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Organización
de las
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Unidas
para la
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y la
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COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

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CHARACTERIZATION OF VARIOUS OPTIONS FOR SCOPE AND ACCESS, AND A NOTIONAL ASSESSMENT OF THE PROS AND CONS (DOCUMENT SUBMITTED BY IPGRI/FAO)

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Options for Scope and Terms of Access

Introduction

The FAO Commission on Genetic Resources for Food and Agriculture, as requested by FAO Conference Resolution 7/93, is currently renegotiating the International Undertaking on Plant Genetic Resources, in harmony with the Convention on Biological Diversity. As part of this process, the Commission recommended at its Third Extraordinary Meeting, in December 1996, “that IPGRI, in conjunction with the FAO Secretariat, carry out a study in two steps: (i) a characterization of options on Scope and Access, (ii) and a notional assessment of the pros and cons of each option, as well as of their viability. This should involve inputs from all Commission Members, in order to facilitate the consideration of possible options.”

This paper seeks to respond to the Commission’s recommendation. It describes the key options related to the broad areas of scope and access to plant genetic resources for food and agriculture (PGRFA) and assesses the possible pros and cons relative to each. The paper recognizes that the Commission is not considering biological resources outside of the food and agriculture sector. Every attempt has been made to include, and to provide notional pros and cons for, all options identified by Commission members at the Third Extraordinary Session and in response to Step 1 of this study, which was distributed in February 1997. The paper seeks to be objective, but it must be recognized that, because of differing national priorities and interests, countries may in some cases diverge in their assessments of the positive and negative aspects of any one option.

The paper considers *options for scope* and *options for terms of access*. At this stage, no attempt has been made to characterize or evaluate combinations of particular options for scope and terms of access. However such combinations or “system options” could be constructed from the individual options presented here. Indeed, it should be noted that over 330 000 system options might arise from the definition of scope and access on the basis of the options described in this report.

Options for Scope are presented graphically in Figure 1. They include:

Criteria for determining scope;

Options for scope; these are:

- the type of material as defined by use;
- whether or not the material is in the public domain;
- the date of acquisition of the material with respect to the coming into force of the Convention on Biological Diversity (CBD); and
- whether the material is *in situ* or *ex situ*.

Other considerations related to the definition of scope will need to be addressed; these are:

- the process by which scope is actually determined;
- the unit for defining scope; and
- mechanisms, where needed, for listing materials that fall within the agreed scope.

Options for Terms of Access are presented graphically in Figure 2. They include:

- terms of access; and
- the link between access and benefit sharing.

A number of sub-options are presented; these relate to:

- types of benefits;
- the timing of bilateral negotiations; and
- the exchange of materials with non-parties.

Options for Scope¹

The Eleventh Session of the Commission's Working Group noted "that the scope of any mechanism or mechanisms for access and benefit sharing within the Undertaking might be narrower than the scope of the overall Undertaking". Thus, scope might be defined on two levels: broadly in terms of the genetic resources that might be involved in certain activities carried out within the context of the Undertaking (e.g. joint collecting or conservation programmes) and more narrowly in terms of the genetic resources available for exchange. For the purpose of this study, scope is defined as the range of genetic resources available for **exchange**, under the terms of the International Undertaking.

Criteria for Scope

*Prior to considering the scope options, the Commission may wish first to establish criteria for scope as a means of setting the context within which scope will be defined. Agreement on one or more criteria such as those listed below would, in a sense, establish the objectives of the International Undertaking's provisions on access and would serve as the basis for determining how broadly scope should be defined. For example, if it were decided that the International Undertaking should encompass plant genetic resources of importance for **global** food security only, a determination of the staple foods that fit this criterion (see Option I, "Type of material as defined by use") would be relatively more limited than if the criteria were also to include genetic resources of importance for **regional, national or local** food security. In the first case, the scope might comprise global staples such as maize, wheat, rice and potato. In the second, the scope could also include species such as minor Andean roots and tubers, yams, teff, finger millet.*

Alternatively, having selected a scope option or a combination of scope options, criteria might be used as a means to further refine scope. For example, if it were decided to include in situ material in the scope of the International Undertaking's provisions on access (see Option IV, "In situ/ex situ"), the actual in situ material included in the scope might be limited to that which is threatened by genetic erosion, the degree to which countries are interdependent with regard to that material, or on the basis of other agreed criteria.

