



number 1

Briefing paper

Food, biological diversity and intellectual property

QUNO's Briefing papers on Intellectual Property and Agriculture aim to inform discussion about what kind of intellectual property systems can best encourage innovation and economic development, whilst also fostering resilient, equitable and sustainable food systems.

We envision an international system that ensures long-term food security, protects fragile livelihoods and provides incentives to maintaining biological and genetic diversity.

Small-scale farmers

The missing element in the WIPO-IGC Draft Articles on Genetic Resources

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July 2013

The Intergovernmental Committee (IGC) of the World Intellectual Property Organization (WIPO) is currently negotiating intellectual property rules around Genetic Resources, Traditional Knowledge and Traditional Cultural Expressions/folklore. The implications of the draft text on small-scale farmers and food security are unclear. Here we explore the possible linkages and questions that should be further explored.

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Complex yet crucial relationships: Small-scale farmers, intellectual property, innovation and food security

Whilst there is growing concern worldwide and a sense of urgency about global food security,¹ the role of intellectual property for ensuring food security is not clear. Indeed, the world's understanding of the relationship between intellectual property and food security is limited.

It is a widely-held view that intellectual property (IP) is a tool to stimulate innovation and thus promote overall social well-being. Some argue that IP regimes are essential to stimulate precisely the kind of innovation required to tackle global food security challenges by incentivizing research and development in agriculture, such as for drought-resistant seeds.

1. Food security refers to the availability of food and access to it. The World Health Organization defines three facets of food security: food availability, food access, and food use. The UN Food and Agriculture Organization (FAO) adds another facet: the stability of the first three dimensions over time. See www.who.int/trade/glossary/story028/en/ and www.fao.org/cfs/en/ (accessed 7 July 2013)

Meanwhile, others argue that intellectual property in agriculture has actually inhibited innovation, by

- encouraging the cultivation of a narrow range of genetically uniform crops
- limiting farmers' ability to access and exchange seed
- restricting the circulation of plant genetic resources.

Critics argue these three factors undermine the welfare of small-scale farmers, as well as food security for us all.

The importance of small-scale farmers

The history of the use of IP in agriculture is relatively short and the impact on biological diversity, food security and public health is not yet clear.

What we do know, however, is that small-scale farming accounts for half the world's food production, and that agricultural biological diversity and small-scale farmer innovation plays an essential role in food security (see Box One). Arguably, the innovative activity most crucial to food security is the ability of small-scale farmers to create new and relevant varieties, and maintain diversity on-farm,² as well as to mix new varieties with traditional varieties.

Such innovation activities and management systems of small-scale farmers are critical to food security because it is these systems that are at the frontline of responses to global environmental change.

Food security requires mobilizing innovation from all sources, local to external. In discussing intellectual property in relation to genetic resources, it is not fruitful to set up false dichotomies: large-scale versus small-scale agriculture, hard versus soft technology. Indeed, on-farm innovation can

be seen as a continuum, as small farmers generally innovate by mixing or crossing new varieties (often developed by scientists, and often subject to IP protection) with traditional varieties.

Despite its importance, it is the small-scale farmer innovation part of the continuum that has been largely neglected in the global conversation. We must broaden the conversation and support the critical role of innovation and diversity at the level of the small-scale farmer. It is not just about leaving certain segments of the population behind, important though this is. It is about needing the input of the people at the forefront of the development, conservation and use of valuable GRs and knowledge about their use. The needs and expertise of small-scale farmers are essential to ensure all the pertinent questions are identified and the answers fully explored when considering legal regimes that can affect their use and management of GRs, as well as innovation.

It is an open question whether some form of intellectual property is either necessary or the most appropriate tool to support these dynamic and absolutely essential genetic resource (GR) innovation and management systems of small-scale farmers. The challenge is how to design a coherent legal regime that supports all types of innovation and management systems, including those of small-scale farmers. Impediments need to be removed and positive incentives created. Innovative small-scale farmers and farming communities cannot be expected to subsidize global welfare without incentives or external support.

