Options for non-monetary benefit-sharing: an inventory

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CHAPTER 1: INTRODUCTION

1.1 Background

This study has been performed at the request of the Commission for Genetic Resources for Food and Agriculture (CGRFA) of the UN Food and Agriculture Organisation (FAO), and has been funded by the Netherlands Ministry of Agriculture, Nature and Food Quality through its research programme on International Cooperation. The rationale for the CGRFA to request the study was the recognition that many of the discussions on benefit-sharing in the context of the recently ratified International Treaty on Plant Genetic Resources for Food and Agriculture (further referred to as Treaty) tend to center on monetary benefits. However, many, if not most, potential benefits to be gained from the implementation of the Treaty may be non-monetary in nature. At the same time, these potential non-monetary benefits may be hidden, underexplored, taken for granted, or undervalued.

The objectives of this background study are "to identify, analyze and make recommendations on ways in which the information necessary to support the work of the Governing Body can be generated, and on ways in which the achievement of the Treaty's provisions on in-kind benefit sharing can be promoted that are targeted, efficient, effective, measurable and transparent". In particular, this study has identified existing practices, models and mechanisms at the national, regional and international levels for various types of benefit-sharing, i.e. information exchange, technology transfer, and capacity building. Furthermore, it has attempted to analyze to which extent these efforts contribute to the achievement of the Treaty, where improvements may be obtained and gaps may be filled. The study ends with a number of recommendations based on this analysis.

1.2 Terms and their interpretations

Benefit sharing has not been defined in the Treaty, nor in the Convention on Biological Diversity. CBD document UNEP/CBD/COP/3/Inf.53 states that "What constitutes a 'benefit' that can be shared is limited only by the imagination and ingenuity of the partners involved". The Common Policy Guidelines of the Botanic Gardens define benefit-sharing as the sharing of benefits arising from the use, whether commercial or not, of genetic resources and their derivatives, and may include monetary and non-monetary returns. In addition, several sources specify what may be understood as monetary and non-monetary benefit sharing respectively. These specifications have been analyzed in relation to the benefit-sharing provisions of the Treaty as part of this study. References to defined elements of non-monetary benefits in major representative sources are compiled and arranged according to the three categories distinguished in the IT in Table 1.

1.3 A context for the analysis of benefit-sharing arrangements

A number of reports describe and/or analyze existing benefit-sharing arrangements. However, the number of reported implemented arrangements is still very limited (not more than 20), and concerns mostly activities aimed at collecting and analyzing genetic materials and associated knowledge for drug development. Thus, reported benefit-sharing arrangements explicitly related to agricultural biodiversity are a few. Other reports analyze options and potential impact of benefit sharing schemes.

Cabrera (2000) commented on the relation between monetary and non-monetary benefit-sharing in Costa Rica, sating that the cash income obtained from bioprospecting by Costa Rica is apporximately USD 5 million, whereas in addition a significant non-monetary contribution was realised in the form of technology transfer, training, provision of equipment, contributions to the

System of Conservation Areas, and the ceration of natonal capacities, including negotiating capacities.

Contributors to the debate have repeatedly stressed one or more of the following issues:

1. Many (although not all) non-monetary benefits entail costs for those parties seeking access. The distinction between monetary and non-monetary benefit-sharing is that the former concern the transfer of money and the latter the provision of goods and services. Non-monetary does not mean without financial costs.
2. What may be monetary at the international, global level (transferring money to a fund), might become non-monetary at the national or local level, and provide for goods and services.
3. In determining appropriate benefit-sharing arrangements, a distinction can be made according to the anticipated use of genetic resources, whether for commercial use, non-commercial use or customary use.
4. Benefits might be
    - social, such as improved quality of life, food security and recognition for cultural values
    - economic, such as lower food costs, increased productivity, expanded market opportunities, and
    - environmental, such as sustainable production methods, protection of habitats and the reduction of genetic erosion.
5. A key term in benefit sharing is participation of stakeholders. Various stakeholders have different interests, take different perspectives and interpret the terms differently in the discussions and negotiations on benefit-sharing arrangements. At least the following categories of stakeholders can be distinguished:
    - in provider countries
        - national governments
        - research and breeding institutes, including genebanks
        - private industry
        - local communities
        - NGOs
    - in user countries
        - national governments
        - research and breeding institutes, including genebanks
        - private industry
        - NGOs.