Criteria for Scope		
	rationale	practicality
A. the degree to which the material is endangered by genetic erosion	<ul style="list-style-type: none"> • would help to ensure conservation and use of endangered material 	<ul style="list-style-type: none"> • information on endangered material is incomplete and difficult to amass • measuring genetic erosion is highly difficult and would probably be costly; there are currently no widely accepted methods • difficult to know what crops to monitor in order to determine whether genetic erosion is significant enough to justify inclusion in scope • difficult to determine relative degrees of endangerment • PGRFA endangered by genetic erosion is subject to change over time

¹ See Figure 1

<p>B. the degree to which countries are interdependent with regard to the material</p>	<ul style="list-style-type: none"> • interdependence is one major argument for the development of multilateral approaches to access and benefit sharing • interdependence is a feature of most globally important agricultural species 	<ul style="list-style-type: none"> • interdependence varies when considered on a regional or a global basis which could make agreement difficult • it may be difficult to agree upon whether interdependence should be measured in terms of food security alone, or on the basis of broader livelihood security • the degree of interdependence is difficult to measure
<p>C. the importance of the material for present and/or future global food security</p>	<ul style="list-style-type: none"> • would help to ensure present and future food security • would also include material under B • would ensure that at least the major food crops, which provide the calorific base of food security, are subject to international collaboration • would also include some major crops of importance for food security at regional/national levels 	<ul style="list-style-type: none"> • difficult to predict future needs • PGRFA important to food security is subject to change over time • could discourage international cooperation on local or minor crops • many factors contribute to food security, which is therefore difficult to measure
<p>D. the material of importance for global, regional, national and/or local food security</p>	<ul style="list-style-type: none"> • would help to ensure global, regional, national and local food security • likely to cover a wider range of the PGRFA that ensures food security • in harmony with the concept of food security in the World Food Summit Plan of Action 	<ul style="list-style-type: none"> • need to define scope at national/regional as well global level adds complexity to overall scope definition
<p>E. the role of the material in sustainable agricultural production</p>	<ul style="list-style-type: none"> • would promote sustainable agricultural production • would include material important not only for food production but also for livelihood security, such as income generation, environmental protection, etc. • in harmony with the concept of sustainable agriculture in Decision III/11 on agricultural biodiversity of the COP/CBD 	<ul style="list-style-type: none"> • may be difficult to agree to the definition and/or measurement of sustainable agricultural production and to the time frame in which the sustainability applies
<p>F. the social and/or economic importance of the material</p>	<ul style="list-style-type: none"> • explicitly recognizes that the importance of PGRFA goes beyond food and has wider socio-economic importance 	<ul style="list-style-type: none"> • very difficult to define at the global level • may also be difficult to define at the regional, national and local level • national social/economic interests could make this criterion controversial

G. the strategic economic importance of the material to the source country	<ul style="list-style-type: none"> explicitly recognizes the strategic economic importance of some PGRFA to the source countries would provide flexibility to take account of special cases 	<ul style="list-style-type: none"> adds complexity to overall scope definition national economic interests and competitiveness could make this criterion controversial
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note

- F and G have implications for countries whose national economies and foreign exchange depend on a relatively narrow range of export crops; these criteria could be used either to include or exclude material in scope.

