different subsectors of GRFA and areas in which the ABS Elements required subsector-specific explanation or clarification. The work was done in five working groups (Animal Genetic Resources; Aquatic Genetic Resources; Forest Genetic Resources; Micro-organisms and Invertebrate Genetic Resources; and Plant Genetic Resources).

14. The presentations of Session III are contained in the *Proceedings of the International Workshop on Access and Benefit-sharing for Genetic Resources for Food and Agriculture*.

V. SESSION IV: CLOSURE OF THE WORKSHOP

15. During the final session, the working groups reported back the distinctive features of the different subsectors of GRFA and on ABS Elements which required subsector-specific explanation or clarification. The outputs of the working groups are contained, for each subsector, in *Appendix II* to this report.

16. In a short closing address, Ms Hoffmann thanked participants for their valuable contributions. She noted that there are still many knowledge gaps and the need to learn more. She concluded concluded that ABS is complicated, and even more so when considered in conjunction with GRFA. It was, however, important for the Commission and its Members to continue working on ABS for GRFA. She also expressed gratitude to all participants and speakers for their great work in making this workshop a success.

17. Mr William Wigmore thanked all speakers for their presentations, the Secretariat for the preparation of the workshop and all the participants for having taken the time to attend and contribute to the meeting.

[2] See http://www.fao.org/nr/cgrfa/cgrfa-meetings/abs/itwg-abs/en/

APPENDIX I
PROGRAMME

Wednesday, 10 January 2018	
8:30	Registration
10:00	**Opening remarks** Mr René Castro Salazar Assistant Director-General, Climate, Biodiversity, Land and Water Department, FAO Ms Irene Hoffmann Secretary, Commission on Genetic Resources for Food and Agriculture, FAO Ms Kathryn Garforth Programme Officer, Nagoya Protocol Unit, Convention on Biological Diversity Mr Kent Nnadozie Secretary, International Treaty on Plant Genetic Resources for Food and Agriculture, FAO
SESSION I: INTRODUCTION	
10:30	**An introduction to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization** Ms Kathryn Garforth Programme Officer, Secretariat, Convention on Biological Diversity
	An introduction to the International Treaty on Plant Genetic Resources for Food and Agriculture Mr Daniele Manzella Secretariat, International Treaty on Plant Genetic Resources for Food and Agriculture, FAO
	Elements to Facilitate Domestic Implementation of Access and Benefit-Sharing for Different Subsectors of Genetic Resources for Food and Agriculture Mr Dan Leskien Secretariat, Commission on Genetic Resources for Food and Agriculture, FAO
12:00	*Questions & answers*
12:30	**Lunch break**
SESSION II: COUNTRY IMPLEMENTATION AND EXPERIENCES	
14:30	**Access and benefit-sharing for genetic resources for food and agriculture: country practice and experiences** Mr Sélim Louafi, Senior Research Fellow, CIRAD, France and Mr Eric Welch, Professor and Director of Center for Science, Technology & Environmental Policy Studies, Arizona State University, USA

	Namibia's Access and Benefit-Sharing and Associated Traditional Knowledge Law Mr Pierre du Plessis, Senior Consultant, Centre for Research Information Action, Namibia
	Access and benefit-sharing legislation in Malaysia Mr Gurdial Singh Nijar, Former Professor of Law, University of Malaya, Malaysia
	Regulation (EU) No 511/2014 on compliance measures for users from the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization in the Union Ms Elzbieta Martyniuk, Professor of Warsaw University of Life Sciences/Professor of the National Research Institute of Animal Production, Poland
16:30	*Questions & answers*
17:30	*End*

Thursday, 11 January 2018

SESSION II: COUNTRY IMPLEMENTATION AND EXPERIENCES cont'd	
10:00	**National implementation of access and benefit-sharing in Brazil** Mr Henry Philippe Ibanez de Novion, Director of the Genetic Heritage Department, Vice-President of the ABS National Competent Authority-CGEN, Ministry of Environment, Brazil
	Proposed regulations on access and benefit-sharing for biological and plant genetic resources of Lebanon Ms Lamis Chalak, Professor, Faculty of Agronomy, The Lebanese University Head of the National Committee for Plant Genetic Resources, Ministry of Agriculture, Beirut, Lebanon
	Access to biological and genetic resources in Australia Mr Brad Sherman, Professor of Law, Australian Research Council Laureate Fellow, University of Queensland, Australia
11:30	*Questions & answers*
12:30	**Lunch break**
SESSION III: ACCESS AND BENEFIT-SHARING AND THE DISTINCTIVE FEATURES OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE	
14:30	**Breakout Groups**

	Animal genetic resources *Canada Room*	**Aquatic genetic resources** *Ethiopia Room*	**Forest genetic resources** *Lebanon Room*	**Microbial/ invertebrate genetic resources**	**Plant genetic resources** *Nigeria Room*

				Mexico Room	
17:30	*End*				

Friday, 12 January 2018

SESSION III: ACCESS AND BENEFIT-SHARING AND THE DISTINCTIVE FEATURES OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE cont'd					
10:00	**Breakout Groups cont'd**				
	Animal genetic resources *Canada Room*	**Aquatic genetic resources** *Ethiopia Room*	**Forest genetic resources** *Lebanon Room*	**Micro-organism/ invertebrate genetic resources** *Mexico Room*	**Plant genetic resources** *Nigeria Room*
12:30	**Lunch break**				
SESSION IV: SUBSECTOR-REPORTS AND CONCLUSIONS					
14:30	**Animal genetic resources**				
	Aquatic genetic resources				
	Forest genetic resources				
	Micro-organism/ invertebrate genetic resources				
	Plant genetic resources				
16:00	*Final discussion*				
17:30	*End*				

1.

APPENDIX II

OUTPUTS FOR SUBSEQUENT ELABORATION INTO NON-PRESCRIPTIVE EXPLANATORY NOTES DESCIRIBING WITHIN THE CONTEXT OF THE ABS ELEMENTS, THE DISTINCTIVE FEATURES AND SPECIFIC PRACTICES OF DIFFERENT SUBSECTORS OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE

1. The Commission on Genetic Resources for Food and Agriculture (Commission) requested, at its Sixteenth Regular Session, the Secretariat to convene, in collaboration with the Secretariats of the International Treaty on Plant Genetic Resources for Food and Agriculture (Treaty) and the Convention on Biological Diversity (CBD), an international workshop to assist countries to raise awareness of distinctive features and specific practices of subsectors of genetic resources for food and agriculture (GRFA) in the context of the *Elements to Facilitate Domestic Implementation of Access and Benefit-Sharing for Different Subsectors of Genetic Resources for Food and Agriculture* (ABS Elements).[3] The Commission requested the international workshop to provide outputs for subsequent elaboration into non-prescriptive explanatory notes describing, within the context of the ABS Elements, the distinctive features and specific practices of different subsectors of GRFA.[4]

2. The International Workshop on Access and Benefit-Sharing for Genetic Resources for Food and Agriculture (IWABS), was held in Rome from 10 to 12 January 2018. During the Workshop, five working groups were established to produce outputs for subsequent elaboration into non-prescriptive explanatory notes describing, within the context of the ABS Elements, the distinctive features and specific practices of the following subsectors of GRFA:

- animal genetic resources;
- aquatic genetic resources;
- forest genetic resources;
- micro-organism/invertebrate genetic resources; and
- plant genetic resources.

3. Each of the subsector working groups had to identify:

- Distinctive features and practices of the subsector, taking into account the distinctive features of GRFA, as listed in the *Annex* to the ABS Elements.
- Areas in the ABS Elements that, from the perspective of the subsector, would benefit from explanation, clarification or supplementation as well as issues relevant to the subsector that are not addressed in the ABS Elements.

4. This document brings together the outputs from the five working groups. The working groups dealing with aquatic genetic resources and micro-organism and invertebrate genetic resources limited themselves to the identification of distinctive features and practices of their subsectors. The outputs were provided and reviewed by the (Co-) Chair(s) of the working groups established during the IWABS.

5. Following the workshop, the Secretariat circulated the working group outputs to all workshop participants and the Team of Technical and Legal Experts on Access and Benefit-Sharing, for their comments. The outputs were consolidated in the light of comments received, for the information of the Commission's intergovernmental technical working groups, the ABS Expert Team and the Commission.

[3] CGRFA-16/17/Report, paragraph 25(v).
[4] CGRFA-16/17/Report, paragraph 25(v), e–g.

I. DISTINCTIVE FEATURES AND PRACTICES OF THE SUBSECTORS OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE

GENERAL REMARKS

It should be noted that the comments on specific distinctive features provided by the five working do not address all the distinctive features given in Table 1.

AQUATIC GENETIC RESOURCES:

- Major developments occurred in the last 60 years (except carp: domesticated 2–3K years)
- Number of species used grew from 70 in 1950 to 400+ in 2018
- Rate of industry growth 8–10 percent per annum for the last 20 years
- Proportion of farmed finfish people eat has increased from near zero to 50 percent of fish eaten worldwide today
- 96 percent of finfish farmed are non-marine
- Farmed fish production now exceeds beef production worldwide

Comments on specific distinctive features (as given in Table 1)
A.2: Applicable to aquaculture in the understanding of agricultural ecosystems as including aquatic ecosystems in this context. The aquatic genetic resources group recommends that A.2 also refer to "aquatic ecosystems", rather than just "agricultural ecosystems".
C.1: For aquaculture, this has occurred for a few species and development has been recent.
C.2: Applicable to aquaculture, but at this stage it only applies to relatively few species.
C.3: Applicable to aquaculture, but the international exchange of aquatic genetic resources is of smaller volume than the exchange of agricultural genetic resources, and the amount is likely to grow as aquaculture matures.
D.1: Applicable to aquaculture, but we note that the modern aquaculture industry is still young, and the life cycle of aquaculture is much shorter than that of agriculture.
D.2: Applicable to aquaculture but not to the degree of agriculture. The modern aquaculture industry is still young, and the life cycle of aquaculture is much shorter than that of agriculture. Many aquatic GRFA products, but not all, are developed out of individual GRs.
E.3: A majority of important genetically improved stocks are in private hands. The penetration of improved GRFA in production systems is relatively small at present.
E.4: Not applicable to aquaculture. Only few *ex situ* collections exist for aquatic genetic resources.
F.1: Applicable to aquaculture to a certain degree. There are some established practices from traditional aquaculture, but in general aquaculture is young with practices gradually being established.

MICRO-ORGANISM AND INVERTEBRATE GENETIC RESOURCES:

B.1: Not relevant to invertebrate (INV), except for honey bees.

B.2: Not relevant to either sector, with the exception of honey bees.

- The vast majority of micro-organisms (MO) and INV are not under human management. For generations they have been cultivated indirectly rather than directly; their diversity in agricultural landscapes has been maintained through traditional and sustainable agricultural practices or reduced through unsustainable agricultural practices.
- This distinctive feature needs to be re-discussed in an ABS-context.

C.2: Relevant to both sectors (examples: yeasts [MO]; honey bees and biological control agents [INV]).

D.1: Not relevant for either sector. There are exceptions in the MO sector: commercial species (fungi), MO that have been used in traditional food production for generations.

D.3: Relevant to both sectors, but not from a breeding perspective. The biological resource is used in its original form (live organism).

E.2: Tends not to be relevant for either sector. There are exceptions: biological control (a biological control agent is often an exotic species, i.e. from a different area/country than where it is used) and honey bees.

E.4: INV cannot be kept in culture collections.

E.5: Relevant to both sectors. There is no active *in situ* conservation of MO and INV. However, through habitat/ecosystem conservation, these organisms are maintained. This form of conservation also contributes to maintaining biodiversity.

F.1: "Traditional" customary practices have little relevance to either sector. However, "academic customary practices" have developed. There are many protocols and networks for the exchange of MO and INV in this academic customary way.

F.2: Relevant to MO, but not for INV (with the exception of honey bees). The transfer of genetic material is focused rather than extensive.

G.1 (a): "While the overall benefits of GRFA are very high": relevant to MO, not so much to INV.

A transfer could have very high benefits, but there are exceptions. The monetary benefits in biological control are fairly low. The potential of not exchanging biological control agents freely (e.g. for classical biological control) would hinder their use. This question fits less for MO and INV than for other sectors.

G.1 (b): "It is difficult to estimate at the time of the transaction the expected benefits of an individual sample of GRFA": relevant to both sectors. Much is unexplored. The value of the functions of MO and INV in production systems is invaluable in terms of the delivery of ecosystem services.