1.4 Benefit-sharing in other international agreements

Benefit-sharing forms an issue in several other international negotiations and/or agreements. The common denominator for these agreements is that they all deal with public goods that are hard to appropriate, as with genetic resources. These agreements include agreements on water management, climate control and health (HIV/AIDS control). An inspection of literature on these agreements uncovers many notions that are relevant to and often similar to notions in the Access and Benefit-Sharing debate regarding genetic resources.
David Grey (World Bank) noted in the International Conference on Fresh Water in Bonn in 2001, that lessons from benefit-sharing include, amongst other, that the perception of fairness is essential, that the broader benefit bundles are the better, and that unique solutions are needed, and continues to distil as key lessons that capacity building to create a level playing field, wide civil engagement, and the achievement of early results are needed. Anthony Turton (African Water Issues Research Unit) noted on the Okavango River Basin Agreement that “benefit-sharing needs more management vision but creates a bigger pie that can be shared in a more equitable win-win relationship”.
As part of the UN Climate Control Convention, the Kyoto Protocol has established the Clean Development Mechanism. It allows developed nations to achieve part of their reduction obligations through projects in developing countries that reduce emissions or 'fix' or sequester CO^2 from the atmosphere. Experience shows that projects that provide multiple benefits and allow different

drivers of land use change to co-exist on a land plot have the highest potential to reduce the risk of carbon leakage.
However, it should be mentioned that no information for these areas regarding progress in developing practices, models and mechanisms is easily accessible. Thus, the biodiversity and genetic resources community in a wide sense might have to pave the way by itself.

CHAPTER 2: ASSESSMENT OF EXISTING PRACTICES

CHAPTER 3: A STAKEHOLDER PERSPECTIVE

CHAPTER 4: AN ANALYSIS OF CURRENT AND POTENTIAL PRACTICES, MODELS AND MECHANISMS

4.1 Revisiting the text of the Treaty on benefit-sharing

Scope and beneficiaries. Whereas the Treaty defines Farmers' Rights as to include the right to equitably participate in sharing benefits (Art. 9b), and refers to the need that farmers should benefit from the implementation of agreed plans and programmes under the funding strategy (see Art. 18.5), such reference is absent from the text in Art. 13, detailing non-monetary benefit sharing. Art. 13 focuses specifically on exchange of information, access to and transfer of technology, and capacity building, and by implication emphasis seems to lie on strengthening the public and private sectors and not farmers directly. Some benefit types, listed in Table 1 and taken from major literature sources, do not easily fit the three categories distinguished in Article 13.2 of the Treaty. These types include food and livelihood security benefits, social recognition, contributions to the local economy, creation of employment, and investments in institutions.
At the same time, Article 13.2 does not exclude local communities as the beneficiaries of the proposed types of benefit sharing. Furthermore, whereas benefit-sharing with farmers can be regarded as a goal in itself, such benefit-sharing might also contribute to conservation and use of plant genetic resources, and thus to the objectives of the Treaty, depending on the type of the benefit-sharing arrangements.

Mechanisms for non-monetary benefit-sharing.
Art. 10.2 specifies that the Multilateral System for Access and Benefit-sharing (MLS) should be efficient, effective and transparent and these requirements thus also apply to the benefit sharing arrangements to be established under the Treaty.
Art. 13 describes the areas of benefit sharing and proposes some mechanisms for non-monetary benefit-sharing that are detailed below. However, what is not addressed is the issue how the financial resources to cover the costs of these forms of non-monetary benefit-sharing should be raised. The Treaty does recognize a dual role for the Parties to the Treaty, i.e. to provide and/or facilitate the benefit-sharing elements, and calls on all relevant stakeholders to contribute to the implementation of the MLS. This implies that various stakeholders are expected to play a role in developing, financing and implementing mechanisms for non-monetary benefit-sharing.
Art. 13.2(a) describes the proposed exchange of information, and as a mechanism refers to the Global Information System, described in Art. 17. Such System should be developed by the Contracting Parties in cooperation with the Clearing House Mechanism of the CBD. The process by which this should be achieved is not described.
Art. 13.2(b) describes access to and transfer of technology. As mechanisms a set of measures is proposed, i.e. "the establishment and maintenance of, and participation in, crop-based thematic groups on utilization of PGRFA; all types of partnerships in research and development and in commercial joint ventures, human resource development and effective access to research facilities". Some of these measures can be provided by the Contracting Parties themselves, for others cooperation of the private and academic sectors is needed. It is not clear yet how these mechanisms are to be effectuated.
Art. 13.2(c) covers capacity building. Strenghtening training programmes and facilities and carrying out research in or with the provider countries again needs cooperation of the academic sector. No clear mechanisms have been indicated yet.
Art. 13.6 refers to a role for Food Processing Industries to contribute to the MLS.
Art. 16 refers to the important role to be played by networks, also referred to in crop-based thematic groups.
In summary, some of the benefit sharing arrangements will have to be developed and effectuated by the Parties themselves, some by the users and providers that have sought and provided access to germplasm under the MLS. Benefit-sharing arrangements between other contractants than the Parties themselves should be regulated and facilitated by Parties. And farmers are recognised as a major category of beneficiaries.