Scope Options

This section identifies four broad sets of options for determining the scope of the International Undertaking's provisions on access, and provides notional pros and cons for these options. The options are:

- type of material as defined by use;*
- whether or not the material is in the public domain*
- date of acquisition of the material with respect to the coming into force of the Convention on Biological Diversity (CBD);*
- whether the material is in situ or ex situ.*

Any combination of the four sets of options might be employed in determining scope. For example, scope might be defined by the source of material (i.e. whether in situ or ex situ), but also by type of material and whether it is in the private or public domain.

The definition of scope does not in itself imply a single set of terms under which material would be available for exchange. The International Undertaking might encompass various categories of crops which could be subject to differing terms of access.

I. Type of material as defined by use		
	pros	cons
A. all PGRFA (<i>i.e.</i> no limitations or categorization by use category other than the general limitation to food and agriculture)	<ul style="list-style-type: none"> comprehensive simple, no need for lists easier for genebanks, countries, <i>etc.</i>, to administer could use existing agreed definitions of food and agriculture 	<ul style="list-style-type: none"> definition of PGRFA may be difficult to agree does not allow flexibility of approach to various categories of PGRFA
B. certain categories of PGRFA (<i>i.e.</i> , limitations or categorizations by specific food or agricultural use category)*	<ul style="list-style-type: none"> flexible, allowing differing terms of access to be applied to various categories of PGRFA 	<ul style="list-style-type: none"> may be more complex to negotiate and administer, probably requiring the development of a list, or lists, of material to be included in the scope (see VII) would require an agreed definition of the categories/ lists

**These might include, for example, staple food crops, forages, agroforestry species, industrial crops and medicinal plants. All categories could be further sub-divided if necessary, e.g., industrial crops could be sub-divided into categories of genetic resources for use as fibres, oils, beverages, etc.*

note

- Under B, as noted above, the Commission might find it useful to employ one or more criteria, in considering the definition of such categories (see “Criteria for Scope”).

II. Whether or not the material is in the public domain		
	pros	cons
A. material, public & private	<ul style="list-style-type: none"> • comprehensive • no requirement to distinguish between public and private domain 	<ul style="list-style-type: none"> • difficulty in several national legal systems of requiring private property to be made available, therefore private material may need to be available on different conditions
B. material in public domain*	<ul style="list-style-type: none"> • broad scope (most genetic diversity is in the public domain) • does not require private property to be made available 	<ul style="list-style-type: none"> • excludes private material • may be difficult to reach an agreed definition of the term, “public domain”
C. material in international public domain**	<ul style="list-style-type: none"> • much of this material is already subject to international agreements recognizing its status in the public domain • systems already exist for facilitating use multilaterally, with the exchange benefits implicit therein 	<ul style="list-style-type: none"> • restricts scope to about 12% of world genebank accessions; • would largely ignore minor food crops, often of considerable local or regional importance • could imply different conditions for duplicates of material held in non-international collections

**This includes national collections and other material held by public sector genebanks, including certain regional collections, such as those held by the SADC and Nordic Genebanks, as well as material in the international public domain. This material is not always necessarily under the direct authority of governments.*

***This includes the CGIAR collections and other collections in the international public domain such as those held by AVRDC, CATIE.*

note

- Private material (i.e. material that is not in the public domain) may include material to which real property rights apply, regardless of whether that material is publicly or privately held (for instance, breeders’ lines and farmers’ varieties under development, as well as any material held in private collections, not deemed by the holder to be in the public domain). Material covered by IPRs may, in certain cases, be in the public domain (e.g. for research purposes), subject to specified conditions, which may vary according to the particular IPRs involved (e.g. PBRs and patents).