<u>PLANT GENETIC RESOURCES:</u>

1. Review of distinctive features as they relate to plant genetic resources for food and agriculture (PGRFA)

- In summary: confirm all "+" ratings and change all ratings and the non-rated fields in column three referring to PGRFA to "+", i.e. they are all particularly relevant.
- Comments to: A.1 PGRFA are not only integral but also essential for agriculture.
- To **C.2**: countries can be and are for the most providers as well as recipients, often sometimes for one and the same crop.
- To **E.2:** there is interdependence among stakeholders, in particular in industrialized countries with very specialized functions along the value chain, i.e. farmer, breeder, genebank, indigenous communities. There is less obvious interdependence in countries in which farmers are the main keepers and developers of GRFA.
- No rating for **E.2** and also no rating for **E.3** possible.
- **E.4** and **E.5** both receive a "+" but comments required:

2. One cannot say that *ex situ* is more important than *in situ*/on-farm or *vice versa*. The situation is different for various plant genetic resources:
    - Major crops: more emphasis is put on *ex situ* conservation
    - Minor crops: more emphasis is put on-farm conservation
    - Crop wild relatives: more emphasis is put on *in situ* conservation.

2. Additional features of PGRFA

- Add under **B.2**: add that traditional use and management of PGRFA support the evolution and maintenance of diversity in PGRFA.
- Add under **C**: the volume of exchange of PGRFA nationally and internationally is very considerable compared to other GRFA; the number of the standard material transfer agreements (SMTAs) and numbers of accessions recorded by the Treaty demonstrate that clearly.

TABLE 1: DISTINCTIVE FEATURES OF GENETIC RESOURCES FOR FOOD AND AGRICULTURE

		AnGR[5]	FGR[6]	PGR[7]	AqGR[8]	MiGR[9]	InGR[7]
A. The role of GRFA for food security	A.1 GRFA are an integral [and essential*] part of agricultural and food production systems and play an essential role for achieving food security and the sustainable development of the food and agriculture sector.		+	+	+	+	+
	A.2 Plant, animal, invertebrate and micro-organism GRFA form an interdependent network of genetic diversity in agricultural ecosystems.		+	+*	+	+	+
B. The role of human management	B.1 (a) The existence of most GRFA is closely linked to human activity and (b) many GRFA can be regarded as human-modified forms of genetic resources.		-	+*	-	(a): - (b): +	-
	B.2 The maintenance and evolution of many GRFA depend on continued human intervention, and their sustainable utilization in research, development and production is an important instrument to ensure conservation.	+	-	+*	+	-	-
C. International exchange and inter-dependence	C.1 Historically, GRFA have been widely exchanged across communities, countries and regions over often long periods of time, and a relevant part of the genetic diversity used in food and agriculture today is of exotic origin.	+	-	+	+	+	+
	C.2 Countries are interdependent with regard to GRFA and act both as providers of some GRFA and as recipients of others.		+	+*	+	+	+
	C.3 The international exchange of GRFA is essential to the functioning of the sector, and its importance is likely to increase in future.	+	+	+	+	+	+
D. The nature of the innovation process	D.1 The innovation process for GRFA is usually of incremental nature and the result of contributions made by many different people, including indigenous and local communities, farmers, researchers and breeders, in different places and at different points in time.	+	+	+	-	-	-
	D.2 Many GRFA products are not developed out of an individual genetic resource, but with the contributions of several GRFA at different stages in the innovation process.		-	+	-	-	-
	D.3 Most products developed with the use of GRFA can in turn be used as genetic resources for further research and development, which		+	+	+	+	+

[5] As identified by the ITWG AnGR, see CGRFA-14/13/12, paragraph 32.
[6] As identified by the ITWG PGR, see CGRFA-14/13/10, paragraph 21.
[7] As identified by the ITWG FGR, see CGRFA-14/13/20, *Table 2*.
[8] As proposed by the AqGR working group during the *International Workshop on Access and Benefit-Sharing for Genetic Resources for Food and Agriculture* (Rome, 10–12 January 2018).
[9] As proposed by the experts on MO and INV genetic resources during the *International Workshop on Access and Benefit-Sharing for Genetic Resources for Food and Agriculture* (Rome, 10–12 January 2018).

	makes it difficult to draw a clear line between providers and recipients of GRFA.						
	D.4 Many agricultural products reach the market place in a form in which they may be used both as biological resources and as genetic resources.	-	+	+*	+	+	+
E. Holders and users of GRFA	E.1 (a) GRFA are held and used by a broad range of very diverse stakeholders. (b) There are distinct communities of providers and users with respect to the different subsectors of GRFA.	+	-	+	+	(a): - (b): +	(a): - (b): +
	E.2 The different stakeholders managing and using GRFA are interdependent.		+		+	-	-
	E.3 A significant amount of GRFA is privately held.	+	-		-	+	-
	E.4 An important part of GRFA is held and can be accessed *ex situ*.	-	-	+*	-	+	-
	E.5 An important part of GRFA is conserved *in situ* and on farm under different financial, technical and legal conditions.	+	+	+*	+	+	+
F. GRFA exchange practices	F.1 The exchange of GRFA takes place in the context of customary practices and existing communities of providers and users.	+	+	+	-	+	+
	F.2 An extensive transfer of genetic material between different stakeholders along the value chain occurs in research and development.	+	-	+*	+	+	-
G. Benefits generated with the use of GRFA	G.1 (a) While the overall benefits of GRFA are very high, (b) it is difficult to estimate at the time of the transaction the expected benefits of an individual sample of GRFA.		+	+	+	(a): + (b): +	(a): - (b): +
	G.2 The use of GRFA may also generate important non-monetary benefits.		+	+*	+	+	+
	G.3 The use of GRFA may lead to external effects going far beyond the individual provider and recipient.		+	+*	+	+	+

Note: The Intergovernmental Technical Working Groups on Plant, Animal, and Forest Genetic Resources, in reviewing the distinctive features identified by the *Ad Hoc* Technical Working Group on Access and Benefit-Sharing for Genetic Resources for Food and Agriculture, highlighted features particularly relevant (marked in the table above by plus signs [+]) or less (or not) relevant (marked in the table by minus signs [-]) to their subsectors. For shaded fields no rating was provided by the relevant intergovernmental technical working group.

*: As proposed by the PGRFA working group during the *International Workshop on Access and Benefit-Sharing for Genetic Resources for Food and Agriculture* (Rome, 10–12 January 2018).

II. OUTPUTS FOR ELABORATION INTO SUBSECTOR-SPECIFIC EXPLANATORY NOTES

A. GENERAL REMARKS

AQUATIC GENETIC RESOURCES:

- Strong dependence on wild aquatic genetic resources.
- Not much practice about ABS in this subsector.
- Awareness should be raised in this subsector.
- Overlapping areas between AqGRFA and AqGR-non-FA.
- Mass production of some of the GRFA (algae, zooplancton, microalgae, artemia, seaweed, etc.).
    - Risks related to "use and exchange" of AqGR: diseases, genetic pollution, adverse effects on ecosystems.

MICRO-ORGANISM AND INVERTEBRATE GENETIC RESOURCES:

The use(s) of MO and INV in food and agriculture

The use of the following functional groups of MO and INV are described in the draft *State of the World's Biodiversity for Food and Agriculture*[10]:

- Pollinators
- Honey bees
- Biological control agents
- Soil MO and INV[11]
- Pests and diseases
- Rumen microbial biodiversity
- MO for food processing[12]
- MO for agro-industrial processes[13]
- Edible INV, such as insects, snails and aquatic invertebrates (molluscs, crustaceans, etc.)

The group discussed the above classification and agreed it covered the activities of the subsector.

List of distinctive features of MO and INV for food and agriculture compared to other GRFA in an ABS-context

- MO can be used for different purposes within food and agriculture. They can also be used for multiple purposes not related to food and agriculture (e.g. health, energy etc.). Clearly specifying their actual use is therefore of importance to ABS for GRFA.
- The diversity of MO and INV is enormous, includes multiple kingdoms and therefore they have very high potential for research and innovation.
- More wild MO and INV are cosmopolitan compared to other subsectors. This makes ABS more difficult to assess.
- Both MO and INV play major roles as biological control agents and are indispensable in degradation and recycling of organic matter in soils.
- Problems with taxonomic descriptions make it hard to identify what you are actually exchanging and new species are continuously discovered. In the context of ABS for GRFA this creates complications that need to be solved.

---

[10] Honey bees and aquatic invertebrates are included in the scope of animal and aquatic genetic resources respectively.

[11] Functions include regulating nutrient cycles, controlling the dynamics of soil organic matter, supporting soil carbon sequestration, regulating greenhouse gas emissions, modifying soil physical structure and soil water regimes, nutrient acquisition through symbiotic association, nitrogen fixation and protecting plant and animal health via biological control (taken from the draft State of the World Report on Biodiversity for Food and Agriculture, see CGRFA-16/17/Inf.10).

[12] Uses include fermentation, production of enzymes, flavourings, fragrances and bacteriocins.

[13] Uses include biofertilization, biopesticides, composting agro-industrial by-products, livestock slurry management, production of microbial metabolites (organic acids, chemical additives, pigments, enzymes, food additives, antibiotics, biofuels, solvents, bioplastics, protein-enriched feed and biologically active polysaccharides), bioremediation and ensiling.

- Sometimes MO are associated with specific PGR.
- MO: horizontal gene exchange, high mutation rate and short generation interval.
- In terms of the development of possible ABS measures, MO and INV have coherent communities of practice with existing codes of conduct and standards for best practices that can be adapted for GRFA purposes.
- An important part of MO and INV are used in their original form without the involvement of selective breeding practices. However, a large number of microbial strains are being improved/new strains developed for different purposes.
- MO and INV have a different role in food and agriculture than the other subsectors. They are often used in the production processes of food and agriculture, but are often (with important exceptions, e.g. edible insects and mushrooms) not a food or other end-product themselves.
- Research and development of MO and (to a lesser extent) INV often requires a high level of knowledge and technology (e.g. in laboratories). There are also very straightforward uses of MO and INV.
- Provisions to ensure fast access to MO and INV might be necessary in certain cases (e.g. to deal with pest and pathogen outbreaks).

Issues raised and open questions

- In an ABS-context, listing and categorizing the main use(s) of MO and invertebrates as they relate to food and agriculture could be the best starting point.
- There were some doubts as to whether the use of MO for medical/veterinary developments (e.g. antibiotics and the use of ticks as anticoagulants in the animal health sector) are part of food and agriculture or of the pharmaceutical sector. In the discussions, it was noted that in the Treaty "plant genetic resources for food and agriculture means any genetic material of plant origin of **actual** or **potential** value for food and agriculture".
- Are prior informed consent (PIC) and mutually agreed terms (MAT) currently required under any ABS laws for MO and/or INV? And if so, what is the consequence on the exchange of these organisms (is their exchange hindered, what has been the impact on food and agriculture, food security, etc.). In developing ABS legislation, countries should avoid developing any measures that could hinder the exchange of MO and INV. In view of the countries' interdependency with respect to MO and INV, and the difficulty to identify the organisms' country of origin, it was discussed that perhaps the best way to exchange MO and INV would be through a multi-lateral system.
- There is a need to better understand traditional knowledge and the practices and innovations of indigenous peoples and local communities regarding the management of MO and INV.

Possible way forward

1. Completing our task via an electronic consultation with the group members:
   - Check whether the original list of distinctive features needs to be completed from a MO and INV perspective.
   - Check and complete the draft explanatory notes with regard to the distinctive features of MO and INV (A1-B2 already done).
2. Circulate the draft explanatory notes to different stakeholders using the network of the different group members.
3. Issues to be discussed with the Secretariat:
   - Timeframe.
   - The need for a physical meeting.

<u>PLANT GENETIC RESOURCES</u>

- ABS laws may take into account the Treaty.
- Key questions:
    - Relationship between the Nagoya Protocol and the Treaty, in particular when implemented into national legislation
    - Country of origin in case of /provider country question

- National laws or international agreements for plant variety protection (e.g. International Convention for the Protection of New Varieties of Plants)
- National law and possible expansion of Annex 1 of the Treaty
- Other agreements between countries on certain crops exist (e.g. cacao in SoutheEast Asia)
- Scope of laws
  - Temporal scope
  - Genetic material and/or information

B. OUTPUTS FOR EXPLANATORY NOTES TO THE ABS ELEMENTS

1. Considerations for developing, adapting or implementing access and benefit-sharing measures for genetic resources for food and agriculture (ABS Elements, Ch.3)

1.1 Assessment of the concerned subsectors of GRFA, including their activities, socio-economic environments and use and exchange practices (ABS Elements, III.1)

As a first step in developing, adapting or implementing ABS measures for GRFA, the ABS Elements list various aspects governments may wish to take into account, including

- the distinctive features of the subsector relevant to use and exchange of GRFA;
- different forms of utilization of the subsector and variations within the subsector;
- existing legal, policy and administrative measures, including use and exchange practices;
- possible implications of the scope, including subject matter and temporal scope of ABS measures on the subsector;
- flows of germplasm, including international flows, within the different subsectors, and
- possible gaps in ABS measures.[14]

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES

- Working Group recommends to consider submissions by Members and observers to further elaborate distinctive features
- Veterinary/sanitary law, breeding law, food safety law, identification of products, bio-cultural community protocols, environmental impact, transportation/welfare
- Most geneflow is N–N and N–S; no substantial demand is foreseen for S material in the N (which may possibly change due to climate change).
- Insufficient assessment/understanding of implications of ABS measures on the sector. Impact assessment on livestock sector of ABS is needed.