4.2 The Multilateral System for Access and Benefit-sharing

The MLS should be seen as a benefit in itself. It contributes to the cration of a rational system for the conservation and sustainable use of PGRFA, as called for by the Global Plan of Action (Fowler, 2003). Countries contribute what they have to the global larder and get access to the diversity everyone else has provided, while retaiing their own PGRFA. Benefits of the MLS include its contributions to

- securing (long term) conservation
- improving the quality of storage
- providing a basis for safety back-up duplication
- improving information about collections.

4.3 Some highlights of current practices

This study investigated the major features of agreed and implemented arrangements regarding access and benefit- sharing.

Relationship between benefit-sharing and conservation
Depending on the type of benefit-sharing, benefit-sharing may either directly, indirectly or not per se contribute to conservation of genetic resources, one of the objectives of the Treaty, and a seemingly logical criterion in judging the appropriateness of a benefit-sharing arrangement in its contribution to conservation.

Relationship between access provided and benefits shared
The nature and value of the technology transferred depends largely on a close relationship between provider and user, which is often built in the context of joint research.
In some commercial arrangements the user has committed to return a portion of the profits to all of the communities and countries in which the company has worked, regardless where in the world the plant or information used for product development, originated. This policy was adopted with a view of risk reduction (Seiler & Dutfield, 2002).
In the seed sector, benefit-sharing is often not directly linked to individual access transactions. Rather, companies may make looser arrangements designed to maintain partnerships with universities and public research institutes that conduct basic research and supply them with improved germplasm, often for testing. Such arrangements commonly take the form of funding research projects that are disassociated from access. (Ten Kate and Laird, 1999).
Given observations about low profit margins, high transaction costs and the complex network of actors, the decoupling of access and benefit-sharing in the seed sector may make sense, provided the MLS can provide a framework that all participating actors regard as fair (Ten Kate and Laird, 1999). The decoupling of access and benefit sharing at the level of the individual arrangement is a logical consequence of the flow of seeds and the contributions of a complex set of stakeholders.

Beneficiaries
According to Virchow (2002), in the political discussion, it has been implied that the private breeding sector is the predominant beneficiary of PGRFA utilization. The spread of benefits across society is however much broader.
OECD (2003) performed a stakeholder analysis in benefit-sharing arrangements covering drug development and agicultural use. From an analysis of xx cases it appeared that provider country government organizations receive sharing of research and development results in most cases. Provider country academic organizations share employment related to research work, process benefits, and capacity building for technology transfer. They may play a role as supporters of collection activities, executors of scientific research and development, and sometimes collaborators in product development, and the benefits they shared were mainly related to technology, information and training regarding conservation of biodiversity from the scientific point of view. Local communities received salaries for their collecting work, support for biodiversity conservation and contributions to the local economy. Local companies seemed to share mostly in

research and development and product development. For local NGOs, training and contributions to the local economy might be considered as their main benefits. (OECD, 2003).
Since many of the transactions are conducted not by the governments which are Parties to the Treaty, but by institutions such as genebanks, universities, companies, farmers and botanic gardens, it is regarded crucial to involve these actors in the further development and implementation of the MLS. (Ten Kate and Laird, 1999)