III. Date of acquisition of the material, with respect to the CBD		
	pros	cons
A. material included irrespective of date of acquisition*	<ul style="list-style-type: none"> comprehensive easier for genebanks, countries etc. to administer and monitor resolves the “outstanding issue” of <i>ex situ</i> collections identified in the Nairobi Final Act 	<ul style="list-style-type: none"> may be seen as requiring retroactive application of Article 15 of the CBD
B. material acquired pre-CBD only*	<ul style="list-style-type: none"> covers majority of existing collections and germplasm accessions resolves the “outstanding issue” of <i>ex situ</i> collections identified in the Nairobi Final Act 	<ul style="list-style-type: none"> the necessity of treating differently material collected pre- and post- Convention would impose administrative complexities and increased costs for genebanks excludes <i>in situ</i> material difficulty in distinguishing between samples of the same gene/gene complexes/germplasm acquired pre- and post- Convention could lead to disputes could lead to inconsistent access to samples of the same genetic resources from different repositories depending on the date when they acquired the material
C. material acquired post-CBD only	<ul style="list-style-type: none"> would address material already covered by the Convention 	<ul style="list-style-type: none"> also includes ‘cons’ under B above would not include approximately 4.5 million accessions, mainly of major staple crops (<i>i.e.</i> the bulk of the material currently held <i>ex situ</i>) would not resolve the “outstanding issue” of <i>ex situ</i> collections identified in the Nairobi Final Act
D. material acquired post-revised IU only (NB. Identified since Step 1 of this study)	<ul style="list-style-type: none"> no complications <i>vis à vis</i> existing agreements 	<ul style="list-style-type: none"> by definition, there is no material in this category at present would not resolve the “outstanding issue” of <i>ex situ</i> collections identified in the Nairobi Final Act

notes

- For A, B and other relevant scope options, countries may wish to differentiate between material of known and unknown origin.
- Material may already have been acquired under specific terms and conditions, which may need to be taken into account.

IV. Whether the material is <i>in situ</i> or <i>ex situ</i>		
	pros	cons
A. <i>ex situ</i> and <i>in situ</i> material	<ul style="list-style-type: none"> • comprehensive • in harmony with the integrated approach to conservation advocated by the Convention • facilitates two way exchange between <i>in situ</i> and <i>ex situ</i>, including provision of material from <i>ex situ</i> repositories to farmers • facilitates participation of farmers and communities in PGRFA management 	<ul style="list-style-type: none"> • may require different or additional conditions for access to <i>in situ</i> material, to avoid impinging on property rights / rights of local communities
B. <i>ex situ</i> material only	<ul style="list-style-type: none"> • easy to define and manage • much accession-level information already exists on <i>ex situ</i> material • does not impinge on land property rights / rights of local communities 	<ul style="list-style-type: none"> • minor, local and under-utilized and crop wild relative species are not all adequately covered in <i>ex situ</i> collections • complicates exchange of material between <i>in situ</i> and <i>ex situ</i> conditions • difficulty in distinguishing between samples of the same gene/gene complexes/germplasm held <i>in situ</i> and <i>ex situ</i> could lead to disputes

Other Considerations Related to the Definition of Scope

Other considerations will need to be addressed in relation to the definition of defining scope. These include:

- the process by which scope is actually determined;
- the unit for defining scope; and
- mechanisms, where needed, for listing materials that fall within the agreed scope.

V. The process by which scope is actually determined		
	pros	cons
A. scope set out in the revised International Undertaking*	<ul style="list-style-type: none"> • simple • consistent at national and international levels • ensures parity among parties 	<ul style="list-style-type: none"> • lack of flexibility may lead to general exclusions (“lowest common denominator”) because one or a few countries do not agree
B. scope determined by designation of material, nationally or regionally**	<ul style="list-style-type: none"> • allows maximum flexibility to countries and regions 	<ul style="list-style-type: none"> • potential lack of parity between parties, likely to result in an inequitable sharing of obligations and benefits • little incentive to include valuable material • likely to lead to patchy coverage of species • would complicate exchanges between parties
C. scope set out in the revised International Undertaking, and additional designations or exceptions permitted***	<ul style="list-style-type: none"> • provides both a minimum coverage and flexibility, allowing individual countries to include or exclude certain material according to agreed criteria, thereby avoiding the “lowest common denominator” 	<ul style="list-style-type: none"> • potential for exclusion possibility to be exploited/ need for tight criteria • few incentives for additional inclusions • may lead to patchy coverage

