

FRIENDS WORLD COMMITTEE FOR CONSULTATION (QUAKERS)
www.quno.org



Quaker United Nations Office

Avenue du Mervelet 13
CH-1209 Geneva, Switzerland

Tel +41 (22) 748-4806
Fax +41 (22) 748-4819
Email : ssprague@quno.ch

Unreasonable expectations: A transactional approach to the conservation and sustainable use of plant genetic resources for food and agriculture and the realization of Farmers' Rights

A Quaker United Nations Office Submission to the Ad Hoc Open-Ended Working Group to Enhance the Functioning of the Multilateral System of Access and Benefit-Sharing

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Introduction

The International Treaty on Plant Genetic Resources for Food and Agriculture¹ (IT) entered into force in 2004 with the objectives of conserving, sustainably using and sharing the benefits arising from the use of plant genetic resources for food and agriculture (PGRFA). The IT is part of a larger international legal architecture governing PGRFA, which up until now has focused on a transactional or market-based approach to achieving these objectives. Access and Benefit-Sharing (ABS) has become the primary strategy for facilitating exchange and funding *in situ* conservation. ABS is premised on the assumption that users are able to capture economic value from PGRFA sufficiently that they will be willing to pay farmers or other custodians for their efforts to conserve these resources.

Looking objectively at current benefit flows and critically at the potential for future benefit flows; this contribution suggests that this strategy is insufficient to ensure the conservation, sustainable use and development of PGRFA. The public sector needs to play a larger role in ensuring these ends by undertaking complementary measures to increase the effectiveness of bilateral and multilateral ABS

¹ The IT entered into force on 29 June 2004. Available at <http://www.planttreaty.org/content/texts-treaty-official-versions> Last accessed April 20, 2016.

frameworks; and pursuing alternative, rights-based approaches² to achieving *in situ* conservation and equitable benefit-sharing.

We first reflect briefly on the historical context that has shaped the IT and its current orientation and approach. We then assess the current state of ABS frameworks and their future potential. The main challenges standing in the way of future benefit flows within these frameworks include:

- The resources, financial and otherwise, required to adequately support small-scale farmers in conserving and developing PGRFA *in situ* exceed potential benefit flows.
- There is less interest in using genetic resources with benefit-sharing obligations attached to them on the part of private entities, particularly while there remain opportunities for avoidance.
- There are no compliance mechanisms in place and national capacity to monitor and enforce contractual agreements is lacking.
- There remains a lack of coordination among ministries involved, and tackling important outstanding questions with regards to the impacts of benefit-sharing will require significant coordination.

In light of these challenges, the final section emphasizes the need for strong public sector engagement in creating the incentives for small-scale farmers to continue to conserve and develop PGRFA *in situ*. It is premised on the belief that for the purposes of food security, PGRFA cannot be separated from the small-scale farmers who have been conserving and developing them from the beginnings of agriculture almost 12,000 years.³ Finally, we propose that if there is a Global Endowment for PGRFA in the world's most important genebanks, it is time to think in similar terms for support of SSF with their innovative management practices and conservation and development of PGRFA *in situ* and on farm.

QUNO appreciates this opportunity to contribute to ongoing discussions on ABS, and recognizes the Ad Hoc Open-Ended Working Group to Enhance the Functioning of the Multilateral System of Access and Benefit-Sharing for their open and participatory approach. This is a critical point in time to reflect together on the roles of the market, public sector and civil society in facilitating the exchange of genetic resources and generating incentives and benefits for farmers to continue to develop and maintain them.

Background: The historical context for ABS

² Adopting a rights-based approach to benefit-sharing would mean that legal and administrative capacities at the national level exist to ensure the equitable sharing of benefits and more widespread participation in policy discussions relating to PGRFA.