FOREST GENETIC RESOURCES

- See Aspects of forest genetic resources to consider when dealing with Access and Benefit-Sharing (CGRFA/WG-FGR-3/14/Report, Appendix D):
  - 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

[14] ABS Elements, paragraph 15.I.

economic value from a material transfer (maybe less if the seed could be sold for increased value, but the economic benefit of the seed would be minimal).

- Unlike agricultural crops, a forest does not need a new crop every year; there is no large market for seed sales as is the case for maize, beans, rice, etc.
- Disease resistance is a key trait for which exotic germplasm is often needed. Aspects to consider:
  - sometimes the benefits are simply establishment of a healthy forest, with no plans for harvest in some cases;
  - often the disease for which resistance is sought through breeding programmes originates from the same region of the germplasm (i.e. the problem originated from the source of the resistance).

- Scope of FGR/"utilization"
  - According to FAO, *Forest genetic resources (FGR) are 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. They are crucial to the adaptation and protection of our ecosystems, landscapes and production systems, yet are subject to increasing pressures and unsustainable use. Conservation and sustainable management of FGR are therefore a must to ensure that present and future generations continue to benefit from forests and trees.*
  - According to the first SOW report on FGR, only 8 000 forest tree species were inventoried on an estimated total of 60 000 species. This means that there is a huge potential of utilization, in particular for species and genetic resources that are not identified yet. National reports on FGR illustrate the high diversity of views on FGR.
- According to countries, there are several definitions of forests and other woodlands, that may differ from FAO's definition. This may have an impact on the genetic resources that are considered at national level as FGR or not.
- Issues to be considered include whether FGR-specific ABS measures should apply to all "forest genetic resources" or a subcategory, such as "forest genetic resources for food and agriculture" that could either focus exclusively on FGR that contribute directly to food security or also embrace other primary forestry products. 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 (multi-functional management) or their originally envisaged purpose will change, which may raise the question of how access to FGR for utilization may be regulated in such cases.
- More clarity could be provided on non-timber food products (NTFP): seeds, wild fruits, mushrooms, etc.
  - *NB: the forest wild animal genetic resources are not in the mandate of the FGR working group*
  - In the ABS context, this poses a challenge because these materials may be sold. There is a question concerning which NFTP (mushrooms, honey etc.) fall under FGR. We noted that these products are important for food security but not necessarily taken into account in other GRFA sectors.
- There are existing legislation and practices on FGR at national level prior to the Nagoya Protocol.
- The part of public forest is very important in many countries. It means that forest management may directly involve public authorities as owner, manager, wood seller, public research funder, in parallel to the public responsibility of forest law and regulation preparation, enforcement and control.

PLANT GENETIC RESOURCES:

- The Treaty considers not only monetary benefit-sharing but also non-monetary benefit-sharing, e.g. sharing of information.
- Capacity building is important as some stakeholders lack capacity to use information

1.2 Identification and consultation of relevant governmental entities and non-governmental stakeholders holding, providing or using GRFA (ABS Elements, 3.II)

The ABS Elements emphasize the importance of consultations with relevant governmental and non-governmental stakeholders.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES

- Breeders, pastoralists and their associations, livestock keepers, non-governmental organization (NGOs), trade, Ministries (e.g. of agriculture/husbandry, veterinary service, environment (especially where competent authority for Nagoya Protocol is under Environment Ministry), AnGR research centres/conservation facilities of Ministries, National Focal Points for AnGR, education, research and universities, extension services should be consulted
- Pastoralists and their associations, livestock keepers, communities with traditional knowledge are specific holders of traditional knowledge associated with AnGR
- Little awareness raising on ABS for AnGR has been done

FOREST GENETIC RESOURCES:

- Give a purpose and aim for specific consultations in the forest sector
- List of forest stakeholders: forest owners and managers, indigenous communities, wood industry, academia, NGOs, national or subnational governments and forest public organizations, local communities, breeding cooperatives or networks, regional or global research networks, as examples.
- National Forest Programmes exist in 170 countries and already include the diversity of stakeholders at national levels. Possibility to build on this base.

PLANT GENETIC RESOURCES:

- Mapping of stakeholders is a very important first step so as not to forget a group in consultations.
- Do not exclude relevant user groups
- Need to inform stakeholders about processes intended.
- There are very many stakeholders in PGRFA and they are very different: farmers, indigenous and local communities, scientists, breeders, taxonomists, private sector industry, botanical gardens, genebanks.

1.3 Integration of ABS measures with broader food security and sustainable agricultural development policies and strategies (ABS Elements, 3.III)

The ABS Elements stress the importance of coordinating different policy areas and goals and integrating them into a broader and consistent agriculture strategy. The integration of ABS measures with broader food security and sustainable agricultural development policies and strategies is particularly important, as those responsible for ABS will not always be those in charge of food security and sustainable agricultural development.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- In many countries ABS laws/ regulatory measures stand alone, do not specifically consider typical users of AnGR and their practices and may therefore sometimes create difficulties for users of AnGR. Agricultural polices/ laws, on the other hand, usually do not consider ABS requirements.

- In the development of ABS measures, the agriculture sectors should be involved from the onset. Countries need to strengthen communication between concerned ministries and stakeholders to improve development and implementation of policies and laws.

FOREST GENETIC RESOURCES:

- Forest restoration and climate change adaptation.
- Sustainable forest management of UN Forest Partnership and its seven goals, including biodiversity conservation.
- Discuss the food security dimension. Forest as an integral part of food security. Take language from the FAO report "Forest and food security" and policy guidance note "Strengthening forest policy for better food security and nutrition results" (2017).
- SDG 2.5 and 15. 5 and/or 6.
- Connection to ecosystem services (soil protection and improvement, protecting water resources, regulation of microclimates, carbon sequestration). Considered that most of the forest investment is wood production with the FGRs considered a biological resource. This makes it difficult to mobilize funding in forest that cannot be used for wood. Need to generate funding for functions other than wood production. Use of FGR for other functions than wood production is an area that will be increasingly important in the future.

PLANT GENETIC RESOURCES:

- National legislative, administrative and policy measures of subsector are relevant.
- Integration of ABS across various sectors
- ABS laws and practices exist in many countries for subsector.
- ABS laws could support innovation, rather than hinder access to genetic resources.
- Need to consider many existing regional strategies or networks, such as the European Cooperative Programme for Plant Genetic Resources (ECPGR).
- Consider other strategies in country: e.g. seed sector regulations, biofuel strategies.
- Possible conflicts of interest exist among:
    - Agriculture
    - Environment
- Possible solutions to such conflicts:
    - create inclusive mechanisms; e.g. in Germany consent by agriculture ministry is required if agriculture sector is impacted by ABS measures led by environment
    - create a new body that integrates all interests
- The goal: clear structures are required for users.
- Need to map all relevant bodies in country on governmental/institutional side.
- Governments and institutional stakeholders need to be included.
- Economic impact and utilization strengthen the conservation of genetic diversity in plants, it is not a conflict.
- Mainstreaming biodiversity is important in PGRFA.

1.4 Consideration and evaluation of options for ABS measures (ABS Elements, 3.IV)

The ABS Elements suggest considering and evaluating options of ABS measures based on the above steps 1.1 to 1.3

1.5 Integration of implementation of ABS measures into the institutional landscape (ABS Elements, 3.V)

The ABS Elements consider the use and adaptation of existing administrative structures, administrative procedures and sectoral practices for the administration of ABS as this may facilitate the smooth operationalization and integrated implementation of ABS measures.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Institutional structures are diverse. AnGR are usually covered by Ministries of Agriculture or Ministries of Animal Resources/Animal Husbandry; most countries have veterinary services and National Focal Points for AnGR. Most of these lack legal procedures/are not well equipped to incorporate ABS.
- In many countries, there is no subsector-specific approach to ABS.

FOREST GENETIC RESOURCES:

- Global certification schemes on sustainable forest management.
- EU Standing forestry committee, Paneuropean Forest Europe, etc.
- Networks on FGR, global associations: Interconnecting Forests, Science and People (IUFRO), Central American and Mexico Coniferous Resources Cooperative (CAMCORE), European forest genetic resources programme (EUFORGEN), The sub-Saharan African Forest Genetic Resources Programme (SAFORGEN), etc.

1.6 Communication of, and awareness-raising regarding, ABS measures for potential providers and users of GRFA (ABS Elements, 3.VI)

The ABS Elements stress the importance of communicating ABS measures to potential providers and users of GRFA.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Training, workshops, conferences, communication with stakeholders, publications, newsletters, media, radio, social media.
- Users want partners in provider countries to be aware of their national ABS.
- BCPs and ABS elements are awareness-raising tools.

FOREST GENETIC RESOURCES:

- Regional Commissions, Forest Commissions.
- IUFRO.
- Networks of FGR.

1.7 *Ex-ante* assessment and monitoring of the effectiveness and impact of ABS measures for GRFA (ABS Elements, 3.VII)

The ABS Elements consider scenario-based testing and monitoring of ABS measures as tools to anticipate/identify effects of ABS measures. Agreed indicators and mechanisms for stakeholder feedback may be useful in this regard.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- There is a need for *ex-ante* cost–benefit analysis for development of ABS measures and to identify what ABS regulation would do for users (breeders/producers) in the country as well as for providers of AnGR. To our knowledge this has not been done.
- Currently, in many countries there is no impediment to geneflow North-South and South-North because in the absence of ABS measures or due to exemptions this geneflow occurs based on private contracts only. Implementing ABS measures may mostly (and possibly negatively) affect South-South exchange of breeding stock as many Southern countries are considering or have already implemented ABS measures. While low demand for geneflow from South to North is predicted, research projects may well involve partners from North and South. ABS measures would then also apply to South-North gene flows.

2. Access and benefit-sharing for genetic resources for food and agriculture: the international legal framework (ABS Elements, Ch.4)

The ABS Elements refer to three international instruments, which are part of the global framework for ABS for genetic resources: the CBD, the Nagoya Protocol and the Treaty. The Pandemic Influenza Preparedness (PIP) Framework adopted in 2011 by the World Health Assembly also forms part of this framework. In addition, the General Assembly of the United Nations decided in 2015 to develop an international legally binding instrument under the United Nations Convention on the Law of the Sea (UNCLOS) on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction which should also address "questions on the sharing of benefits"[15]. The Treaty is a specialized international ABS instrument that addresses plant genetic resources for food and agriculture.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Soft-law instruments/international frameworks exist: GPA-AnGR (reaffirmed and amended GPA). The Funding Strategy for the Implementation of the GPA-AnGR could play a more important role for benefit-sharing, if strengthened/better financed.
- Community Protocols may assist in identifying links between customary law and legal frameworks.

FOREST GENETIC RESOURCES:

- Possible overlaps with the Treaty (citrus, apple, coconut etc.)
- AEGIS, use of SMTA for non-Annex 1 material

PLANT GENETIC RESOURCES:

- Treaty qualifies as "*specialized international access and benefit-sharing*" in the sense of Article 4.4 of the Nagoya Protocol
- The scope of the Treaty: PGRFA
- The scope of the Treaty's Multilateral System of Access and Benefit-sharing:
    - Annex 1 crops and Article 15 collections
    - Access solely 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
- Commission and its Global Plan of Action need to be respected.
- Need to respect the decisions of the Governing Body of the Treaty.
- National ABS approaches should be in line with relevant obligations under the Treaty and Nagoya Protocol.
- ABS laws of Contracting Parties of the Treaty need to be in in harmony with the Treaty.

[15] A/RES/69/292.

- The non-monetary benefit-sharing of the Treaty needs to be considered, e.g. information sharing facilitated by Global Information System for PGRFA of Treaty or other systems, such as FAO WIEWS or GENESYS or national online germplasm database management systems.

3. Rationale of access and benefit-sharing measures for genetic resources for food and agriculture (ABS Elements, Ch.5)

ABS measures frequently state their rationale. According to the ABS Elements, "ABS measures may be instrumental in furthering the achievement of food security and improving nutrition. (…) Therefore, ABS measures aimed at achieving food security and the conservation of GRFA should aim to facilitate and actively encourage the continued use and exchange of GRFA and benefit-sharing".

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Current and improved access is a first step to enhance production output and efficiency and contribute to food security and nutrition. It may also increase resilience of production systems and conservation through use.
- Various forms of benefit-sharing could enhance efforts in conservation and sustainable use of AnGR.
- AnGR value is beyond monetary benefit (heritage and cultural value, ecosystem service, etc.).