Types of non-monetary benefit-sharing
Many non-monetary benefits have routinely accrued to countries hosting plant explorations, including the strengthening of professional ties between scientists, training in germplasm exploration methods, transfer in information and technology, and establishment of national germplasm collections with backups in international genebanks.
To cite some examples, follow-up research has been initiated to multiply and characterize collected germplasm in provider countries, replacing work that would ordinarily have been done in user countries (Williams, 1998).
Technology transfer may include new better-yielding varieties, new crops and varieties with different market opportunities, varieties with improved resistances, cleaned-up varieties free from viruses, and restoration of traditional varieties lost or desroyed by disaster (Bennet, 2003).
Capacity building has amongst other included support for collaborative research and conservation efforts by building laboratory infrastructure and information handling capabilities, and by promoting exchange of resources, information and ideas through formal links between the collaborating institutions. Capacity building has involved public sector participation and government funding in developed countries (Timmermann et al., 1999), but also extends to the private sector.
According to a survey carried out in 2001 among ISF (then ASSINSEL) members, technology transfer, as it relates to the maintenance of plant genetic resources for food and agriculture (PGRFA), is an important commitment for many ISF members. About two thirds of the respondents assist national programs, in maintaining evaluating and characterising PGRFA, either technically or financially, and one third provide assistance to international programs. More than 40% of ISF members grant licenses free of charge to developing countries (ISF, 2004), although it is not clear whether such licenses come without further obligations for the provider countries. Company willingness to share non-monetary benefits is mainly confined to collaborative research relationships (Ten Kate and Laird, 1999). The Africa-based AATF is an example of a NGO that has been specifically established to facilitate technology transfer through negotiating such royalty-free licences.
Considerable experience in both the public and the private sector with information exchange and technology transfer seems to exist and may be harnessed to strengthen the MLS.

Timeframe of non-monetary benefit-sharing
Benefit-sharing arrangements often include non-monetary benefits provided up front, before the actual value of the particular genetic resources acquired is even determined.
Timing of benefit-sharing is highlighted as a major issue that needs careful attention. Many literature contributions consider it unacceptable to delay compensation for indigenous people until a product to which they have contributed is ready for market (e.g. Seiler & Dutfield, 2002).
In the long term, institutional and international relationships follow from limited collaborative projects that will continue to grow beyond the duration of the project and will serve as an effective model for others who seek to develop similar relationships (Timmermann, 1999). The impact of an effective collaboration will surpass formal limits in time and scope.

Provider country context
Some projects have been specifically designed for existing scientific, technological, cultural, legal and technological situations in provider countries (Timmermann et al., 1999), in order to enhance the effectiveness and sustainability of the benefit-sharing efforts, but in most current practices this aspect has been undervalued.

4.4 Suggested elements and issues important for benefit-sharing models

Scope

Local development and poverty alleviation may be instrumental to the Treaty objectives of conservation and sustainable use. The poverty-alleviating effect of ABS arrangements depends on (1) the volume of benefits transferred, (2) the types of benefit, and (3) the beneficiaries (Henne et al., 2003). Benefit-sharing should be fair and equitable. Equity is a relative term and can be determined only by the participants in the process. It means not only equitable compensation, but equal standing among participants in making decisions about what form benefits should take (Moran, 2000; OECD, 2003).

Relationship between access provided and benefits shared

According to Berg (2001), apart from the practical difficulties in finding the proper recipients for benefit sharing, the ethical case for financial compensation to specific individuals or communities may be weak. In a stronger statement, Brush (1998) argues that "Two general approaches have been proposed to increase the private value of PGR for farmers, to provide equity and to promote conservation. The first approach is direct – to economically and legally connect farmers who produced PGR with companies or countries who use them. Direct methods include contracting and IPRs. The second approach is indirect – to increase the general value of PGR through various research and development programmes managed by NGOs and/or governmental agencies charged with agricultural development and resource conservation, e.g. through educational and marketing programmes and by better use of local PGR to achieve agricultural development.
The lack of possessive individualism among peasant farmers regarding seeds and genetic resources might be seen as an adaptive cultural trait in the face of the risks in agriculture and the importance of diversity in meeting those risks."

Beneficiaries

Benefits should be shared among those who contribute to resource management, scientific and/or commercial process, holders of associated knowledge and poor people living in the geographical area of origin of the resources. According to Henne et al. (2003), benefits should contribute to the conservation and sustainable use of biological resources as well as to poverty alleviation. Benefits should include the empowerment of local people and the strengthening of self-governance, cultural identity and self-confidence. Likewise, according to an OECD report (2003), since it is local groups who often bear much of the cost to conserve genetic resources, the goal of building and maintaining coalitions in favor of conservation would lead to the conclusion that they should be compensated for participating in the process to provide them with a strong incentive to continue sustainable use.
Brush (1998) states that because of the need to address income and production, the tasks of agricultural development and conservation cannot be fruitfully separated. Moreover, because an important goal is to conserve resources on-site, farmers must be directly included in research. The objective of this research is not to replace local crops or farmer knowledge but to use these more effectively to increase income and production.
Many factors influence the determination of benefit sharing mechanisms, such as the aim of projects, and the role of each stakeholder. Project aims may result in differences in project type and size, as well as its main actors. A project may have cooperative characteristics as well as product development and commercialization objectives. Each stakeholder may have several roles in a project. The role of each stakeholder determines the scope of benefits.