³ cite to Chelsea Smith et al paper realizing FR in era of climate change; Bragdon/Smith SSF Innovation

The IT arose in part as a response to concerns over the expanding scope, strength and international harmonization of intellectual property rights regimes covering plant genetic resources. International legal instruments — most notably the UPOV Convention and the WTO TRIPS Agreement — were developed to help those with sufficient skill, technology and financial resources capture the economic benefit of research and variety development. These instruments were not developed from a food security perspective, and did not have as their focus the 1.5 billion small-scale farmers that contribute to the dynamic management and development of PGRFA worldwide and produce the majority of the world's food. This evoked a reaction within the member States of the FAO, and led to the development an international instrument establishing PGRFA as the 'common heritage of mankind,' reflecting that genetic resources have been moving around the globe for thousands of years.⁴

The IT evolved in response to Convention on Biological Diversity (CBD). The impetus of the CBD was the need for greater coherence among existing international instruments dealing with conservation, however its scope became much broader than that. It became an effort to achieve a balance of power between developed and developing countries by recognizing national sovereignty over biological diversity. Access and benefit sharing (ABS) was the primary mechanism for achieving this balance, whereby users of biodiversity (often developed countries) share resulting benefits with custodians of biodiversity (often developing countries and communities within them) through bilateral agreements establishing prior informed consent (PIC) and mutually-agreed terms (MAT) (Article 15).

While PGRFA are included in the scope of the CBD, food security was not discussed during the negotiations. The CBD was negotiated by representatives from environment ministries, as opposed to agriculture ministries as was the case with the IT, with little understanding of PGRFA. This was noted in a resolution when the CBD was adopted asking the FAO to consider outstanding issues like the status of *ex situ* collections of PGRFA and Farmers' Rights. The unintended consequence of ABS regimes in terms of food security was that the flow of genetic resources slowed down — a concern in light of the global interdependence on PGRFA and the imperative of exchange.

In effect, the Multilateral System (MLS) was a response to this unintended consequence. The *ex situ* collections held in trust under the MLS are accessible to all who agree to the terms of the Standard Material Transfer Agreement (SMTA). Access is thereby facilitated multilaterally, negating the need for bilateral agreements and the transaction costs and legal uncertainty that come along with them.

⁴ The International Undertaking on Plant Genetic Resources was adopted by the FAO Conference in 1983.

The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (the Nagoya Protocol), a supplementary agreement to the CBD, is complementary with the MLS. The protocol recognizes the special nature of agricultural biodiversity and the interdependence of all countries for PGRFA. It provides for specialized access regimes as they do not run counter to the objectives of the CBD or the Protocol (Article 4), and considers the need for a global multilateral benefit-sharing mechanism for genetic resources that occur in transboundary situations or for which prior informed consent cannot be obtained (Article 10).

Through the IT, CBS and the Nagoya Protocol, a transactional approach to ABS was mainstreamed. Expectations were high that bilateral and multilateral ABS systems would generate significant monetary benefits, providing farmers and rural communities with incentives to conserve and enhance PGRFA *in situ*.⁵ This is a completely understandable attempt to respond to very real inequity when it comes to the ability to capture economic benefit from these resources. Benefit sharing is surely a valuable means to promote rural development and incentivize the conservation of PGRFA. Nevertheless, it begs the question: can a transactional approach generate the required benefits to support the activities of farmers, particularly small scale farmers, in their dynamic process of conserving and developing these resources?⁶

Reality check: The functioning of ABS frameworks so far

At the international level, ABS has not functioned as anticipated. Since its establishment over a decade ago, the Benefit-Sharing Fund has accumulated only US\$22 million in the form of voluntary contributions from Norway, Australia, Spain, Italy, Switzerland and the United Nations Development Programme. This compares to the *annual* fund-raising target of US\$23 million established by the Governing Body of the Benefit-Sharing Fund.

In 2013, Moeller and Stannard projected that, given favourable assumptions regarding voluntary payments and members immediately making all materials available, it would take fifteen years before this annual fund-raising target could be reached. However in light of the current list States signatory to the IT, they suggested that it would more realistically take a minimum of 38 years.⁷ Other studies that have since been commissioned by the Secretariat of the IT to

⁵ Project funding is periodically distributed via the Benefit-Sharing Fund to groups engaged in *in situ* conservation. See <http://www.planttreaty.org/content/benefit-sharing-fund>

⁶ It is important not only to protect PGRFA, but farmers' dynamic management systems and ways of developing and diffusing new technologies, skills and knowledge with other farmers, as well as public and private entities.