FOREST GENETIC RESOURCES:

- See above, 1.3

4. Elements of access and benefit sharing measures for genetic resources for food and agriculture (ABS Elements, Ch.6)

The ABS Elements stress the need for flexibility to allow administrators to adjust the implementation of ABS measures to new and newly identified situations and challenges. ABS measures should therefore allow for an evolutionary implementation approach that allows improvements of the operation of the ABS system through practice, self-perfection and innovation.

The ABS Elements suggest to address, in designing legislative, administrative or policy measures for ABS that reflect the special needs of GRFA, the following issues to facilitate the domestic implementation of ABS for the different subsectors of GRFA:

- institutional arrangements;
- access to and utilization of GRFA;
- access to traditional knowledge associated with GRFA;
- fair and equitable sharing of benefits; and
- compliance and monitoring.

4.1 Institutional arrangements (ABS Elements, 6.I)

The ABS Elements point out that ABS measures often specify the institutional arrangements for the management of ABS. Depending on the structure of a country, the form of government, the international ABS instruments to which the country is a Party and, where relevant, the jurisdictional division of responsibility and depending on the ABS measures chosen, one or several authorities may be tasked with the administration of ABS measures.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Institutional arrangements are country specific.
- Institutional arrangements should be set up for GRFA to reflect agriculture sector specificities.

FOREST GENETIC RESOURCES:

- Very much depends on where forestry administrations are located within the national structure (environment vs agriculture).
- Important to keep some flexibility for each country and ensure adequate coordination with other international obligations (e.g. CITES).

4.2 Access to and utilization of GRFA (ABS Elements, 6.II)

According to the ABS Elements, it is necessary to specify, in developing, adapting or implementing ABS measures for GRFA:

(i) the categories of genetic resources covered by the access provisions;
(ii) intended uses triggering the application of access provisions;
(iii) the authorization procedures applicable, depending on the category of genetic resource and the purpose for which the resource is to be used.

(i) Categories of genetic resources covered by access provisions (ABS Elements, 6.II.i)

The ABS Elements address five different "categories" of genetic resources covered by access provisions and these categories may or may not require some more explanation or clarification when it comes to the different subsectors of GRFA.

- Temporal scope of access measures to GRFA
- Genetic resources provided by countries of origin/countries that acquired them in accordance with the CBD
- Privately versus publicly held genetic resources
- Genetic resources versus biological resources
- Genetic resources held by indigenous peoples and local communities

Temporal scope of access measures to GRFA

The ABS Elements refer to an international debate about the temporal scope national ABS measures could or should have. In this context, the extent to which GRFA of the different subsectors have been accessed/utilized prior to the entry into force of the CBD (29 December 1993) and the Nagoya Protocol (12 October 2014) may be relevant.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Since the Second World War, intensive trade in animals and their reproductive material has occurred without ABS restrictions.
- It would be difficult or impossible to trace back the country of origin of AnGR. We suggest to not track before NP/national ABS laws entered into force.

FOREST GENETIC RESOURCES:

- Not always easy to provide documentation of accurate dates of access.
- Length of forest generation cycle (two centuries to grow an oak for example) has a tremendous impact on results of research on FGR. Generations of forest researchers are more rapidly replaced than forest tree generations. Multiple individuals and generations involved in the research work necessitate long-term sharing of data. Unanticipated changes in economy and society may also arise and change the purpose of research. You may compare the most suitable tree species to build vessels in a century and finally use the wood for other purposes in the next century, because in between the coal revolution permitted the building of ships in steel.
- Many GR could be found *ex situ* but only for temperate trees (tropical trees are often recalcitrant and can only be conserved *in situ*).

PLANT GENETIC RESOURCES:

- Consider the implications on pre-existing collections (material collected before Nagoya or the Treaty).
- Transitional provisions are required.
- Retro-activity is in most countries not an option.
- Consider that under some national ABS measures, a new use of material accessed prior to the entry into force of the Treaty or Nagoya Protocol may activate ABS requirements in relation to material accessed prior to the entry into force of these instruments.

Genetic resources provided by countries of origin/countries that acquired them in accordance with the CBD

The ABS Elements note that Parties to the CBD will usually apply their access measures to genetic resources for which they are the country of origin or which they have acquired in accordance with the CBD. "Country of origin of genetic resources" means the country that possesses those genetic resources in *in situ* conditions. "*In situ* conditions" means conditions where genetic resources exist within ecosystems and natural habitats and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

The ABS Elements further note that "in the case of many GRFA, it may be difficult to determine with certainty the country of origin. GRFA have been widely exchanged across regions, countries and communities often over long periods of time. Many different stakeholders, including indigenous and local communities, farmers, researchers and breeders have contributed to the development of GRFA, in different places and at different points in time".

As noted by the ABS Expert Team, at its Third Session, whoever wishes to "utilize" a genetic resource previously generated through "utilization" with PIC, may require separate PIC from the country that granted the first PIC. The ABS Expert Team noted that this could in the future create "permit pyramids" and complicate the use of GRFA for research and development. Breeders could choose to avoid, rather than use, conserve and further improve GRFA. The ABS Expert Team recalled in this context its suggestion that "governments consider distinctive solutions to this issue, including through supporting the development of subsectoral standards building on current practices, such as the breeders' exemption, or putting in place multilateral solutions" .

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Historically, the around 40 species of AnGR have been widely exchanged beyond their centres of domestication across communities and regions, often over long periods of time. They acquired their distinctive features in different countries and production environments. The identification of the country of origin of a specific breed might therefore often be difficult, if not impossible. The Commission has agreed definitions on native, locally adapted and exotic breeds, with the country having conservation commitment for native locally adapted breeds.
- Within the livestock sector, there is no practice and no experience so far in cascades of countries of origin (PIC cascade), as commercial trade in breeding animals is based on breeding values and does not consider origins. In addition, synthetic breeds and crossbreds did not consider origin. Breed introgression takes about 20 years before a final product can be on the market. The more breeds are used, the less probable is a need for conservation, therefore use should be encouraged. It is common practice that the purchase price of an animal covers current and future uses, including for breeding unless prohibited through special clauses. We suggest keeping it like this.

FOREST GENETIC RESOURCES:

- Generally speaking, with the exception of some species, not too difficult to identify the country of origin (wild populations, few exchanges).
- No extensive breeding programme combining resources from a wide range of provenance over time has taken place for forest trees.

PLANT GENETIC RESOURCES:

- A definition of "country of origin" is contained in the CBD (Article 2). Clarification may be desirable as to the country of origin of crop plants developed over time in various countries.
- The "centre of origin", as defined by the Treaty (Article 2), is different from "country of origin", as defined in the CBD.
- "Distinctness" is defined by the International Convention for the Protection of New Varieties of Plants).
- This is a task for the Commission to better clarify

Privately versus publicly held genetic resources

The ABS Elements note that ABS measures need to be clear as to whether they apply to privately or only to publicly held GRFA and may also need to clarify the hierarchy or relationship of different proprietary, including intellectual property, and quasi-proprietary and other rights related to genetic resources.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Nearly all livestock is kept under private ownership. Publicly kept AnGR are usually public *ex-situ* conservation or breeding schemes/facilities.
- Many legal systems protect the right to property or the right to own property and thus do not allow for the arbitrary deprivation of property. However, it is generally recognized that the use or (international) sale of property may be restricted, e.g. for the protection of cultural heritage.

FOREST GENETIC RESOURCES:

- Access to FGR takes place mainly from public entities.
- IP protection plays a less important role for most FGR than for crop genetic resources.
- Privately held collections are not very numerous at world level and typically held by the forestry industry for reforestation purposes (clearly commodity/biological resources).
- Importance of public research sector (to compare with private research) facilitates cooperation and collective management of ABS measures. Many partnership examples leading to common codes of conduct, model clauses and SMTA adapted to FGR.

Genetic resources versus biological resources

The Nagoya Protocol addresses the use of genetic resources for research and development ("utilization"). Some countries have decided to cover biological resources and their use beyond research and development in their national ABS measures. The ABS Elements note that governments should reflect on whether the inclusion of biological resources in ABS measures and their use beyond utilization has any effect on the use of and access to GRFA. The ABS Elements to this also in the context of "intended uses".[16]

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Biological resources and genetic resources mostly go together. Animals sold as genetic resources are those sold for breeding. One can always breed with animals or parts of animals sold for other purpose – under some ABS laws (or ABS agreements) this would be considered a "change of intent" and trigger specific benefit-sharing requirements.
- If biological resources (animals sold for slaughter) are covered by ABS it will obstruct trade.

FOREST GENETIC RESOURCES:

- Use of reproductive material for plantation may sometimes be considered as research. Not always easy to make a clear distinction upfront since something acquired for direct plantation can be used later on in selection/breeding programmes.

[16] ABS Elements, paragraphs 42-45.

PLANT GENETIC RESOURCES:

- Genetic resources are part of biological resources.
- If ABS laws are going beyond genetic resources and cover biological resources, this has a major impact as simple acts of commercialization of harvested products could trigger ABS requirements.
- Consider the implications as many biological resources are exchanged.
- Consider that the type of use is relevant for triggering benefit-sharing implications.

Genetic resources held by indigenous peoples and local communities

The Nagoya Protocol also addresses genetic resources held by indigenous peoples and local communities. In the case of genetic resources held by indigenous peoples and local communities, the Nagoya Protocol requires Parties to take measures, in accordance with domestic law, as appropriate, with the aim of ensuring that the PIC or approval and involvement of indigenous peoples and local communities is obtained for access to genetic resources where the communities have the established right to grant access to such resources.

The ABS Elements recommend that national ABS measures clarify "how PIC or approval and involvement of the indigenous [peoples] and local communities may be obtained, taking into consideration [indigenous] peoples and local communities' customary laws, community protocols and procedures, as applicable".

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Community-based decision to sell is similar to breeder's decision to sell. Community cohesion and decision around animals is stronger than for PGR.
- In the case of AnGR, community protocols serve in some countries as a tool for establishing the connection between communities and breeds, and identifying the relevant customary institution that would grant PIC. Under the Nagoya Protocol, Parties shall take measures to raise awareness of the importance of genetic resources and traditional knowledge associated with genetic resources and related ABS issues, including through awareness-raising of community protocols and procedures of IPLCs.
- Communities are in some countries the entities that continue to develop and conserve the breeds and need support to maintain their livelihoods (non-monetary benefit-sharing), in particular for the value their breeds add to products.

(ii) Intended uses triggering the application of access provisions (ABS Elements, 6.II.ii)

Research and development on the genetic and/or biochemical composition of GRFA

The Nagoya Protocol provides that "access to genetic resources for their utilization shall be subject to prior informed consent by the country providing such resources that is the country of origin of such resources or that has acquired the genetic resources in accordance with the Convention (…)" unless otherwise determined by that Party . "Utilization of genetic resources" means "to conduct research and development on the genetic and/or biochemical composition of genetic resources, including through the application of biotechnology (…)".

Among the existing national ABS measures, some are limited to "utilization" of genetic resources, i.e. to their use in research and development. Other ABS measures require PIC also for other uses; these measures often refer to "biological resources", meaning that the resources are not used for their genetic composition, but as an end product or commodity.

The ABS Elements conclude that a "broad definition of purposes that would capture a whole range of activities that typically and regularly happen with agricultural commodities in the course of food production, will obviously imply that access provisions would apply to a possibly large number of transactions where for the time being the assumption of buyers of such commodities in most countries might be that in such cases the sales contract manifests the ABS agreement".

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- We consider breeding as R&D. AnGR as natural and biological resources: other uses are related to food and fibre production, reproduction/multiplication, pelt, medicinal/biotech uses, traction, cultural, pleasure, sports, wealth and status, etc.
- ABS measures could clarify if the sale of breeding animals, semen, embryos etc. implies that their value as a genetic resource is already reflected in their price and that the buyer will therefore be free to use them for further research and breeding or if their use for research and breeding triggers ABS requirements.
- Uses/commodities derived from AnGR should not fall under ABS as this would impede their marketing.
- If commodities are used as AnGR, ABS requirements may apply.
- Countries may ensure protection of traditional knowledge associated with AnGR through protection of trademarks, labels, geographical indications or other means of protection.

FOREST GENETIC RESOURCES:

- The long generational intervals make it sometimes difficult to anticipate technological development that could lead to a completely different and new field of research than the one initially planned at the moment of access
- Provenance testing is such a long-term research process that many tests whose maintenance is no longer subsidized within projects become abandoned and sent back to common forest management, with loss of information on the genetic resources that were initially used.

PLANT GENETIC RESOURCES:

- In plants, sales contracts are not ABS agreements.
- If commodities are used as genetic resources ABS requirements may be triggered.

Development of genetic resources in the course of agricultural production

The ABS Elements note that certain typical uses of GRFA, for example the growing of seeds for subsequently using the harvested products for human consumption, do not qualify as “research and development on the genetic and/or biochemical composition of genetic resources”.