The WIPO-IGC and small farmers' innovation

An intergovernmental negotiating committee (IGC) convened by the World Intellectual Property Organization (WIPO) is currently negotiating intellectual property rules 'which will ensure the effective protection of Traditional Knowledge (TK),

2. Susan Bragdon and Lynn Finnegan (2013) 'Inside Views — Genetic Resources And Traditional Knowledge: Getting The Rules Right For Agriculture. A Key Challenge For WIPO's IGC', *IP-Watch*, 1 February 2013, www.ip-watch.org

3. WIPO (8 February 2013) *Consolidated Document Relating to Intellectual Property and Genetic Resources Rev. 2*, www.wipo.int/meetings/en/doc_details.jsp?doc_id=230222 (accessed 7 July 2013)

BOX ONE: The input of small-scale farmers is critical to the success of any IGC GR and TK regime because:⁴

- Most developing countries are agriculture-based economies where smallholder farmers account for about 75% of agricultural production and over 75% of employment.
- Half the food produced today comes from 1.5 billion farmers on small plots of land. The largely IP-protected GRs that make up the monocultures of industrialized farming are not viable or sustainable in this context.
- GRs, and particularly the diversity of GRs continues to evolve through the work of small-scale farmers in their fields. These contribute to the resilience and stability of agricultural production systems. They provide control mechanisms and genetic security for adaptation to unpredictable changes in rainfall and temperatures. This is particularly important today as the effects and uncertainties of climate change become increasingly manifest.
- GR and TK offer social and economic opportunities that contribute to livelihoods and to social and cultural values.
- GR is a major contributor to nutrition and health through its direct use. The World Health Organization estimates that in many developing countries up to 80% of the population relies on genetic resources for primary health care.
- Ecological processes such as the maintenance of water cycling, soil fertility, pollination, seed dispersal and nutrient cycling all rely to a greater or lesser extent on agricultural biological diversity.
- In situ GR continue to be developed and preserved by farmers who maintain the associated traditional - and evolving - knowledge. These GR and TK are integral to breeding and crop improvements that have potentially global implications.

Traditional Cultural Expressions/folklore (TCEs) and Genetic Resources (GR).’ At its 25th Session scheduled for July 2013 the IGC will consider ‘The Consolidated Document Relating to Intellectual Property and Genetic Resources.’³

There has so far been little or no input from small-scale farmers or the organizations that represent them at the WIPO-managed negotiations and very little analysis of the draft articles in terms of impact on their vital innovative activity.

The WIPO-IGC text: Two challenges

The document before the IGC in July is a heavily bracketed 11-page document. Its provisions are hard to navigate as it preserves many, if not most, alternatives proposed during prior rounds of IGC negotiations. Furthermore, because the text was not adopted but “forwarded” to the 25th session, all issues remain open for further discussion.

4. For more information see Daniele Giovannucci, Sara Scherr, Danielle Nierenberg, Charlotte Hebebrand, Julie Shapiro, Jeffrey Milder, and Keith Wheeler (2012) *Food and Agriculture: the future of sustainability. A strategic input to the Sustainable Development in the 21st Century* (SD21) project, New York; United Nations Department of Economic and Social Affairs, Division for Sustainable Development (2008) *The International Assessment of Agriculture Knowledge, Science and Technology for Development (IAASTD)*, <http://time.hasco.me/iaastd-reports/>; T.C.H Sunderland (2011) ‘Food security: Why is Biodiversity Important?’ in *International Forestry Review* Vol. 13 (3)

From reading the document, two inter-related challenges emerge. One challenge arises because the IGC negotiations are situated within a larger, evolving international legal architecture governing genetic resources for food and agriculture, in particular the access and benefit-sharing regimes of the FAO International Treaty on Plant Genetic Resources on Food and Agriculture and the Convention on Biological Diversity's (CBD) 2010 Nagoya Protocol on Access and Benefit Sharing.