**Under this option, the Commission would define the total scope of the International Undertaking’s provisions on access.*

***In this case, scope would be determined at the national or regional level, with each country or region designating the material that it wishes to make available under the terms of the International Undertaking.*

****Under this option, the Commission might choose to agree on a minimum set of materials to be included in scope, e.g., staple crops of importance to global food security. Countries or regions would then have the opportunity to include additional species on a regional or national basis, possibly in accordance with agreed criteria. In addition, decisions might be made nationally or regionally as to whether to exclude certain categories of material, possibly in accordance with agreed criteria.*

VI. Unit for defining scope*		
	pros	cons
A. genebank collection	<ul style="list-style-type: none"> • easy to define • much accession-level information already exists on material held <i>ex situ</i> 	<ul style="list-style-type: none"> • cannot include <i>in situ</i> • lesser known species or those of local importance may not be held <i>ex situ</i> • may lead to rather random coverage • not readily transparent (would need to examine lists of designated material to know types of material covered)
B. genepool/genus	<ul style="list-style-type: none"> • includes both crops and wild relatives, and would facilitate wider use of diversity • the genepool is the basic unit for crop improvement activities 	<ul style="list-style-type: none"> • may be difficult to define some genepools • the assignment of species to <i>genera</i> is based on changing scientific premises and thus is subject to change
C. species	<ul style="list-style-type: none"> • simple and widely used unit of classification 	<ul style="list-style-type: none"> • would require a decision on whether to include only crop species or also wild relatives; if the latter, this might require a case-by-case assessment
D. other (e.g. “staple crops”)	<ul style="list-style-type: none"> • flexible 	<ul style="list-style-type: none"> • may be difficult to define

*Unit is the constituent part that could be used as the basis for the determination of the actual material to be included in scope. The more numerous the units involved, the more difficult it may be to reach agreement.

notes

- The unit for defining scope could differ according to category of germplasm. For example, the entire genepool of a major food crop might be included in the scope whereas horticultural crops might be included on a species or even on an accession basis. Likewise, material held in *ex situ* collections might be included on a per accession basis while *in situ* material might be included on the basis of species or genepools.
- If B, the definition of “genepool” would have to be agreed. This could be defined as the primary genepool only, the primary and secondary, or the primary, secondary and tertiary genepools. Alternatively, the definition of genepool might be limited to:
 - a) domesticated species only; or
 - b) domesticated species and non-domesticated relatives

If b, the degree of relatedness could be determined

 - i) on a standard basis, e.g., by genus or other taxonomic group; or
 - ii) on a species by species basis for each commodity
- If B, a list of genera might be most appropriate in circumstances when genes from related species have the potential to contribute significantly to the improvement of a particular crop species

VII. Mechanisms for listing material within the agreed scope		
	pros	cons
A. no list	<ul style="list-style-type: none"> • see Options I.A and I.B 	<ul style="list-style-type: none"> • see Options I.A and I.B.
B. inclusive list (<i>i.e.</i> a list which defines what is included in the scope)	<ul style="list-style-type: none"> • potential for periodic adjustment through negotiated addition/removal of material 	<ul style="list-style-type: none"> • may lead to exclusion of species, or other categories, by default; in particular under-utilized species likely to be marginalized
C. exclusive list (<i>i.e.</i> a list which defines what is not included in the scope)	<ul style="list-style-type: none"> • likely to result in more material being included, than under B • potential for periodic adjustment, through negotiated addition/removal of material 	<ul style="list-style-type: none"> • underlying definition of PGRFA may be difficult to agree
D. multiple lists defining different scope options (<i>i.e.</i> separate lists, each defining categories of crops, whether by inclusion or exclusion) subject to various terms of access	<ul style="list-style-type: none"> • flexible • would allow different terms of access to be applied to various agreed categories of PGRFA • potential for periodic fine-tuning, allowing material to be moved from one list to another by agreement 	<ul style="list-style-type: none"> • could be complex to negotiate

note

- If it is agreed to produce an inclusive list, this could be developed by starting from a comprehensive list and eliminating units on which agreement could not be reached; or it could take the form of an agreed short list or lists and further units could be added through a process of continued negotiation.