However, many GRFA are being shaped, developed and improved through their continued use in agricultural production. Where “research and development” and agricultural production occur in tandem, it may be difficult to distinguish “utilization” from activities related to the production of agricultural products for sale and human consumption. The ABS Elements list examples of such grey areas:

- selection and reproduction of plant genetic resources by a farmer or farming community based on phenotypical traits and not entailing any genetic methods;
- fish farming that serves the purpose of producing fish for human consumption and simultaneously contributes, through natural selection due to the hatchery environment, to the genetic development and, in fact, domestication of the fish;
- provenance trials that help to identify tree seedlings best adapted to the conditions of a specific planting site, which may simply serve the purpose of reforestation and the production of timber on sites that are similar to the test environment but may also be important for the planned breeding within and between species;
- use of cattle embryos or bovine semen for reproduction and, ultimately, diary or meat production, which may or may not entail aspects of research and development.

The ABS Elements stress in this context, that “further technical guidance will be important to facilitate the implementation of national ABS measures”.[17]

[17] ABS Elements, paragraph 48.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Need to clarify the meaning of "utilization" for AnGR including through positive and negative examples (e.g. breeding, characterization (genomic, phenotypic), basic research on traits; sole trading of AnGR/reproductive material/reproductive biotechnology (artificial insemination, embryo transfer); production of animals for meat production/ human consumption).

FOREST GENETIC RESOURCES:

- Work to be done in the Intergovernmental Technical Working Group on Forest Genetic Resources.

PLANT GENETIC RESOURCES:

- Need to define which activities trigger ABS regulations.
- Traditional and customary practice in exchanging PGRFA needs to be taken into account.
- Farmers as breeders may need special consideration.
- Farmers accessing MLS of Treaty is presently also discussed.
- Research and development needs a clear definition so the difference to commercial use becomes evident.

Research and development for food and agriculture

The ABS Elements note that in the light of Article 8(c) of the Nagoya Protocol, governments could consider treating the access to and utilization of genetic resources differently if intended to contribute to food and agricultural research and development. Special procedures could apply to (specific subsectors of) GRFA or a special authority could be responsible for ABS for (specific subsectors of) GRFA. However, such special treatment would require clear definitions and it is important to note that a distinction between food/feed and non-food/feed agricultural products faces the difficulty that at the stage of research and development it will often be unknown for which purpose the outcome will end up being used.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Research and development aiming to improve efficiency/animal health/genetic potential in the livestock sector are useful for global food security. R&D to support ecosystem services is a public good.
- The entire livestock sector and breeding work with AnGR contribute to global food security and agricultural development.
- Non-agricultural uses: there are cases where milk is being used for cosmetics and medicinal uses.

FOREST GENETIC RESOURCES:

- Main use is not food or feed production.
- Sector is characterized by the situation of access of FGR for multiple uses (multifunctional sustainable forestry).

Commercial/non-commercial research and development

The ABS Elements note that ABS measures sometimes distinguish between commercial and non-commercial utilization of genetic resources. Non-commercial utilization often benefits from softer authorization requirements and simpler authorization procedures. While PIC is often required for both forms of utilization, non-commercial users are sometimes given the option not to negotiate the sharing of monetary benefits immediately, if they agree to get back to the provider and negotiate monetary benefit-sharing once their intent changes.

While research and development in the agriculture and food sector might often qualify as commercial, the distinction between commercial and non-commercial research and development could be relevant,

for example, for taxonomic research used to build frameworks for distinguishing pests and pathogens and alien taxa from indigenous, or beneficial or harmless taxa.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Non-commercial research is done to develop methods for public control purposes: veterinary checks, food safety and traceability; research to improve methods on genetic improvement/selection/research on adaptation and disease resistance of AnGR.
- AnGR public research is fundamental for the sector and has moved to precompetitive research on methods or sequencing/genotyping that are freely available.
- Commercial research is focused on utilizing methods of genetic improvement and husbandry, often using own genetic stocks.

FOREST GENETIC RESOURCES:

- State-funded breeding research is very important. Private/commercial research on FGR is quite limited.

Exemption of specific activities

The ABS Elements note that ABS measures may exempt specific utilizations of genetic resources from any ABS requirements. For example, the exchange of genetic resources within and among indigenous peoples and local communities and among small-scale farmer-breeders as well as exchange practices within nationally recognized research networks could be exempted from any access authorization procedures and, possibly, the ABS measures as such.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Countries are under no obligation to restrict access to AnGR.
- Moreover, many countries exempt from ABS measures traditional use an exchange of GR, incl. AnGR, within and among indigenous peoples and local communities and among small-scale farmer-breeders.
- ABS measures may exempt AnGR from ABS measures.

FOREST GENETIC RESOURCES:

- Exchange among IPLCs.
- Exemption in case of risks of GR extinction (endangered).
- Traded resources.
- Specific considerations to be envisaged for existing pooling arrangements/networks/cooperative programmes.

(iii) Authorization procedures (ABS Elements, 6.II.iii)

The ABS Elements note that there is a wide range of options as to how authorization procedures for access to genetic resources may be designed. Options include fast-track PIC procedures, implicit PIC, standardization of PIC and mutually agreed terms (MAT) as well as framework agreements that address exchanges of GRFA within the framework of collaboration or partnership agreements. Some of these options may already be common in similar rules or instruments applying to the exchange of GRFA in some of the subsectors and could therefore be used as a model.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Related to 1.5 and 4.1.
- Private sales contracts may contain conditions like in MAT; conditions are as diverse as the contracts. These contracts are binding for their parties only.

- If a country chooses not to exempt AnGR, the authorization depends on who is the owner/provider of AnGR.
- To improve efficiency, some degree of standardization of PIC and MAT is suggested for this subsector.

FOREST GENETIC RESOURCES:

- Specific considerations to be envisaged for existing pooling arrangements/ networks/ cooperative programmes and possibly translated in framework agreements.

4.3 Access to traditional knowledge associated with GRFA (ABS Elements, 6.III)

In accordance with domestic law, each Party of the Nagoya Protocol shall take measures, as appropriate, with the aim of ensuring that traditional knowledge associated with genetic resources is accessed with the PIC or approval and involvement of the indigenous peoples and local communities holding such traditional knowledge, and that MAT have been established. It is important to note that these requirements apply for traditional knowledge associated with genetic resources irrespective of whether genetic resources are being made available at the same time.

The Protocol requires that, in accordance with domestic law, Parties take into consideration indigenous peoples' and local communities' customary laws, community protocols and procedures with respect to traditional knowledge associated with genetic resources. National focal points shall provide for applicants, where possible, information on procedures for obtaining PIC or approval and involvement, as appropriate, of indigenous peoples and local communities.

The ABS Elements note that "further guidance may well be required as to how PIC or approval and involvement by indigenous peoples and local communities may be obtained. In the case of traditional knowledge associated with GRFA, much of this knowledge may be shared by several communities and national measures need to clarify how in such cases a fully valid approval may be obtained."

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Procedures for involving IPLC in granting TK to AnGR are diverse and under development in many countries.
- Countries should involve IPLCs in decisions that concern their TK associated with AnGR and respect and support community protocols or other institutions developed by the communities.
- In cases where several communities share TK on AnGR and only one has granted PIC, a distribution mechanism for BS may be developed.
- Community protocols are useful to further *in situ* conservation of locally adapted breeds; *in situ* is prerequisite for granting access in future.

4.4 Fair and equitable sharing of benefits (ABS Elements, 6.IV)

(i) Scope of benefit-sharing obligations (ABS Elements, 6.IV.i)

The ABS Elements note that many GRFA have been collected long before the application of national ABS measures. For these resources, the question is therefore no longer whether or under which conditions they may be accessed as access has already occurred. The ABS Elements conclude that ABS measures should be clear as to whether they require the sharing of benefits arising from new or continued uses of genetic resources or associated traditional knowledge accessed prior to the ABS measures having been put into place.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Many AnGR were not "collected" under ABS rules, but bought prior to the entry into force of any ABS rules, including for establishing national public conservation and breeding farms.
- AnGR, including DNA and blood samples, acquired prior to the entry into force of ABS regimes still exist.

- We are not aware of existing benefit-sharing arrangements for AnGR or associated traditional knowledge accessed prior to the existence of ABS measures.
- It is difficult, if not impossible, to track progeny back to times prior to the entry into force of national ABS measures or NP and is not recommended.

(ii) Fair and equitable (ABS Elements, 6.IV.ii)

The ABS Elements stress that the fair and equitable sharing of benefits arising from the utilization of genetic resources is a key component of ABS measures. They also point out that

> "bilateral case-by-case negotiations of MAT for GRFA may entail high transactions costs and therefore not be practical. Providers and users of GRFA may therefore wish to rely on model contractual clauses, codes of conducts, guidelines, best practices and/or standards developed for their sector or subsector".[18]

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Well established practices/contracts for the exchange of AnGR among breeders/producers and the breeding industry.

FOREST GENETIC RESOURCES:

- Some research programme have put in place some model clauses/SMTA such as Treebreedex, Trees4Future or Noveltree in Europe.
- National tree seed centre has contractual clause and SMTA.
- CSIRO, The Australian Tree Seed Centre
- Mexico.
- CATIE.
- SPRIG.
- DNA depository center in Austria has MTA (Evoltree).
- Inventory of ABS rules on FGR – GENETREE.

(iii) Beneficiaries (ABS Elements, 6.IV.iii)

The innovation process for many GRFA is usually of incremental nature and based on contributions made by many different people in different places at different points of time. Most products are not developed out of an individual genetic resource, but with the contributions of several genetic resources at different stages in the innovation process.

The ABS Elements consider various benefit-sharing options to accommodate the incremental nature of the innovation process typical to many GRFA, including the pooling of benefits in a national benefit-sharing fund and multilateral solutions, e.g. the Benefit-sharing Fund under the Treaty. The feasibility of such benefit-sharing options may vary from subsector to subsector.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Incremental nature and based on contributions made by many different people in different places at different points of time. Benefits of this exchange accrued to many owners at each step in the breeding process.
- High producing AnGR are available on a commercial basis; this supports food security. Need for increased access, availability and affordability of adapted and improved genetics for small-scale farmers. Example of benefit-sharing mechanism at national level: government returns improved and good sanitary state animals to the original breeders.

[18] ABS Elements, paragraph 68.

- Benefit-sharing at global level: Funding Strategy for the implementation of the Global Plan of Action for Animal Genetic Resources and possibly additional instruments to support community-based conservation

FOREST GENETIC RESOURCES:

- No use of IPR for protection of forest trees
- Subsidized Canadian forest research projects have to justify their benefit sharing strategy, technology transfer and benefit sharing pools.
- Several forest breeding cooperatives throughout the world.

(iv) Monetary and non-monetary benefits (ABS Elements, 6.IV.iv)

The ABS Elements acknowledge the importance of sharing monetary and non-monetary benefits and note that the terms and conditions of such benefit-sharing will often depend on the particularities and specificities of the subsector, the species, the concrete intended use, etc.

Considering the importance of so-called non-monetary benefits of GRFA, such as characterization data, genetic information, research results, capacity-building and technology transfer, ABS measures for GRFA could identify non-monetary benefits that are of particular relevance to specific subsectors of GRFA and should therefore form part of a benefit-sharing agreement.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Cooperation in research, information for management of genetic material sold, improved genetics, characterization data, estimated breeding value, information on husbandry practices, capacity development, extension and technology transfer, improved conditions for *in situ* conservation (access to grazing for pastoralists).
- Many of the knowledge products and data are readily available

FOREST GENETIC RESOURCES:

- Long-term storage provided as a benefit for local communities.
- Common access to information within Treebredex and Tree4future – public research institute driven.
- Non-monetary benefits derived from the use of FGR benefit other sectors (spillover effects) than the forest sector (pollination, water regulation, soil development, carbon sequestration and mitigation of climate change). Ecosystem services are often the major benefits derived from use of FGR. Need for better integration of this with ABS considerations.
- Characterization data are often produced at the continental scale (Treebreedex).
- National funding programmes (e.g. Genome Canada) list different kinds of monetary and non-monetary benefits that could be provided back (sharing of knowledge, sharing of technology): target groups beneficiaries could be local or global.
- Sharing of data is essential given the long duration of research and the fact that the one who accessed the material may be different from the one who will be conducting the research. Open access is crucial.
- Benefits beyond biodiversity conservation but also to all functions of forests (e.g. eco-tourism).
- Conservation as a benefit.
- Agro-forestry – benefits for farmers to integrate new species in their farms.
- Trade without royalties and exclusive rights of forest reproductive material from selected and tested GR.