⁷ Moeller, N. I. and Stannard, C. (2013). Identifying Benefit Flows. FAO, Rome.

conduct economic projections under different options for a revised SMTA have been even less optimistic. During the meeting of the Ad Hoc Technical Committee on Sustainable Use of Plant Genetic Resources for Food and Agriculture in Geneva in December 2014, consultants reported a ‘mismatch’ between the projections and expectations for the benefit-sharing fund.⁸

At the national level some progress has been made towards implementation of ABS legislation with the Nagoya Protocol entering into force.⁹ Several ABS capacity-building initiatives have been undertaken, including regional projects in Latin America and South East Asia, financed by the Global Environmental Facility, and Africa and the Caribbean and Pacific Group of States, financed by a group of donors as part of the ABS Capacity Development Initiative.

Despite the more widespread implementation of national legislation, international transactions taking place under ABS agreements are relatively few in number, and the benefits shared have been quite modest.¹⁰ In an international review of the functioning of ABS in practice, Prip and Rosendal (2015) report few bioprospecting initiatives with commercial intent and low amounts of monetary benefits accumulated. There remain research gaps with respect to the actual and potential contributions of ABS to conservation and sustainable use of biodiversity, as well as the impacts of implementation of ABS at the national level.¹¹

The future of ABS

The fact that ABS has not yet functioned in practice is of course do not invalidate its future potential. QUNO acknowledges the ongoing work of the Ad Hoc Open-Ended Working Group to Enhance the Functioning of the Multilateral System to develop a subscription model/system that could be incorporated into a revised

⁸ See <http://twnetwork.org/biodiversity-access-indigenous-knowledge-and-iprs/benefit-sharing-under-itpgrfa-%E2%80%93-%E2%80%9Ctoo-little-too>

⁹ Prip, C. and Rosendal, K. (2015). Access to genetic resources and benefit-sharing from their use (ABS)-state. *World*, 9(2), 189-212.

¹⁰ Rosendal, K. and Andresen, S. (2014). Realizing access and benefit sharing from use of genetic resources between diverging international regimes: the scope for leadership. *International Environmental Agreements: Politics, Law and Economics*, 1-18.

¹¹ Studies documenting the state of implementation of ABS at the national level include those conducted by the Fridtjof Nansen Institute of ABS (Ethiopia by Andersen and Winge, 2012; Ghana by Rosendal et al. 2012; Cameroon by Rosendal, 2012; Australia by Prip et al. 2014); the GIZ ABS Capacity Development Initiative (Brazil, India and South Africa); and the Centre for International Sustainable Development Law (a general overview of national and regional measures on ABS by Medaglia et al. 2014).

SMTA.¹² Such a model may reduce the transaction costs associated with accessing material and precipitate an earlier flow of benefits into the fund.

There is potential at the national level as well. New momentum associated with the Nagoya Protocol entering into force may have positive impacts yet unknown.¹³ Perhaps the ABS Clearing-House¹⁴ will illustrate an increase in the generation of shared benefits from ABS agreements moving forward.

However, there may remain cause for modest expectations. Neither widespread implementation of national ABS legislation nor a restructuring of the MLS is likely to right the imbalance the led to these regimes in the first place. This is for a number of reasons, discussed below in turn.