Types of benefits

According to OECD (2003), two types of benefit-sharing projects may be distinguished. Integrated projects may cover a wide range of benefits. These cases involve many kinds of process benefits, capacity building and other benefits contributing directly or indirectly to the development of local communities, including training related to genetic resources conservation, scientific information about conservation and sustainable use, and contributions to the local economy. Non-Integrated Projects deal primarily with process benefits (sharing of research and development results, collaboration in scientific research and development programmes, participation in products development etc.).
Studies are unanimous in recognizing that the optimal bioprospecting strategy will include some level of knowledge generating investment. Bioprospecting activities can theoretically contribute to

sustainable developments by providing incentives for conservation while developing technological capabilities that enhance long-term opportunities for economic growth (Artuso, 2002). Moran (2000) argues that training increases the capacity of biodiversity-rich countries to assess and evaluate their resources, to generate biological databases and to enter into the natural products industry if they choose to do so.
Some benefits increase opportunities for the poor, whereas others contribute to their empowerment (Henne et al., 2003). Opportunities include to increase the value added to genetic resources in the source country, and providing employment.

Provider country needs analysis
According to Virchow (2002), in many developing countries, on-farm conservation has high opportunity costs at the national level. Many countries are interested and forced to continue and increase integration of resource-poor farmers into the market to increase national food production and food security. Therefore, the potential of participatory plant breeding needs to be included in further considerations and suitable participatory breeding procedures should be developed to incorporate farmers' seed systems in the pre-breeding work of NARS (Virchow, 2002; Swaminathan, 1997), and vice-versa NARS in participatory farmer-led selection and breeding.
According to the analysis of Seiler & Dutfield (2002), Artuso (2002) and Caillaux and Ruiz (2002), the challenges imposed on developing countries in order to profit from the utilisation of the genetic resources they supply can be summed up as the need to:

- perform a comprehensive market and demand analysis for genetic resources at the national level
- identify the technology field or industrial and market segments in which they are competitive, and acquire and/or focus the material and human capital required to develop high quality products
- develop arrangements ensuring that the utilization of genetic resources supports rather than impairs the conservation of biological diversity
- develop a critical mass of properly trained scientists and technicians.

The sustainability of benefit-sharing efforts determines the longer-term impact on conservation and use of genetic resources and on national or communal development.

User country needs analysis
According to Caillaux and Ruiz (2002), it would be better to establish directives that are relevant to resource users in relation to benefit-sharing and not only for states and their stakeholders that supply resources as countries of origin.

Analysis of global exchange
An international PGRFA flow system has been suggested (ABS workshop, 2003) to answer the following questions:

- Where do genetic-resource related technologies occur and where have they been transferred?
- What is the extent of recipient capacity to use and further develop such technologies? Where has transfer been sustainable and where not?
- What are the reasons of success and failure in transfer of technologies?

4.5 Mechanisms

This study understands mechanisms as the coherent approaches and means to arrive at the anticipated objectives of benefit sharing. Various authors have commented on current and potential future mechanisms.

Scope
A benefit-sharing arrangement should take into account the conditions, obligations, procedures, types, timing, distribution and mechanisms relating to the benefits to be shared (Henne et al., 2003).

In practice, benefit-sharing with local communities is often limited because genetic resources are usually acquired from *ex situ* sources (e.g. genebanks and botanic gardens). (Biodiversity Brief 3, 2002). Therefore, an obvious role for the MLS is to encourage benefit-sharing of genetic resources obtained, whether from *in situ* sources in developing countries or from *ex situ* resources, such as genebanks and botanical gardens.
Networks may constitute a major mechanism for benefit sharing, dealing with coordinated exchange of germplasm, development of national breeding programs, enhancing the research capacity and facilitating training programmes and exchange of information (Raymond and Fowler, 2001), as also referred to in Art. 13.2(b).