(v) Sharing benefits through partnerships (ABS Elements, 6.IV.v)

The ABS Elements note that GRFA are often exchanged in the framework of working collaborations and partnerships, with many stakeholders acting in the value chain being neither the original providers nor the end users of the GRFA. ABS measures could therefore allow for benefit-sharing arrangements tailor-made to the subsector’s collaboration and partnership practices.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- A number of global consortia were established to further AnGR research and knowledge exchange, e.g. characterization, HapMap consortia, EUGENA, Center for Tropical Livestock Genetics and Animal Health etc.

FOREST GENETIC RESOURCES:

- Breeding cooperative projects between public research institutions.
- Research programme at continental level, national, sub-national often organized by species
- Regional network on FGR.
- The small size of the community dealing, the high involvement of the public sector and the importance of publicly owned/managed forests make it more amenable to come up with collective arrangements in the FGR sector (within a regional network, transnational species network, local multi-stakeholder/commons network) to deal more efficiently with ABS.
- Publicly-owned and collectively managed.

PLANT GENETIC RESOURCES:

- Such partnerships exist within countries and among countries and often cover ABS aspects.
- They also exist for crops outside of the MLS of the Treaty.
- Also regional genebanks exist, such as the Nordic genebank in Scandinavia.

(vi) Global multilateral benefit-sharing mechanism (ABS Elements, 6.IV.vi)

According to Article 10 of the Nagoya Protocol, "Parties shall consider the need for and modalities of a global multilateral benefit-sharing mechanism to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent". The discussions on this issue may be relevant to benefit-sharing for GRFA. Parties to the Nagoya Protocol, at their second meeting, noted "that further information and experience is needed with the implementation of the Nagoya Protocol, including that which is necessary in order to inform deliberations under Article 10 [of the Nagoya Protocol]", and requested the Subsidiary Body on Implementation to explore the need for such a mechanism and make recommendations for consideration by the third meeting of the Parties to the Nagoya Protocol.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- Revised GPA-AnGR and Funding Strategy for the Implementation of the GPA-AnGR could be considered as multilateral benefit-sharing mechanism.
- Need for and modalities of support for conservation of AnGR by indigenous peoples and local communities may be considered.

FOREST GENETIC RESOURCES:

- No experience at global level but juxtaposition of smaller pooling arrangement (as referred to above) on which we can build.

4.5 Compliance and monitoring (ABS Elements, 6.V)

The ABS Elements refer to the different types of compliance measures in the area of ABS, including: compliance of countries with an international instrument, such as: the Treaty or the Nagoya Protocol; compliance of users with PIC and MAT; and compliance with domestic legislation of the providing country. With regard to the third type of compliance, the Nagoya Protocol requires each Party to take appropriate, effective and proportionate legislative, administrative or policy measures to provide that genetic resources utilized within its jurisdiction have been accessed in accordance with PIC and that MAT have been established, as required by the domestic ABS legislation or regulatory requirements of the other Party.

The ABS Elements note that compliance measures may pose challenges to the food and agriculture sector if the ABS status of GRFA used in breeding is unknown to users.

EXPLANATORY NOTES TO ADDRESS:

ANIMAL GENETIC RESOURCES:

- It is known where the animal was bought. Unclear status can occur in old collections in genebanks and *in situ* farms.

FOREST GENETIC RESOURCES:

- Due diligence concept already used by company trading timber product.
- Good traceability system to trace forest reproductive material but a lot less for FGR used in research. All countries will have to improve traceability to cope with ABS obligations.

PLANT GENETIC RESOURCES:

- Clarity is needed for plant breeders and other users.
- Date when access occurred needs clarification.
- Unknown origin occurs very often in plants and that has implications.
- Databases of collection holders need attention to detail and correctness.
- Information systems (GLIS) can help to resolve that but only if decentralized documentation exists and is reliable.

APPENDIX III

LIST OF PARTICIPANTS

MEMBERS OF THE COMMISSION
ÉTATS MEMBRES DE LA COMMISSION
ESTADOS MIEMBROS DE LA COMISIÓN

AUSTRALIA - AUSTRALIE

Head of Delegation
Mr Brad SHERMAN
Australian Research Council Laureate Fellow
Professor of Law
University of Queensland
St Lucia QLD 4072
Phone: +61 7 3365 3319
Email: b.sherman@law.uq.edu.au

BHUTAN - BHOUTAN - BHUTÁN

Head of Delegation
Ms Tashi Yangzome DORJI
Program Director
National Biodiversity Centre
Ministry of Agriculture and Forests
Serbithang,Thimphu
Phone: +975 2 351417 / 351219
Fax: +975 2323841
Email: tyangzome@moaf.gov.bt

BRAZIL - BRÉSIL - BRASIL

Head of Delegation
Ms Larissa Maria LIMA COSTA
Alternate Permanent Representative
Second Secretary
Permanent Delegation of Brazil to the Food and Agriculture Organization of the United Nations and related International Organizations
Via di Santa Maria dell'Anima 32
00186 Rome, Italy
Phone: +39 066789353
Email: rebrasfao@itamaraty.gov.br

Alternate(s)
Mr Diego DOS SANTOS BAYMA AMORIM
Alternate Permanent Representative
Attaché
Permanent Delegation of Brazil to the Food and Agriculture Organization of the United Nations and related International Organizations
Via di Santa Maria dell'Anima 32
00186 Rome, Italy
Phone: +39 066789353
Email: rebrasfao@itamaraty.gov.br

Mr Henry-Philippe IBAÑEZ DE NOVION
Director
Genetic Heritage Department
Vice-President
Genetic Heritage Management Council
Ministry of the Environment
SEPN 505 Norte, Bloco B, Edifício Marie Prendi Cruz, Brasilia
Email: henry.novion@mma.gov.br

Mr Sérgio Ricardo SODRÉ CARDOSO
Researcher
Research Department
Botanical Garden of Rio de Janeiro
Rua Pacheco Leão 915/sl 409
Rio de Janeiro
Phone: +55 21 32042091
Fax: +55 21 32042071
Email: sergio@jbrj.gov.br

BURKINA FASO

Chef de délégation
M. Alassane GUIRE
Directeur Général des Productions Végétales
Ministère de l'agriculture et des amenagements hydrauliques
03 B.P. 7005
Ouagadougou 03
Phone : +226 70254299
Email : guire_alassane@yahoo.com

M. Jean BIHOUN
Point focal des ressources phytogénétiques
Ministère de l'agriculture et des aménagements hydrauliques
03 B.P. 7005
Ouagadougou 03
Phone : +226 70711285
Email : jebihoun@yahoo.com

CAMEROON – CAMEROUN – CAMERÚN

Chef de délégation
M. Divine NGALA TOMBUH
Directeur adjoint de l'aquaculture
Ministère de l'élevage, des pêches et des industries animales
Yaoundé
Phone : +237 663330000
Email: dntombuh@yahoo.co.uk

CANADA – CANADÁ

Head of Delegation
Mr Axel DIEDERICHSEN
Research Scientist, Curator
Plant Gene Resources of Canada
107 Science Place
Saskatoon, SK, S7N0X2
Phone: +1 306 385 9465
Email: axel.diederichsen@agr.gc.ca

Alternate(s)
Ms Tannis BEARDMORE
Canadian Forest Service
Natural Resources Canada
1350 Regent Street
Fredericton, NB E3B 5P7
Phone: +1 506 452 3881
Email: Tannis.Beardmore@NRCan-RNCan.gc.ca

CHILE – CHILI

Jefe de delegación
Sra. Teresa AGÜERO TEARE
Encargada Asuntos ambientales, recursos genéticos y bioseguridad
Oficina de Estudios y Políticas Agrarias (ODEPA)
Ministerio de Agricultura
Teatinos 40, 8º piso
Santiago
Phone: +56 2 23973039
Email: taguero@odepa.gob.cl

Suplente(s)
Sra. Tamara VILLANUEVA
Primer Secretario
Representante Alterno ante la FAO
Embajada de la República de Chile
Viale Liegi, 21
00198 Roma, Italia
Phone: +39 06 844091
Fax : +39 06 8841452
Email : tvillanueva@minrel.gob.cl

Sr. Andrés FRANCE IGLESIAS
Ingeniero Agrónomo/Investigador
Instituto de Investigaciones Agropecuarias (INIA)
Ministerio de Agricultura
Director – Colección Chilena de Recursos Genéticos Microbianos
Av. Vicente Méndez 515
Chillán
Phone : +56 42 2206792 ; 2206773
Email : afrance@inia.cl

COOK ISLANDS – ÎLES COOK – ISLAS COOK

Head of Delegation
Mr William WIGMORE
Director
Research and Development Division
Ministry of Agriculture
P.O.Box 96
Rarotonga
Phone: +682 25403
Email:
william.wigmore@agriculture.gov.ck

DOMINICAN REPUBLIC – RÉPUBLIQUE DOMINICAINE – REPÚBLICA DOMINICANA

Jefe de delegación
Sra. Diana INFANTE QUIÑONES
Consejera
Representante Permanente Alterna de la República Dominicana ante la FAO
Representación Permanente de la República Dominicana ante la FAO
Lungotevere sei Sangallo, 1
00186 Roma, Italia
Phone: +39 3802504006
Email: mision@rdroma.org

ECUADOR - ÉQUATEUR

Jefe de delegación
Sr. César Guillermo TAPIA BASTIDAS
Responsable del Departamento Nacional de Recursos Fitogenéticos
Estación Experimental Santa Catalina
Instituto Nacional de Investigaciones Agropecuarias
Panamericana Sur Km. 1 vía Tambillo
Cantón Mejía, Provincia de Pichincha
Mejía
Phone: +593 2 3006089
Email: cesar.tapia@iniap.gob.ec

EGYPT - ÉGYPTE - EGIPTO

Head of Delegation
Ms Neveen Abd El-Fattah HASSAN
Director
National Gene Bank
Agriculture Research Center
Ministry of Agriculture and Land Reclamation
9 Gamaa St.
Giza 12619
Phone: +202 1143485555
Email: niveen2020@hotmail.com

ERITREA - ÉRYTHRÉE

Head of Delegation
Mr Amanuel MAHDERE ZEREZGHI
Director
Genetic Resources Division
National Agricultural Research Institute
Ministry of Agriculture
P.O. Box 4627
Asmara
Phone: +291 1 800001
Email: amanuelmazer@gmail.com

FINLAND - FINLANDE - FINLANDIA

Head of Delegation
Ms Mari RUSANEN
Forest Geneticist
Natural Resources Institute
Latokartanonkaari 9,
00790 Helsinki
Phone: +358 40 8015477
Email: mari.rusanen@luke.fi

FRANCE - FRANCIA

Chef de délégation
M. Pierre BOUILLON
Adjoint à la Cheffe du BGeD
Bureau Gestion Durable de la forêt et du bois
Ministère de l'agriculture et de l'alimentation
3 Rue Barbet de Jouy
75349 Paris 07 SP
Phone: +33 1 49555126
Email: pierre.bouillon@agriculture.gouv.fr

Suppléant(s)
M. Jean LANOTTE
Adjoint au chef du bureau du changement climatique et de la biodiversité
MAA/DGPE/BCCB
Ministère de l'agriculture et de l'alimentation
Direction générale de la performance économique
3 rue Barbet de Jouy
75349 Paris Cedex 17
Phone: +33 1 49554955
Email: jean.lanotte@agriculture.gouv.fr

GERMANY - ALLEMAGNE - ALEMANIA

Head of Delegation
Mr Thomas MEIER
Deputy Head of Div. 522
Biological Diversity and Biopatents
Federal Ministry of Food and Agriculture
Rochusstr. 1
D-53123 Bonn
Email: Thomas.Meier@bmel.bund.de

Alternate(s)
Mr Stefan SCHRÖDER
Federal Office for Agriculture and Food
Deichmanns Aue 29
D-53179 Bonn
Email: Stefan.Schroeder@ble.de

Ms Marliese VON DEN DRIESCH
Advisor
Federal Office for Agriculture and Food
Deichmannsaue 29
D-53179 Bonn
Email: marliese.vondendriesch@ble.de

Mr Karl MOOSMANN
Advisor
Sector Project Sustainable Agriculture
German International Cooperation (GIZ)
Friedrich-Ebert-Allee 36
D-53113 Bonn
Email: karl.moosmann@giz.de

GHANA

Head of Delegation
Mr Lawrence Misa ABOAGYE
Director
Council for Scientific and Industrial Research
Plant Genetic Resources Research Institute
P.O. Box M.32
Accra
Phone: +233 277766955
Email: aboagyelawrencemisa@yahoo.com

HUNGARY - HONGRIE - HUNGRÍA

Head of Delegation
Mr Zsigmond JENEY
Head of Fish Genetics Department
Research Institute for Fisheries and Aquaculture
5540 Szarva
Anna-liget 8
Phone: +36 205817643
Email: zsigmond.jeney@gmail.com

INDIA - INDE

Head of Delegation
Mr Arvind Nath SINGH
Director
National Seed Research and Training Centre
Ministry of Agriculture and Farmers Welfare
G.T. Road, Collectory Farm
Varanasi 221106 (Uttar Pradesh)
Phone: +91 542 2370222; 9450725652
Fax: +91 542 2370298
Email: arvindnathsingh@gmail.com