Options for terms of access²

This section outlines broad sets of options related to:

- *terms of access;*
- *the link between access and benefit sharing*

With respect to the second set of options, a number of sub-options are reviewed relating to:

- *types of benefits;*
- *timing of bilateral negotiations; and*
- *exchange of materials with non-parties.*

VIII. Terms of access		
	pros	cons
A. Access to all material within scope under identical terms	<ul style="list-style-type: none"> • simple to implement • parity with regard to rights and obligations of parties 	<ul style="list-style-type: none"> • little flexibility; lack of opportunity to tailor terms of access
B. Different terms of access for various categories of material within the scope	<ul style="list-style-type: none"> • flexible, allowing different terms of access to be applied to various agreed categories of PGRFA • could permit both multilateral and bilateral benefit sharing in one agreement 	<ul style="list-style-type: none"> • necessity to negotiate separate terms of access for each category

² See Figure 2

IX. The link between access and benefit sharing		
	pros	cons
A. Access linked to multilaterally agreed benefit sharing	<ul style="list-style-type: none"> • guaranteed access to an agreed range of genetic material • promotes wide use of material • conditions of access known in advance • facilitates multilateral cooperation for conservation and use, including the sharing of costs and responsibilities • wide range of potential multilateral benefit sharing through multilateral research partnerships, training etc. • access to greater information 	<ul style="list-style-type: none"> • no direct linking of benefits to specific access transactions
B. Access linked to multilaterally agreed benefit sharing, with provision for bilateral benefit sharing under certain conditions*	<ul style="list-style-type: none"> • also includes pros under A above • directly relates benefits to specific material used under the bilateral provision • allows both multilateral and bilateral benefit sharing 	<ul style="list-style-type: none"> • complex • would require some tracking and/or disclosure of sources • end-use of material, and final cost, not known in advance • conditions for bilateral benefit sharing would have to be defined and agreed
C. Access linked to bilaterally-negotiated benefit sharing	<ul style="list-style-type: none"> • enables parties to exploit comparative advantages, with agreements tailored to their needs and circumstances • may be appropriate for sharing of proprietary information or technologies • opportunities for specific partnerships in research and training • in the case of pharmaceutical products, potential benefits may be large 	<ul style="list-style-type: none"> • access more difficult and limited • many agreements needed to gain access to a wide range of material • may be difficult to assess or negotiate benefits where a product is derived from germplasm from a wide range of sources • possible uncertainties regarding countries of origin may lead to disputes • potentially high legal and transaction costs • in the case of seed varieties, potential benefits may be small • requires extensive monitoring and tracking • could limit effective benefits accruing to countries poor in PGRFA, and lacking the technical and financial resources to exploit PGRFA

**For example, the source and recipient entities might negotiate benefit sharing on a bilateral basis in the event or expectation that the accessed material would give rise to commercial benefits, or if material were accessed for a purpose not included in the scope agreement (for*

example for development of pharmaceuticals). (See Option XI, "Timing of bilateral benefit sharing").

note

- In the case of B or C, the Commission might wish to consider whether or not to establish guidelines concerning the general terms and conditions of access and benefit sharing for bilateral arrangements, and a framework for the negotiation of bilateral agreements, and arbitration or litigation in the case of disputes.