Beneficiaries
Benefit-sharing partnerships that involve a range of stakeholders help to spread benefits so as to make the maximum contribution to conservation and sustainable development. However, simple partnerships may be more efficient and cost-effective, and companies will only be interested in working with stakeholders who can contribute to profitable and sustainable business activities and positive public relations.

Types of benefits
Henne et al. (2003) in commenting on capacity building stress, among other aspects, the need to stimulate the flow of information on innovative and successful community practices that include biodiversity and poverty alleviation, to use microfinance programmes, and to facilitate easier market access.
The development of community registers of biodiversity and related knowledge in close collaboration with local communities documenting the tribe's knowledge of plants and animals can help the local communities conserve their biological resources and enhance community control over such resources and facilitate community participation in ABS partnerships. (Swiderska, 2001; ABS Case Studies from Africa and Asia, 2004)
The Kerala Kani Samudaya Kshema Trust, set up in India in the late 1980s, is funded by some of the profits from licensing a herbal medicine to companies. It has numerous objectives, including community welfare and development projects for the Kani in Kerala, such as the setting up of a telephone booth in a remote area, insurance schemes for pregnant women and another covering accidental death (ABS Case Studies from Africa and Asia, 2004)

User country provisions
Support measures in user countries may be taken by promoting best practice for industry, complementary legislation, monitoring of imports and information sharing (Biodiversity Brief 3, 2002). User countries may take additional measures such as disclosure of origin, voluntary certification schemes, and adoption of incentives and other measures, such as tax reduction or exemption, to secure technology transfer (ABS Workshop, 2003).

Provider country provisions
Countries should include provisions for non-monetary benefits in the legal framework and negotiation regime for bio-prospecting projects. The most effective approach might be to promote bio-prospecting projects as collaborative efforts that place a premium on capacity building efforts rather than establishing royalties based on possible future benefits in the commercial phase.
Research centres and companies nearly unanimously respond to the question of how legal frameworks for access should be characterized: simple, clear and unambiguous, with minimum transaction costs (Caillaux and Ruiz, 2002). Such a preference will also be valid for benefit-sharing arrangements.
For the Global Enviornment Facility (GEF) capacity building is a strategic priority. National ownership and leadership are important GEF principles. Documents have been prepared to assist countries in the preparation of capacity building needs assessments.
By introducing provisions for Farmers' Rights, Plant Variety Protection Acts will concurrently allow for commercial development and for conservation, and strike a balance between the homogeneity of commercial cultivars and the heterogeneity of farmers' varieties (Swaminathan, 1997).
A review of several of the more successful of biotechnology programmes indicates the importance of combining publicly supported initiatives to develop scientific capabilities with a concerted effort

to promote private investment, and might serve as an example for the area of bioprospecting (Artuso, 2002).
A legal basis for benefit-sharing with the poor, ensuring the participation of communities with traditional knowledge may contribute to the protection of traditional knowledge (Henne et al., 2003).
To conserve biodiversity, additional strategies beyond ABS must be utilized. ABS legislation is only one component of the policies that are needed and (sometimes) undertaken for managing genetic and biological diversity, and cross-sectoral efforts are needed (OECD, 2003).

Indicators to monitor benefit-sharing

There is no objective assessment of what makes a benefit sharing arrangement fair and equitable. However, the following questions might constitute indicators on process and content:
Were the benefits identified and defined jointly by all stakeholders?
Are stakeholders clear which variables affect the type and value of benefits agreed?
Is it clear from the arrangement which benefits were precisely defined at the time that the arrangement was made, and which benefits will only become clear later?
If the benefits to be expected from access are unclear at the time of access, is there a mechanism by which the type and value of benefits accrued as a result of development can be monitored?

- Are benefits distributed to a range of stakeholders?
- Do arrangements under the MLS address and promote a package of different benefits?
- Are individual arrangements based on a standard or tailored?
- Is benefit-sharing linked to a set of objectives or principles that address wider principles? (adapted from Ten Kate and Laird, 1999)

Timing of benefit-sharing

Since the MLS has decoupled access and benefit-sharing, the issue of timing as appropriate for individual access and benefit-sharing arrangements has lost relevance. In relation to types of benefits and beneficiaries, timing of voluntary benefit-sharing in the first period of implementing the MLS remains important. The availability of different benefits at different points in time will strongly influence individual stakeholder judgements on the effectiveness of these arrangements.