From a technical perspective, these inter-relationships are not well understood. There is a need for more clarity as to how the various international legal instruments interact in theory and in practice, and how national governments deal with the complexities of the system. From a political perspective, negotiators are very hesitant to drop an issue in one forum - even when beyond the institutional mandate of its host - without assurance that it will be addressed in another (see Box Two).

The second challenge concerns the very nature of the IGC, which as a WIPO body is an institution *for* intellectual property. This pro-IP mandate shapes and guides its approach to genetic resources, food security and innovation. It also limits the scope for open discussions as it assumes that intellectual property is the right incentive for agricultural innovation, although this may not be the case when

considering the diverse range of innovation systems that exist around plant breeding.

These two challenges exist within the larger legal and political context: the relationship between legal instruments and the political context in which issues are raised and addressed in various fora.

These two challenges need further thought as negotiators consider the various options presented in the current IGC text. Keeping in mind the vital importance of national food security objectives, negotiators might well wish to assess how the proposed IP provisions relate specifically to genetic resources and small-scale farmer innovation.

The links between the WIPO text and small farmer innovation

How do we assess the impact of the draft provisions on the ability of small-scale farmers to create new and relevant diversity on-farm? And importantly, how can we ensure the involvement and input of small-scale farmers in the evolving IGC text and resulting legal instrument?

The understanding of two broad issues throughout the text are relevant to small-farmer innovation:

BOX TWO: Forum shifting

The biggest point of contention in the IGC discussions on GR is over the mandatory disclosure requirement in patent applications regarding the origin of genetic resources and associated traditional knowledge. The proposal for a disclosure requirement was first tabled at WIPO's Patent Law Treaty discussions and led to the establishment of the IGC with the promise that disclosure issues would be handled in this new body. Similar proposals have been discussed in the TRIPS Council and were the subject of much discussion in the negotiations for the Nagoya Protocol. The Nagoya Protocol side-stepped the issue with many delegates saying this was an IP issue to be handled by the IGC. As of the February negotiating session the U.S., South Korea, Japan and Australia continue to oppose a mandatory disclosure requirement. Namibia told February's IGC 'We were told when we were negotiating Nagoya that the place to discuss disclosure is the IGC, so it is unacceptable that our negotiating partners are not willing to discuss it here.'⁵

5. ICTSD (13th February 2013) *WIPO: Text on Genetic Resources in Final Stages of "Relay"*, Bridges Weekly Trade News Digest, Volume 17, Number 5, <http://ictsd.org/i/news/bridgesweekly/153845>

1. What is meant by protection? The *raison d'être* of the IGC is an effective system of protection for genetic resources. In the context of intellectual property rights and the ability of farmers to create and maintain diversity of genetic resources on-farm, what does “protecting” genetic resources mean?

2. What genetic resources are important and relevant to small-scale farmers?

1. What is meant by protection?

According to WIPO “intellectual property (IP) refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce... The innovations and creative expressions of Indigenous and local communities are also IP, yet because they are “traditional” they may not be fully protected by existing IP systems. Access to, and equitable benefit-sharing of, genetic resources also raise IP questions. Normative and capacity-building programs are underway at WIPO to develop balanced and appropriate legal and practical responses to these issues.”⁶

Outside the intellectual property context, the “protection” of genetic resources has a broader meaning. This includes, for example, the physical protection of the biological resource, or the protection of the *diversity* of genetic resources – which is a dynamic, not static, concept.

It can also involve layers of rights, ranging from sovereign rights over genetic resources to the customary and often collective rights of Indigenous and local communities. Several intergovernmental processes deal with GRs in the broader context of conservation, sustainable use and benefit sharing, including the CBD’s 2010 Nagoya Protocol, the

WTO Agreement on Trade-related Intellectual Property Rights (TRIPS) and the FAO International Treaty.