X. Types of benefits		
	pros	cons
A. Exchange benefits* plus funding mechanism	<ul style="list-style-type: none"> • could be used to cover costs of supporting exchange benefits (e.g capacity building and technology transfer) • would enable a more complete implementation of Global Plan of Action 	<ul style="list-style-type: none"> • would require political agreement to provide funds
B. Exchange benefits and no funding mechanism	<ul style="list-style-type: none"> • multilateral exchange benefits are evident 	<ul style="list-style-type: none"> • multilateral activities may be limited through lack of funding

**A number of important benefits may result from any international exchange of genetic resources. These exchange benefits include access to greater amounts of germplasm than are available in any one country or on a bilateral basis; access to improved materials; increased opportunities for developing joint strategies for the conservation and use of genetic resources and for sharing responsibilities and costs regionally and/or globally; the transfer of technologies; the facilitation of networks and research partnerships and the pooling of resources needed to exploit particular gene pools effectively; opportunities for promoting characterization of genetic resources and the rationalization of collections; opportunities for promoting evaluation, genetic enhancement and plant breeding; incentives for innovation and conservation; access by providers to information on material that they have supplied as well as on material supplied by partners; more cost-effective means of exchanging information, e.g., through shared databases and information systems; access to training at a range of specialized institutions. It should be noted that any or all of these benefits might be available under purely bilateral arrangements, as in Option IX. C above; these will most likely be directly linked to a specific exchange of germplasm.*

note

- If A (exchange benefits plus funding mechanism), agreement will be needed on whether payments into the funding mechanism will be voluntary or mandatory, and on governance and disbursement.

XI Timing of bilateral benefit sharing		
	pros	cons
A. upon patenting	<ul style="list-style-type: none"> feasible to implement and monitor and records are in the public domain: could be linked to disclosure of origin of material submitted for patenting patents usually apply to processes, or to single genes, or products which can usually be identified and traced to a specific origin or source material would allow bilateral benefits from patented products while facilitating exchange of non-patented agricultural products potential large benefits may be available in particular cases 	<ul style="list-style-type: none"> currently, there are relatively few cases of food and agriculture related patented products derived from PGRFA, and thus only limited opportunities for benefit sharing through this mechanism potential litigation/arbitration costs
B. upon taking out any IPRs (including PBRs, patents)	<ul style="list-style-type: none"> covers large share of commercial use of PGRFA 	<ul style="list-style-type: none"> transaction costs involved in the monitoring and tracking that would be required potential litigation/arbitration costs for PBR protected material (non-patented), may be difficult to apportion benefits among many source countries contributing to complex pedigrees of protected varieties small potential for total benefit sharing from PBR protected new varieties; may not be justified in relation to transaction costs
C. upon commercialization or at other stage of product development	<ul style="list-style-type: none"> covers all commercial use of PGRFA 	<ul style="list-style-type: none"> transaction costs incurred to monitor and track potential litigation/arbitration costs difficult to enforce may be difficult to agree upon definition of the stage of product development
D. upon receipt of material	<ul style="list-style-type: none"> covers all cases 	<ul style="list-style-type: none"> may lead to reduced use of new material by plant breeders little information at this stage about commercial potential of the material; benefits per sample therefore likely to be low

note

- Under any of these options, recipients would probably wish to be able to determine in advance what their potential long-term costs were likely to be.

XII Exchange of material with non-parties		
	pros	cons
A. Exchange of material with non parties allowed	<ul style="list-style-type: none">• access to a broader range of germplasm diversity	<ul style="list-style-type: none">• could be administratively complex• conditions need to be set in order to avoid “free-riders” undermining the agreement
B. Exchange of material with non parties not allowed	<ul style="list-style-type: none">• relatively simple, transparent, fully reciprocal system• would provide incentives for participation in the system	<ul style="list-style-type: none">• may unnecessarily limit exchange of germplasm• may be difficult to enforce

Figure 1: OPTIONS FOR SCOPE

criteria for determining scope	Degree of endangerment by genetic erosion	A
	Degree of interdependence between countries	B
	Importance for present and/or future global food security	C
	Material of importance for global and local food security	D
	Role of the material in sustainable agricultural production	E
	Social and/or economic importance of the material	F
	Strategic economic importance of material to the source country	G