4. 6 Towards benefit sharing models under the MLS: a summary

Non-monetary benefit-sharing arrangements under the MLS are voluntary and involve a series of stakeholders, and thus the Parties to the Treaty should facilitate the development and implementation of such voluntary arrangements.

Although the multilateral nature of the MLS results in a decoupling of access and benefit-sharing at the individual transaction level, it should be recognized that stakeholders benefiting from access should be encouraged by their governments to participate in voluntary benefit-sharing arrangements.

Models for non-monetary benefit-sharing arrangements should be rooted in current practices and best experiences. Current practices involve governments, public entities such as universities, research organisations and genebanks, private industry, community-based organisations and NGOs.

Different models should accommodate different stakeholder groups. Industry tends to favour arrangements focussing at information exchange, training and direct support for provider country activities, whereas arrangements involving the public sector in user countries include capacity building such as establishing collections, facilities, as well as training and local development.

Whereas farmers are recognzied as major beneficiaries, local devlopment logically follows as one of the objectives of benefit-sharing arrangements.

Models should also specifically allow or focus on the participation of farmers and local communities, and their involvement should not be taken for granted. Likewise, specific attention is needed to secure a positive effect of agreed arrangements on conservation of genetic resources, whether direct or indirect.

Arrangements should promote a structural and lasting relationship between stakeholders to increase impact on conservation and sustainable use.

User countries should establish regulatory mechanisms promoting and facilitating involvement of user country stakeholders in non-monetary benefit-sharing arrangements, in particular stakeholders directly profiting from access. Provider countries should perform a needs analysis involving all relevant stakeholders and develop capacity to contribute to decision-making on benefit-sharing arrangements.

An information system tracking benefit-sharing arrangements and monitoring their impact is important for the future success of the MLS.

CHAPTER 5: RECOMMENDATIONS: STRONG POINTS , QUICK WINS, BETTER FITS AND GAPS

Non-monetary benefit-sharing arrangements under the MLS may focus on proven concepts, and the Parties to the Treaty may wish to promote and facilitate such proven concepts. Amongst those, some arrangements can be qualified as quick wins, and establishing such arrangements may contribute to trust in its effectiveness of all stakeholder groups, and commitment to the Treaty and its MLS. Simultaneously, to optimise effectiveness of the MLS countries that are Parties to the Treaty may wish to develop new policies and regulatory provisions specifically promoting the establishment of voluntary non-monetray benefit-sharing arrangements under te MLS. Below we have listed some of those strong points and quick wins, as well as the need for better fits and gaps to be filled.

5.1 Strong points and quick wins

Recommendation 1. A Focal Point for Good Practices under the MLS, accruing and distributing information of any arrangement that works well, may take on a clearing house function and contribute to trust building, and its establishment can be considered a quick win.

Recommendation 2. The development of a common mechanism to tap into funds of charities and industrial foundations as well as into the Global Environment Facility including facilitating proposal development would be a strong point in mobilising new funds and could be linked to the suggested Focal Point for Good Practices as well as the Glocal Crop Diversity Trust.

Recommendation 3. Development of a Global Information System to promote information exchange as proposed in Art. 13.2a should be most actively pursued in close collaboration with the CBD. The Focal Point for Good Practices could be integrated in or complement such Global Information System.

Recommendation 4. To increase provider country capacity to maintain and utilise its genetic resources, technical capacity building is vital. Based on ample experience, training and staff exchange, as well as joint explorations resulting in new national collections maintained in the provider country are relatively easy first steps (quick wins). Existing arrangements can be used as models to build upon.

Recommendation 5. In-country regulations should always allow and promote an not discourage autonomous benefit-sharing arrangements between stakeholders of countries that are Parties to the Treaty.

Recommendation 6. Arrangements that provide easy-to-maintain and reliable storage facilities for plant genetic resources collections that fit into local infrastructure in combination to training form a strong point.

Recommendation 7. The agenda and first series of contracts of the Global Crop Diversity Trust can be instrumental in achieving the objectives outlined above, and its close involvement in the execution of Article 13 would be a quick win.

Recommendation 8. Given their experience in working with NARS, the centres of the CGIAR could contibute to technology transfer and to capacity building of the NARS and other provider country stakeholders, provided that funding for such forms of non-monetary benefit-sharing arrangements can be made available. The CGIAR plant genetic resources database SINGER as well as regional databases such as GRIN and EURISCO might play a major role in information exchange.