While the relationship between these instruments has been the subject of discussion and analysis,⁷ the discourse has tended to be piecemeal, and narrowly focused on bilateral relationships rather than the broad legal landscape in its entirety. For example, there is communication and analysis about the relationship between the TRIPS Agreement and the CBD, and between the Nagoya Protocol and the FAO International Treaty. But there has been no comprehensive look at how the IGC instruments, the IT, the Nagoya Protocol, the Union for the Protection of New Varieties of Plants (UPOV) and the TRIPs Agreement can work together to support the on-going contribution of small-scale farmers in developing and maintaining the diversity of plant genetic resources critical to national and global food security (see Box Three).

David Vivas provides an excellent analysis of the difficulties that arise because of different understandings of what is meant by protection of genetic resources⁸. Supporting the ability of farmers to engage in the dynamic process of creating new varieties is beyond the scope of intellectual property protection alone. It requires understanding the interrelationships among things like seeds, land, water, energy, culture and well-being. It is clear, however, that progress in any one institutional arena requires more than just a conceptual understanding of these kinds of interrelationships. It requires the political will to ensure that in the international legal landscape, issues will be addressed and not continually shifted from one arena to another.

Much of the controversy in the various intergovernmental fora related to GRs would dissipate - or perhaps become more clearly focused - in the context of a more coherent and mutually reinforcing international regime.

6. www.wipo.int/about-ip/en

7. Treaty Secretariats tend to attend one another’s meetings, and their Governing Bodies routinely make and respond to informational requests.

8. David Vivas (2012), *Bridging the Gap on Intellectual Property and Genetic Resources in WIPO’s IGC*, International Centre for Trade and Sustainable Development (ICTSD), Geneva, page 8

BOX THREE: Coherence in the International System

The international governance of GRFA is a politicized area, with a lack of coordination between international fora related to IP and agriculture. The FAO Commission on Genetic Resources for Food and Agriculture (GRFA) touched upon this in April 2013, and the NGO Southeast Regional Initiatives for Community Empowerment (SEARICE) proposed a request for a study on the impact of IPRs on ABS for GRFA, which Namibia supported. After lengthy discussion and noting that the CBD Secretariat was requested by its governing body to undertake such a study the proposal was dropped. Interestingly, no reference to the proposal or discussion is in the report of the meeting. The lack of coordination is not confined to the intergovernmental – numerous national level case studies undertaken by organizations ranging from Bioversity International to the CBD Secretariat illustrate the disconnect between different sectors of national government. Finally, even conceptual analysis often misses the inter-relationships⁹.

With such an understanding, the IGC could focus on the intellectual property aspects of farmer innovation, whether through positive or defensive protection, through using the IP system to support other regimes, or some combination of these types of measures.

2. *What is the relevant subject of protection?*

The Chairman noted at the IGC session in February 2013 “that GRs were different from the other two subjects being dealt with by the IGC, namely TK and TCEs, because while TK and TCEs were developed by the human mind and could, therefore, be considered IP suitable for direct protection by IP instruments, GRs were not produced by the human mind and, therefore, raised distinct IP issues.”

This distinction is not entirely accurate with regard to genetic resources for food and agriculture (PGRFA) as it does not recognize that PGRFA development is facilitated by the human mind. Small-scale farmers have been developing GRs for thousands of years and the product of their innovation is itself a GR separate from knowledge that may be associated with its properties or use¹⁰.

This is a separate question from whether or not direct IP protection would provide incentives to small-scale farmers to develop new varieties, and if so, how the protection would be designed to meet the informal and often collective nature of small-scale farmers’ breeding efforts. Right now, the text does not seem to contain provisions for direct protection of GR as such, as the focus is on fulfillment of patentability and other IP requirements and supporting ABS requirements¹¹.