First, the financial resources required exceed potential benefit flows. It is expensive to conserve and develop biological resources in situ,¹⁵ but at the same time it is difficult for users to capture the economic value of individual PGRFA. The economic value is hard to determine. Clearly, there is a high use value but not necessarily a value in the market place. But even if confined to a transactional basis for generating benefits (which hopefully the IT will not) there are a number of problems with PGRFA generating sufficient benefits in that context, including:

1. It takes on average eight to ten years to develop a new variety using new materials.
2. With some crop species, it is difficult to track the contributions of individual parental lines over many generations (e.g. in the case of potato breeding).
3. Only about ten to fifteen percent of biotechnology patents yield economic benefit, while the majority of research and development with genetic resources is not commercialized and thus there are no benefits to be shared.¹⁶

A subscription service to the MLS that would obligate companies to pay upfront for access may ensure that at least some benefits are collected. However,

¹² Third meeting of the Ad Hoc Open-Ended Working Group to Enhance the Functioning of the Multilateral System of Access and Benefit-Sharing. Brasília, Brazil, 2 – 5 June 2015 IT/OWG-EFMLS-3/15/Report available at <http://www.planttreaty.org/sites/default/files/OWGEFMLS3Re.pdf>

¹³ Prip and Rosendal (2015).

¹⁴ The ABS Clearing House is an online platform for exchanging information about the exchange and utilization of genetic resources and traditional knowledge, established under Article 14 of the Protocol and Article 18, paragraph 3 of the CBD. See <https://absch.cbd.int/>

¹⁵ Vivas-Eugui, D. and Anamika, I. P. A. (2012). Bridging the gap on intellectual property and genetic resources in WIPO's Intergovernmental Committee (IGC). ICTSD's Programme on Innovation, Technology and Intellectual Property (34). Geneva, Switzerland: International Centre for Trade and Sustainable Development.

¹⁶ *ibid.*

companies may choose to opt out from using material under the MLS altogether rather than pay a subscription fee. This leads us to the second challenge.

On the part of private breeding companies, there is less interest in collecting genetic resources from the field with benefit-sharing obligations attached to them. Vivas (2012) reports that transnational companies are either not using such material or are afraid to disclose this information. However, of the more than fifty countries with ABS legislation requiring disclosure of the geographical origin of the genetic resources used to develop new varieties (i.e. biodiversity-related disclosure requirements), there have so far been no reports of legal cases being brought for lack of disclosure. It is more to the point then that companies perceive ABS regimes to be cumbersome and bureaucratic, and thus a deterrent to bioprospecting,¹⁷ and are able avoid them on account of the extensive *ex-situ* collections that have been developed over a long period of time without strict access regulations.¹⁸

Users also have less incentive to access *ex situ* collections under the MLS where duplicates are available from other sources. The USDA gene bank collections in particular house decades worth of genetic material collected through bioprospecting, and are open to users without the same 'strings attached' as when accessing collections that are part of the MLS.¹⁹

Related to users' avoidance is the trend in agricultural research where public breeding centres and universities focus on preliminary research and breeding (often called 'pre-breeding'), while private companies use the outputs of this work to develop and release commercial varieties. Private breeding companies thereby leave the risks and costs of bioprospecting to the public sector and only engage in licensing when something of particular commercial interest is discovered.²⁰

The advent of genomics and promise of synthetic biology have raised the question as to whether or not user companies will need tangible genetic resources at all to do their research and variety development. It may be possible for breeders to synthesize the material they need, thus negating the need for facilitated access.²¹ Laird and Wynberg (2012) explain how changes in science and technology and declining interest in field-based bioprospecting for 'raw' or

¹⁷ Robinson, D. F. (2015). *Biodiversity, Access and Benefit-Sharing: Global Case Studies*. London: Routledge, pp 16.

¹⁸ Prip and Rosendal (2015)

¹⁹ Moeller and Stannard emphasized in their 2013 report on the functioning of the MLS that levels of benefit sharing flows would be substantially enhanced if countries with large gene bank collections, particularly US and China, became contracting parties to the Treaty.

²⁰ Robinson, 2015; Prip and Rosendal (2015)

²¹ Zerbe, N. (2015). Genetic resources and agricultural biotechnology. Special Issue: Mapping the Global Food Landscape Plant genetic resources in an age of global capitalism. *Canadian Food Studies*, 2(2), 194–200.