INDONESIA - INDONÉSIE

Head of Delegation
Mr Yusral TAHIR
Agriculture Attaché
Embassy of the Republic of Indonesia
Via Campania, 55
00187 Rome, Italy
Phone: +39 06 4200911
Fax: +39 06 4880280
Email: yusraltahir@pertanian.go.id

IRAN (ISLAMIC REPUBLIC OF) - IRAN (RÉPUBLIQUE ISLAMIQUE D') - IRÁN (REPÚBLICA ISLÁMICA DEL)

Head of Delegation
Mr Javad MOZAFARI
Professor, Plant Biotechnology
National Plant Gene-Bank of Iran (NPGBI)
Director General
Academic Relations and International Affairs
Agricultural Research, Education and Extension Organization (AREEO)
Yemen St, Chamran Freeway
Tehran
Phone: +98 2122402013
Email: jmozafar@yahoo.com

IRAQ

Head of Delegation
Mr Francis Oraha Janno ALKER
Assistant General Manager
Directorate Seed Testing and Certification
Ministry of Agriculture, Baghdad
c/o Embassy of the Republic of Iraq
Via della Camilluccia, 355
00135 Rome, Italy
Phone: +964 7505009170
Email: francisjanno@yahoo.com

Alternate(s)
Mr Hussain Ali Soaud AL-JUMAILI
Adviser for Animal Resources
Ministry of Agriculture, Baghdad
c/o Embassy of the Republic of Iraq
Via della Camilluccia, 355
00135 Rome, Italy
Email: hussain.soaud@hotmail.com

ITALY - ITALIE - ITALIA

Head of Delegation
Ms Petra ENGEL
Consiglio per la Ricerca in Agricultura e l'Analisi dell'Economia Agraria
Fruit Tree Research Centre (CREA)
Plant Genetic Resources Office
Via di Fioranello, 52
00134 Rome, Italy
Phone: +39 06 79348109
Email: petra.engel@crea.gov.it

Alternate(s)
Mr Giulio CARDINI
International Relations Office
Ministry of Agriculture, Food and Forestry Policy
Via XX Settembre, 20
00187 Rome, Italy
Phone: +39 06 46655143
Email: g.cardini@politicheagricole.it

Ms Elisabetta LANZELLOTTO
Ministry of Agriculture, Food and Forestry Policy
Directorate General of International and European Union Policies
Via XX Settembre, 20
00187 Rome, Italy
Phone: +39 06 46654109
Email: e.lanzellotto@politicheagricole.it

Mr Vincenzo MONTALBANO
Ministry of Agriculture, Food and Forestry Policy
Directorate General of Rural Development
Via XX Settembre, 20
00187 Rome, Italy
Phone: +39 06 46655064
Email: v.montalbano@mpaaf.gov.it

JAPAN - JAPON - JAPÓN

Head of Delegation
Mr Tomotaro NISHIKAWA
Assistant Director for Genetic Resources
Research Policy Planning Division
Agriculture, Forestry and Fisheries Research Council Secretariat
Ministry of Agriculture, Forestry and Fisheries
1-2-1 Kasumigaseki Chiyodaku
Tokyo 100-8950
Phone: +81 3 35027436
Fax: +81 3 35078794
Email: tomotaro_nishikaw570@maff.go.jp

Alternate(s)
Mr Akio YAMAMOTO
Researcher
Genetic Resources Center
National Agriculture and Food Research Organization
2-1-2 Kannondai, Tsukuba
Ibaraki 305-8602
Phone: +81 298388707
Email: yamaaki@affrc.go.jp

KUWAIT - KOWEÏT

Head of Delegation
Ms Fadila AL SALAMEEN
Research Scientist and Acting Program Manager
Biotechnology Program
Environmental and Life Science Research Centre
Kuwait Institute of Scientific Research
P.O. Box 24885
Safat 13109
Phone: +965 24989157
Email: fslamian@kisr.edu.kw

LEBANON - LIBAN - LÍBANO

Head of Delegation
Ms Lamis CHALAK
Professor
Head of Plant Production Department
Faculty of Agronomy
The Lebanese University
Head of the National Committee for Plant Genetic Resources
Beirut
Email: lamis.chalak@gmail.com

MADAGASCAR

Head of Delegation
Mr. Suzelin RATOHIARIJAONA RAKOTOARISOLO
Permanent Representation of the Republic of Madagascar to FAO
Embassy of the Republic of Madagascar
Via Riccardo Zandonai, 84/A
00194 Rome, Italy
Phone : +39 06 66620089
Fax : +39 06 66621905
Email : ambamad@hotmail.com

MALAYSIA – MALAISIE – MALASIA

Head of Delegation
Mr Mohd FARIDUDDIN OTHMAN
Fisheries Research Institute
Freshwater Fisheries Research Division
Glami Lemi, 71650, Jelebu
Negeri Sembilan
Phone: +60 137323190; 66133000
Email: fariduddin@dof.gov.my

MEXICO – MEXIQUE – MÉXICO

Suplente(s)
Sra. María de los Angeles GOMEZ AGUILAR
Alternate Permanent Representative
Permanent Mission of Mexico to the United Nation Agencies in Rome
Via Bartolomeo Eustachio 15
00161 Roma, Italia
Phone: +39 06 441606220
Email: mision.italia@sre.gob.mx

Sra. Elleli HUERTA OCAMPO
Coordinadora de Recursos Biológicos y Genéticos
Comisión Nacional para el Conocimiento y Uso de la Biodiversidad
Liga Periférico – Insurgentes Sur 4903
Parques del Pedregal, Del. Tlalpan
Ciudad de México. C.P. 14010
Phone: +52 55 50044958
Email: elleli.huerta@conabio.gob.mx

NAMIBIA – NAMIBIE

Head of Delegation
Ms Deidre JANUARIE
Chief Agricultural Scientific Officer
Ministry of Agriculture, Water and Forestry
Government Office Park
Luther Street, Ground Floor Room 008
Private Bag 13184
Windhoek
Phone: +264 612087034
Fax: +264 612087031
Email: deidre.januarie@gmail.com

Alternate(s)
Mr Petrus DU PLESSIS
ABS Africa Group Negotiator
Ministry of Environment and Tourism
Phillip Troskie Bulding
Private Bag 13306
Windhoek
Phone: +264 612842111
Email: pierre.sadc@gmail.com

Mr Henrique EIMAN
Lecturer-Microbiology and Molecular Biology
Department of Biological Sciences
Faculty of Science
University of Namibia
Private Bag 13301
340 Mandume Ndemufayo Avenue
Pionierspark, Windhoek
Phone: +264 061 2063790
Fax : +264 061 2063791
Email : heiman@unam.na

NETHERLANDS – PAYS-BAS – PAÍSES BAJOS

Head of Delegation
Ms Kim VAN SEETERS
Senior Policy Officer
European Agricultural Policy and Food Safety Division
European Agricultural Policy and Food Security Department
Ministry of Economic Affairs
The Hague
Email: k.vanseeters@minez.nl

Alternate(s)
Mr Martin BRINK
Centre for Genetic Resources
Wageningen University and Research Centre
Verbindingsweg, 6703 HC
Wageningen
Email: Martin.Brink@wur.nl

Mr Sipke-Joost HIEMSTRA
Head
Animal Genetic Resources Group
Centre for Genetic Resources
Wageningen University and Research Centre
Verbindingsweg, 6703 HC
Wageningen
Email: Sipkejoost.hiemstra@wur.nl

Ms Johannette KLAPWIJK
Regulatory Affairs Specialist Entomology
Koppert Biological Systems
P.O. Box 155
2650 AD Berkel en Rodenrijs
Phone: +31 10 5140444
Email: jklapwijk@koppert.nl

NORWAY – NORVÈGE – NORUEGA

Head of Delegation
Ms Svanhild-Isabelle Batta TORHEIM
Senior Adviser
Department of Forest and Natural Resource Policy
Ministry of Agriculture and Food
Teatergata 9 (R6)
P.O. Box 8007 Dep
N-0033 Oslo 1
Email: Svanhild-Isabelle-Batta.Torheim@lmd.dep.no

Alternate(s)
Ms Nina SÆTHER
Director
Norwegian Genetic Resource Centre
Norwegian Institute of Bioeconomy Research
Pb 115, NO-1431
Ås
Phone : +47 99389469
Email : nina.sather@nibio.no

OMAN – OMÁN

Head of Delegation
Ms Fadia ALJAMAL
Liaison Officer to the UN Agencies in Rome
Permanent Representative of the Sultanate of Oman to FAO
Embassy of the Sultanate of Oman
Via della Camilluccia, 625
00135 Rome, Italy
Phone: +39 06 36300545
Email: aljamalfadia@gmail.com

PALAU - PALAOS

Head of Delegation
Mr Percy RECHELLUUL
Senior Fisheries Officer
Bureau of Marine Resources
P.O. Box 359
Koror State, PW 96940
Phone: +680 7792326
Email: pbrechelluul@gmail.com

PANAMA - PANAMÁ

Jefe de delegación
Sr. Axel Ivan VILLALOBOS CORTÉS
Director General
Instituto de Investigación Agropecuaria de Panamá
Calle Carlos Lara 157
Ciudad de Panamá
Email: Axel.Villalobos@idiap.gob.pa

Suplente(s)
Sr. Marco MENDIZABAL
Director General de Investigación y Desarrollo
Autoridad de los Recursos Acuáticos de Panamá
Edificio La Riviera
Avenida Justo Arosemena y Calle 45
Bella Vista, Veracuz
Phone: +507 5116000
Email: mmendizabal@arap.gob.pa

PERU - PÉROU - PERÚ

Jefe de delegación
Sra. Diana CALDERÓN VALLE
Representación Permanente de la República del Perú ante la FAO
Embajada de la República del Perú
Via Francesco Siacci, 2/B, int. 5
00197 Roma, Italia
Phone: +39 06 80691510/534
Email: embperu@ambasciataperu.it

Suplente(s)
Sra. Claudia E. GUEVARA DE LA JARA
Representación Permanente de la República del Perú ante la FAO
Embajada de la República del Perú
Via Francesco Siacci, 2/B, int. 5
00197 Roma, Italia
Phone: +39 06 80691510/534
Email: embperu@ambasciataperu.it

PHILIPPINES - FILIPINAS

Head of Delegation
Ms Rosario MONSALUD
Head, Philippine National Collection of Microorganisms
Director, National Institute of Molecular Biology (BIOTECH)
University of the Philippines
Los Baños College
Laguna 403
Los Baños
Phone: +63 9985697243
Email: rgm_pncm@yahoo.com

Alternate(s)
Ms Aurora PASTORES
Development Management Officer
Food, Agriculture and Fisheries Policy Division
Department of Agriculture
4F DA Annex Bldg
Elliptical Road, Diliman
Quezon City 1100
Metro Manila
Phone: +63 9215811497
Email: gracefpastores@yahoo.com

Ms Maria Luisa GAVINO
Agriculture Assistant
Embassy of the Republic of the Philippines
Viale delle Medaglie d'Oro, 112-114
00136 Rome, Italy
Phone: +39 3403204045
Fax: +39 06 39740872
Email: maris.gavino@gmail.com

POLAND - POLOGNE - POLONIA

Head of Delegation
Ms Elzbieta MARTYNIUK
Professor
Warsaw University of Life Sciences
National Research Institute of Animal Production
Wspólna Street No. 30
00 930 Warsaw
Phone: +48 22 6231714
Fax: +48 22 6231056
Email: elzbieta_martyniuk@sggw.pl

Alternate(s)
Ms Grazyna POLAK
Assistant to National Coordinator for Animal Genetic Resources
National Research Institute of Animal Production
Wspólna Street No. 30
00 930 Warsaw
Phone: +48 22 6231056
Fax: +48 22 6231714
Email: grazyna.polak@izoo.krakow.pl

REPUBLIC OF KOREA - RÉPUBLIQUE DE CORÉE - REPÚBLICA DE COREA

Head of Delegation
Ms Jajung KU
National Institute of Forest Science
Forest Genetic Resources Department
Forest Genetic Resources Division
39, Onjeong-ro, Gwonseon-gu
Suwon-si 16631
Gyeonggi-do
Email: jajungku@korea.kr

SAMOA

Head of Delegation
Mr Tolo IOSEFA
Assistant Chief Executive Officer
Crops Division
Ministry of Agriculture and Fisheries
P.O. Box 1874
Apia
Phone: +685 20605; 22561
Fax: +685 24576
Email: tolo.iosefa@maf.gov.ws

SRI LANKA

Head of Delegation
Mr Somasena MAHADIULWEWA
Minister Counsellor
Embassy of the Democratic Socialist Republic of Sri Lanka
Permanent Representation to FAO
Via Salaria, 322
00198 Rome, Italy
Phone: +39 06 8554560
Fax: +39 06 84241670
Email: embassy@srilankaembassyrome.org