9. The two most recent books on the International Treaty on Plant Genetic Resources for Food and Agriculture do not discuss the relationship between the IT and the intellectual property rights system or to the IGC negotiations: Christine Frison, Francisco Lopez and Jose Esquinas-Alcazar (eds)(2011) *Plant Genetic Resources and Food Security: Stakeholder Perspectives on the International Treaty on Plant Genetic Resources for Food and Agriculture*, FAO, Bioversity International and Earthscan; Michael Halewood, Isabel Lopez Noriega and Selim Louafi (eds)(2012) *Crop Genetic Resources as a Global Commons: Challenges in International Law and Governance*, Bioversity International and Earthscan.

10. Furthermore, even within PGRFA there is a diversity of genetic resources and a diversity of ways in which resources are used.

11. At the February 2013 session of the IGC, Russia spoke up to support this distinction. Iran, Comisión Jurídica para el Autodesarrollo de los Pueblos Originarios Andinos and the Foundation for Aboriginal and Islander Research Action said this was a false distinction, noting that PGRFA should not be considered “raw” materials since they had been developed for generations by human activity.

Moving Forward

The objectives in the consolidated draft that will go forward to the July meeting have been reduced to two core objectives:

- 1) compliance with ABS, and
- 2) ensuring IP/patent offices have the required information to prevent the granting of erroneous patents and misappropriation and enhance transparency.

The crucial yet thus far missing entry point is the connection between IP protection and incentives to develop new and relevant PGRFA on-farm. This requires an understanding of the foundations upon which most new varieties are currently being developed, i.e. by millions of farmers in small farms around the world. “[I]t is not just about protecting the germplasm materials, but the farmers’ dynamic and collective system of technology development and diffusion through every season of research, experimentation, knowledge and skill sharing with other farmers and even with public and private entities.”¹²

At the most fundamental level, the foundation for farmers’ innovation is the ability to save, use and exchange seeds. New farmers’ varieties are based on diverse sources of germplasm. Farmers are building on landraces and local varieties from farmers’ communities as well as on germplasm from the private and public sectors¹³. Currently, the focus of discussions in intergovernmental fora, including the IGC, is on traditional knowledge over traditional resources and not on this dynamic technology development process by farmers where all germplasm – modern or traditional – is treated as potential input for direct use of further improvement.

In international fora the emphasis is on genetic resources *per se* and the role of farmers in conserving local and traditional landraces, rather than on the innovative process by which genetic resources are continually refined and developed.

Questions - such as what impact do the proposed IGC texts have on the rights of farmers to use and exchange seed or on the choice and availability of desired technologies and know-how – need to be asked and explored. Today, 1.5 billion small-scale farmers are producing half the world’s food. They are at the frontlines of selecting and adapting GRFA to meet the challenges of climate and other environmental change. This is an enormous service to the world, and one that could not be replicated by either the public or the private industry sector¹⁴.

As the IGC and other intergovernmental fora consider food security, incentives for innovation and access and benefit-sharing, consideration of the needs and expertise of small-scale farmers is essential to ensure all the pertinent questions are identified and the answers fully explored.

12. Wilhelmina R. Pelegrina and Renato Salazar (2011) ‘Reflections on IT from small farmers perspective’, in *Plant Genetic Resources and Food Security: Stakeholder Perspectives on the International Treaty on Plant Genetic Resources for Food and Agriculture*, FAO, Bioversity International and Earthscan.

13. Selection and the emergence of new farmers’ varieties occurs with and without external support. ‘Farmers’ practices may or may not include crossing and conscious creation of new genotypes, or rely on natural introgression events keenly identified and followed by selection. Once a preferred variety has been established farmers are well able to maintain its typical characters, although generally farmers’ varieties are deliberately maintained more heterogeneous than private sector varieties, in order to overcome the vagaries of environmental conditions. These farmers’ varieties are well able to spread over a large area.’ Rene Salazar, Niels Louwaars and Bert Visser (January 2006) *Protecting Farmers’ New Varieties: New Approaches to Rights on Collective Innovations in Plant Genetic Resources*, CAPRI Working Paper 45.

14. Thanks to Pierre du Plessis for pointing out the irreplaceability of this activity by private industry or the public sector.

The Quaker United Nations Office

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