'natural' genetic resources in the case of pharmaceutical companies has resulted in less substantial benefit sharing than expected.²² It remains to be seen how exactly this will play out in the context of food and agriculture. What is discernible so far is the increasingly important role of micro-organisms in agricultural biotechnology. Genomes for micro-organisms are more easily sequenced than crop species, and micro-organisms around the world share considerable genetic material. This may open the door for advances in genetic engineering not yet anticipated.²³

Third, there is the challenge of compliance. As opposed to the WTO TRIPS Agreement, there are no compliance mechanisms in place for ABS regimes. Instead the system relies on the good faith of users. Vivas (2012) explains that national IP offices are able to verify that prior informed consent based on mutually agreed terms has been obtained by users, but do not have the authority or ability to ensure that benefit sharing has actually occurred in practice.²⁴ ABS regimes will likely not function so long as national capacity to monitor and enforce contractual agreements is lacking.

A fourth challenge pertains to the lack of coordination among ministries involved. National focal points for ABS under the IT and the CBD are rarely in contact with one another. This may improve as more national governments enact legislation in accordance with the Nagoya Protocol. More broadly however, ministries of environment, agriculture and rural development, at minimum, need be communicating with one another about the potential impacts of benefit-sharing on conservation, food security and rural livelihoods. At the moment there are important outstanding questions that can only be answered in concert: What criteria are there for deciding how benefits are distributed? Who benefits, and who does not, and for how long? What happens to rural communities when payments cease, or when project funding expires? How is project funding

²² Conniff (2012); Prip and Rosendal (2015) document the case of an ABS agreement signed in 1991 between the US multinational company Merck & Co Pharmaceutical and the Costa Rican National Institute of Biodiversity. The highly anticipated 'blockbuster' drug was never found, and thus there were no benefits to be shared. Merck moved its investment to synthetic rather than natural compounds. This case is part of a trend towards less investment in bioprospecting on the part of pharmaceutical companies.

²³ Laird, S. A. and Wynberg, R. (2012). Diversity and change in the commercial use of genetic resources: implications for access and benefit-sharing policy. Special Issue: Socio-economics and management of bioprospecting. *International Journal of Ecological Economics and Statistics*, 26(3).

²⁴ Anderson and Winge (2012) document the case of a ten-year ABS agreement on teff genetic material in Ethiopia, signed in 2005, which was at the time heralded as the most advanced to date. The Dutch company Health and Performance Food International declared bankruptcy in 2009 and the relevant patent on processing teff was transferred to a new company with the same owners. No benefits were accrued on the part of Ethiopian Institute of Biodiversity Conservation. Implementation of the agreement failed due to a lack of enforcement and legal oversight.

monitored and how are agreements enforced?²⁵ The amount of coordination among ministries and focal points represented within our fragmented international architecture governing plant genetic resources that is required to answer these and other questions should not be underestimated.

Moving beyond a transactional approach

Supporting small-scale farmers in conserving and developing PGRFA *in situ* is expensive. However the costs of not doing so will be far greater, recognizing the immense value of farmers' innovative management systems and breeding in terms of global food system.

The conclusion drawn from the above analysis is that ABS as a transactional approach to achieving conservation, sustainable use and development of PGRFA will likely be, at least on its own, insufficient for accomplishing these ends. Clearly, if the private sector does not have adequate incentive to pay for access, little benefit will be accrued into any fund to be shared.

The conservation and development of PGRFA by farmers *in situ* is in the global public interest, and public sector need be engaged particularly where the private sector and market mechanisms are insufficient. Complementary measures to ABS frameworks that may be undertaken by national governments may include, among other things:

- Legislation outlining biodiversity related disclosure requirements and the use of national databases for registering all new and existing varieties;²⁶ and
- Judicial systems that facilitate administrative and civil actions against private entities that do not fulfill their benefit-sharing obligations.