5.2 Better fits

Recommendation 9. Benefit-sharing arrangements should be need-driven and not supply-driven. Provider country should perform needs analyses involving all relevant stakeholders including farmers, if not yet available. Such needs analyses can be regarded part of the capacity needed to discuss and engage in benefit sharing arrangements that are effective and optimally fit the needs of the country and its various stakeholder groups. Capacity building should also add in cerating a level playing field.

Recommendation 10. Both user and provider countries should develop or strengthen regulatory mechanism promoting the establishment of benefit-sharing arrangements, and optimising the impacts.

Recommendation 11. Implementation of the MLS would be helped if in addition to regulatory provisions a mechanism can be developed that identifies entities expected to initiate benefit sharing arrangements, in addition to the Parties themselves. In particular, involvement of developed country industries in benefit sharing arrangements might be facilitated by such mechanism, as also suggested in Art. 13.6.

Recommendation 12. The MLS is a multilateral system and thus multilateral donors and regional networks are natural stakeholders in benefit-sharing arrangements under the MLS. Whereas FAO might be the codifying institution, other multilateral and regional organisations should be invited to participate in the development and implementation of benefit-sharing arrangements. The Global Environment Facility is a most obvious partner, and an added adcvantage is that it has built up some experience in working with local organisations and NGO's through its Small Grants programme.
WIPO might be asked to increase its support for the establishment of community registers, as a contribution to awareness raising on the value of traditional knowledge, information exchange, protection of traditional knowledge against misuse and thus as an effective traditional knwoedge protection system.

5.3 Filling gaps

Recommendation 13. Since farmers are regarded as major beneficiaries, local organisations need to be involved in benefit-sharing arrangements and local development should be an aspect of such arrangements, since it addresses the values expressed in the Treaty.

Recommendation 14. Small seed enterprise in provider countries should be promoted to contribute to the cultivation and marketing of diverse crop varieties, thus contributing directly to the objectives of the Treaty.

Recommendation 15. As part of the activities under the MLS efforts to quantify non-monetary benefits (clarifying which stakeholders contribute what) should add to trust building regarding the effectiveness of the MLS. Such activity mihght be linked to the proposed Focal Point for Good Practices.

Recommendation 16. Implementation at the national level remains to a large extent the responsibility of the national governments. Provider country governments should be encouraged to share their models and mechanisms to ensure that benefits reach all stakeholders, in particular small-scale farmers, contributing to the conservation and utilisation of genetic resources.

Table 1. Benefits by type

Exchange of information	**Information on collaborative efforts** Sharing of research and development results Access to databases **General sharing of information relevant for conservation and use** Access to scientific information relevant to conservation and use of biodiversity Improved knowledge of biodiversity Improved knowledge of natural environment	
Access to and transfer of technology	**Access to materials** Access to collections Access to products Access to commercially released varieties for further research and breeding **Access to relevant technologies** Transfer of knowledge and technology Transfer of equipment, software, know-how Joint ventures for the creation of technological foundations **Participation in product development** Participation in planning and decision-making Undertaking commercial production, processing or manufacture Creation of alternative industries or crops Partnership in the economic exploitation of processes and products **Sharing of rights** Joint ownership or sole ownership of intellectual property rights Free licensing for the utilization of patented processes and products	
Capacity building	**Cooperation in scientific research and development programmes** Facilitation of research partnerships Formation of collaborative agreements with local institutions Co-operative scientific research and technological development Consolidation of scientific research infrastructure Providing country conducting field trials Research directed to priority needs, such as health and food security Participation of source country scientists in research **Cooperation in conservation efforts** In-kind support for conservation (e.g. genebank facilities) Benefits in kind e.g. augmentation of national collections in the country of origin Increased opportunities for developing joint strategies for conservation and use Voucher specimens to be left in national institutions Control over samples in provider countries **Cooperation in education and training** Training in bioprospecting methods etc. Training in science, in situ and ex situ conservation and management, information technology and management/administration of ABS **Institutional capacity building** Increased scientific capacity Strengthening capacities for technology transfer Investment in research and development infrastructure Investment in the capacity of local industry Undertaking commercial production, processing or manufacture Resources for the implementation of access regulations Institutional and professional relationships Exchange of staff	
Local development	Food and livelihood security benefits Social recognition Contributions to the local economy Creation of employment Support for community development activities Investment in local institutions	