SUDAN - SOUDAN - SUDÁN

Head of Delegation
Mr Abubaker Adam Mohamed IDREES
Director
Animal Genetic Resources
Ministry of Livestock, Fisheries and Rangelands
P.O. Box 293
Khartoum
Phone: +249 904766625
Email: abubakerja56@gmail.com

Alternate(s)
Ms Saadia Elmubarak Ahmed DAAK
Agricultural Counsellor
Permanent Representation of the Republic of the Sudan to FAO
Embassy of the Republic of the Sudan
Via Panama,48
00198 Rome, Italy
Phone: +39 06 33222138
Email: permrepoffice_sudanembassyrome@yahoo.it

SWITZERLAND - SUISSE - SUIZA

Chef de délégation
M. Alwin KOPSE
Responsable du Secteur
Affaires internationales, développement durable, systèmes alimentaires
Office fédéral de l'agriculture
Mattenhofstrasse 5
CH-003 Berne
Email: alwin.kopse@blw.admin.ch

SYRIAN ARAB REPUBLIC - RÉPUBLIQUE ARABE SYRIENNE - REPÚBLICA ÁRABE SIRIA

Head of Delegation
Mr Mouwafak JBOUR
Deputy Director General
General Commission for Scientific Agricultural Research
Quatli Street P.O. Box 113
Douma, Damascus
Phone: +963 11 2216901
Fax: +963 11 2254884
Email: jbour150274@gmail.com

THAILAND - THAÏLANDE - TAILANDIA

Head of Delegation
Mr Chumnarn PONGSRI
Deputy Director General
Department of Fisheries
Ministry of Agriculture and Cooperatives
Rajdamnoen Nok Road
Bangkok-10200
Phone: +66 2 5620600
Email: chumnarnp@gmail.com

Alternate(s)
Mr Somsong CHOTECHUEN
Rice Genetic Expert
Bureau of Experts, Rice Department
Ministry of Agriculture and Cooperatives
Rajdamnoen Nok Road
Bangkok-10200
Phone: +66 81 9340183
Email: somsongch@hotmail.com

Mr Wisanuporn RATANATRIVONG
Senior Expert in Fish Genetic
Department of Fisheries
Ministry of Agriculture and Cooperatives
Rajdamnoen Nok Road
Bangkok-10200
Phone: +66 2 5620600
Email: wisanupornr@gmail.com

Ms Ratchanok SANGPENCHAN
Alternate Permanent Representative
Permanent Representation of the Kingdom of Thailand to FAO
Office of Agricultural Affairs
Royal Thai Embassy
Via Cassia, 929 Villino M
00189 Rome, Italy
Phone: +39 06 30363687
Fax: +39 06 30312700
Email: thagri.rome@gmail.com

Ms Jirapa TROCHIM
Alternate Permanent Representative
Permanent Representation of the Kingdom of Thailand to FAO
Office of Agricultural Affairs
Royal Thai Embassy
Via Cassia, 929 Villino M
00189 Rome, Italy
Phone: +39 06 303687
Fax: +39 06 30312700
Email: thagri.rome@gmail.com

TUNISIA - TUNISIE - TÚNEZ

Chef de délégation
M. Mnaouer DJEMALI
Professeur
Institut National Agronomique de Tunis (INAT)
43 Avenue Charles Nicolle
1082 Tunis
Phone: +261 1 289683 / 289431
Email: mdjemali@webmails.com

UNITED ARAB EMIRATES - ÉMIRATS ARABES UNIS - EMIRATOS ÁRABES UNIDOS

Head of Delegation
Ms Halima YOUSIF HASSAN
Genetic Engineering Researcher
Ministry of Climate Change and Environment
Al Ruwayyah 2 Area
P.O. Box 1509
Dubai
Phone: +971 42148424
Email: hyhassan@moccae.gov.ae

UNITED STATES OF AMERICA - ÉTATS-UNIS D'AMÉRIQUE - ESTADOS UNIDOS DE AMÉRICA

Head of Delegation
Mr Harvey BLACKBURN
Coordinator
National Animal Germplasm Program
USDA-ARS-PA-CARR
Fort Collins, CO 80521
Phone: +1 970 4927511
Email: Harvey.Blackburn@ars.usda.gov

Alternate(s)
Mr Kevin HACKETT
Senior National Program Leader, Crop Entomology
USDA Agricultural Research Service (USDA-ARS)
5601 Sunnyside Ave., Room 4-2222
George Washington Carver Center
Beltsville, MD
Phone: +1 301 5044680
Email: Kevin.Hackett@ars.usda.gov

Ms Neha LUGO
Attorney Adviser
Office of the Legal Adviser
Oceans, Environment and Science (L/OES)
U.S. Department of State
Harry Truman Building
2201 C Street NW
Washington, DC 20520
Phone: +1 202 4851647
Email: LugoNS@state.gov

VANUATU

Head of Delegation
Mr Hanington TAMLA
Director
Department of Forests
PMB 9064
Port Vila
Phone: +678 23171
Email: htate@vanuatu.gov.vu

VENEZUELA (BOLIVARIAN REPUBLIC OF) - VENEZUELA (RÉPUBLIQUE BOLIVARIENNE DU) - VENEZUELA (REPÚBLICA BOLIVARIANA DE)

Jefe de delegación
Sr. Luis Geronimo REYES VERDE
Primer Secretario
Representación Permanente de la República Bolivariana de Venezuela ante la FAO
Via G. Antonelli, 47
00197 Roma, Italia
Phone: +39 06 8081407
Email: luisgrv@gmail.com

YEMEN - YÉMEN

Head of Delegation
Mr Maeen Ali Ahmed AL JARMOUZI
Director General
National Genetic Resources Center
Agriculture Research and Extension Authority
Ministry of Agriculture and Irrigation
Dhamar
Phone: +967 772555669
Fax: +967 6 423917
Email: maeen669@gmail.com

ZIMBABWE

Head of Delegation
Mr Godfrey MAGWENZI
Ambassador
Permanent Represantative of the Republic of Zimbabwe to FAO
Embassy of the Republic of Zimbabwe
Via Virgilio, 8
00193 Rome, Italy
Phone: +39 06 68308282
Fax: +39 06 68308324
Email: zimrome-wolit@tiscali.it

Alternate(s)

Ms Placida Shuvai CHIVANDIRE
Alternate Permanent Representative of the
Republic of Zimbabwe to FAO
Embassy of the Republic of Zimbabwe
Via Virgilio, 8
00193 Rome, Italy
Phone: +39 06 68308282
Fax: +39 06 68308324
Email: zimrome-wolit@tiscali.it

Mr Joseph SIKOSANA
Director
Division of Livestock and Pastures
Research
Department of Research and Specialist
Services
P.O. Box CY594, Causeway
Harare
Phone: +269 4704531-9
Email: jlnsikosana@drss.gov.zw

REPRESENTATIVES OF UNITED NATIONS AND SPECIALIZED AGENCIES
REPRÉSENTANTS DES NATIONS UNIES ET INSTITUTIONS SPÉCIALISÉES
REPRESENTANTES DE NACIONES UNIDAS Y ORGANISMOS ESPECIALIZADOS

CONVENTION ON BIOLOGICAL DIVERSITY
CONVENTION SUR LA DIVERSITÉ BIOLOGIQUE
CONVENIO SOBRE LA DIVERSIDAD BIOLÓGICA

Ms Kathryn GARFORTH
Programme Officer
Nagoya Protocol Unit
Secretariat of the Convention on Biological Diversity
413 St. Jacques Street West, Suite 800
Montreal, QC, H2Y 1N9
Canada
Phone: +1 514 2877030
Email: kathryn.garforth@cbd.mt

INTERNATIONAL SEED TESTING ASSOCIATION
ASSOCIATION INTERNATIONALE D'ESSAIS DE SEMENCES

Mr Andreas WAIS
Secretary General
Zuerichstrasse 50
8303 Bassersdorf
CH-Switzerland
Phone: +41 44 8386006
Fax: +41 44 8386001
Email: andreas.wais@ista.ch

UNITED NATIONS DEVELOPMENT PROGRAMME
PROGRAMME DES NATIONS UNIES POUR LE DÉVELOPPEMENT
PROGRAMA DE LAS NACIONES UNIDAS PARA EL DESARROLLO

Mr Santiago CARRIZOSA
Global Adviser on Access to Genetic Resources and Benefit Sharing (ABS)
UNDP-Global Environmental Finance Unit
Bureau for Policy and Programme Support
Casa de las Naciones Unidas, Edificio #129
Ciudad del Saber
Ciudad de Panamá
Panamá
Phone: +507 67473126
Email: santiago.carrizosa@undp.org

3.

OBSERVERS FROM INTERGOVERNMENTAL ORGANIZATIONS
OBSERVATEURS DES ORGANISATIONS INTERGOUVERNEMENTALES
OBSERVADORES DE LAS ORGANIZACIONES INTERGUBERNAMENTALES

BIOVERSITY INTERNATIONAL

Mr Michael HALEWOOD
Head of Policy Unit
Via dei Tre Denari, 472/a
00054 Maccarese (Fiumicino)
Italy
Phone: +39 06 61181
Email: m.halewood@cgiar.org

DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT GMBH

Mr Hartmut MEYER
Advisor
ABS Capacity Development Initiative
Division Climate Change, Environment and Infrastructure
GloBe-Department Sector and Global Programmes
The Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
P.O.Box 5180
65726 Eschborn
Germany
Phone: +49 6196793285
Fax: +49 619679803285
Email: hartmut.meyer@giz.de

INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS

Mr Ahmed AMRI
Head of Genetic Resources Section (GRS)
Deputy Director
Biodiversity and Integrated Gene Management Program (BIGM)
Av. Mohamed Belarbi Alaoui
BP 6299
Al Irfane - Rabat
Morocco
Phone: +212 537681659
Email: a.amri@cgiar.org

INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

Ms Linda OPATI
IP and Legal Counsel
P.O.Box 30709
00100 Nairobi
Phone: +254 204223625
Email: L.opati@cgiar.org

INTERNATIONAL POTATO CENTRE

Mr David ELLIS
Head of the Genebank
Program Leader-Conserving Bioversity for the Future
Apartado 1558
Lima 12
Perú
Phone: +51 1 3175302
Fax: +51 941890261
Email: D.Ellis@cgiar.org

WORLD AGROFORESTRY CENTRE

Ms Alice MUCHUGI
Genetic Resources Unit Manager
United Nations Avenue
P.O.Box 30677
Gigiri, Nairobi 00100
Kenya
Phone: +254 20 7224272
Email: a.muchugi@cgiar.org

WORLD FISH CENTER
CENTRO MUNDIAL DE PESCA

Mr John BENZIE
Principal Scientist
Sustainable Aquaculture
Jalan Batu Maung
11960 Bayan Lepas
Penang
Malaysia
Email: J.Benzie@cgiar.org

Non-Governmental Organizations
Organisations non gouvernementales
Organizaciónes no gubernamentales

FRIDTJOF NANSEN INSTITUTE

Mr Christian PRIP
Senior Policy Analyst
Fridtjof Nansen Institute
P.O.Box 326
1326 Lysaker
Norway
Phone: +47 47476508
Email: cp@fni.no

NORDIC GENETIC RESOURCE CENTRE

Ms Lise LYKKE STEFFENSEN
Managing Director
Box 41, SE-230 53
Alnarp
Sweden
Phone: +46 738171215
Email: lise.lykke.steffensen@nordgen.org

CENTRE DE COOPÉRATION INTERNATIONALE EN RECHERCHE AGRONOMIQUE POUR LE DÉVELOPPEMENT (CIRAD)
FRENCH AGRICULTURAL RESEARCH CENTRE FOR INTERNATIONAL DEVELOPMENT

Mr Selim LOUAFI
Senior Research Fellow
Avenue Agropolis
34398 Montpellier Cedex 5
France
Phone: +33 617276432
Email: selim.louafi@cirad.fr

Mr Eric WELCH
Director and Professor
Center for Science, Technology & Environmental Policy Studies
Arizona State University
Tempe, AZ 85281
United States of America
Phone: +1 602 8597431
Email: EricWelch@asu.edu

LEAGUE FOR PASTORAL PEOPLES AND ENDOGENOUS LIVESTOCK DEVELOPMENT

Ms Evelyn MATHIAS
Müllenberg 5a
51515 Kürten
Germany
Phone: +49 2268 801 691
Email: evelyn@mamud.com

UNIVERSITY OF MALAYA

Mr Gurdial SINGH NIJAR SADU SINGH
Former Professor of Law
Faculty of Law
University of Malaya
50603 Kuala Lumpur
Malaysia
Phone: +60 379676579
Email: gsnijar@hotmail.com