Alternatives to a transaction-based ABS framework may include, among other things:

- Biodiversity tax levied on commercial seed sales;²⁷

²⁵ Prip and Rosendal (2015) document the case of the Hoodia ABS Agreement signed between the San people of Southern Africa and South Africa's Council of Scientific and Industrial Research. There was much debate over whether the San people had been consulted with and adequately recognized from their traditional knowledge, but without resources and organizational capacity, they had difficulty asserting these legitimate claims. This case demonstrates the complexities associated with implementing benefit sharing among marginalized communities and highlights the need to include perspectives from rural development into ABS discussions.

²⁶ Current and ongoing discussions relating to biodiversity-related disclosure requirements and databases are taking place within the WIPO subsidiary body, the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC).

²⁷ Norway decided to make a permanent annual contribution to the benefit-sharing fund of the Treaty that amounts to 0.1% of the value of all seeds that are sold in the country.⁶² «The value of his contribution was \$101,368 and was received on 15 June 2010. The Norwegian Minister of

- Implementation of Farmers' Rights legislation;²⁸
- An endowment similar to the Global Crop Diversity Trust²⁹; and
- Public and NGO-funded conservation programs.³⁰

The desirability for a endowment fund similar to what exists for the major *ex situ* collections recognizes that PGRFA is not a static thing any more than SSF are static holders of unchanging knowledge, materials or management practices. SSF who manage and develop PGRFA are experimenting and evolving in response to changes and pressures as are the resources themselves. While *ex situ* collections are an important insurance policy, they cannot replace the 2.1 million varieties of 7,000 species bred since the 1960s. *Ex situ* collections preserve PGRFA as a snapshot in time, while the world's 1.5 billion small-scale farmers are developing new PGRFA and management practices at the frontlines of global environmental and other change.

These lists are not meant to be comprehensive but to stimulate discussion about alternative measures for ensuring equitable benefit-sharing which may support small-scale farmers at the front lines of global environmental change. With each, consideration must be given to the role of the private and public sector in providing the support and incentives needed. The Crop Diversity Endowment Fund is supported by countries, foundations, corporations and civil society.

Markets and the private sector may contribute to some of the objectives of food security — most notably by increasing food availability — but not all objectives, and not by themselves. They must be balanced by a strong public sector that not only acts as a broker or decreases risk for the private sector, but acts in its own right and in the public interest to ensure all aspects of food security and nutrition now and in the future.

QUNO suggests that discussions on ABS within the Ad Hoc Working Group would benefit from looking critically at the efficacy of the market in this context

agriculture and food at the time, Riis Johansen, emphasized that the envisaged mechanism “is not conventional development funding [but] a situation in which the agricultural sector of Norway [is] contributing to the farmers of countries in the developing world.” Nevertheless the reference to 0.1% of seed sales refers only to the method that is used to calculate the amount of donations to the Benefit-Sharing Fund, while ultimately such a contribution is paid with Government money and not directly by the private seed sector. Chelsea, can you cite to the Berne Declaration you sent me?

²⁸ See Andersen, Regine and Tone Winge (eds) (2013). *Realising Farmers' Rights to Crop Genetic Resources: Success Stories and Best Practices*, Abingdon (UK), Routledge, pp. 232.

²⁹ Prior to the April 2016 pledging conference the Crop Diversity Endowment stood at \$321,822,025 US dollars. 63.8% of this came from countries, 10.4% from Foundations, 2.2 % from corporations and 23.6 % classified as “other.” This compares to 22 million in the IT's Benefit-Sharing Fund.

³⁰ See for example, Jarvis et al (2015). *Plant genetic resources for food and agriculture and climate change*, in FAO (2015) *Coping with climate change: The roles of genetic resources for food and agriculture*, Rome, at 16.

and reconsidering the role of the public sector. Appropriate roles for the Treaty's Secretariat may be to:

1. Promote evidence-based research on the contributions of the above mentioned approaches to achieving equitable benefit-sharing;
2. Promote capacity building on behalf of national governments to implement legislation; and
3. Increase awareness nationally and globally about the critical public interest in global food security being served by the 1.5 billions small-scale farmers operating around the world.

Opening up discussions beyond how to improve the existing transactional approach to ABS to complementary and alternative approaches is a critical first step.

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