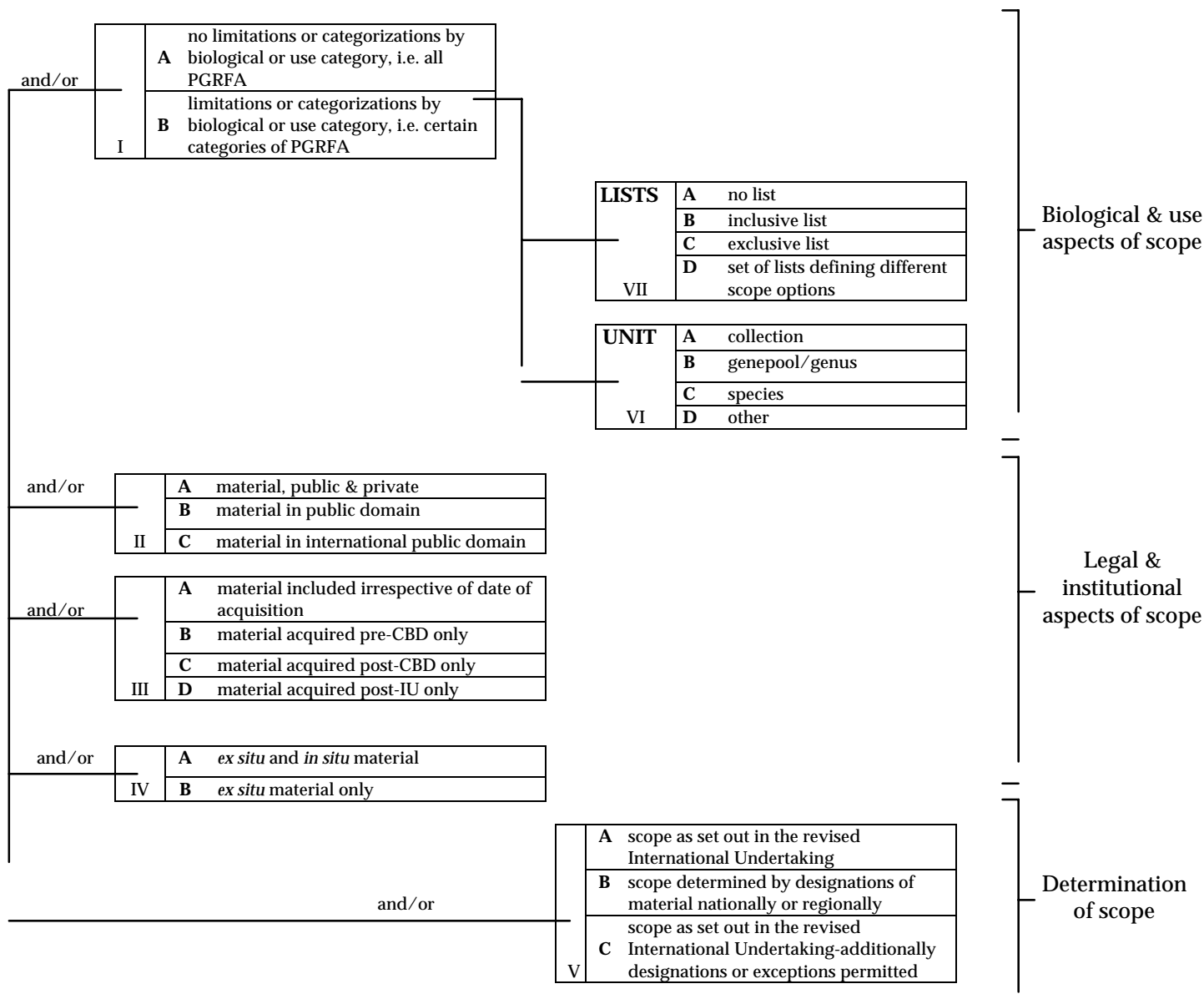


Figure 2: OPTIONS FOR TERMS OF ACCESS

