
**47th Annual Convention of the International Studies Association
San Diego, March 22–25, 2006**

**Panel:
Environment and Demography: A North/South Perspective**

Thursday 23 March: 8:30 – 10.45 PM

**Governing Agrobiodiversity: The Emerging Tragedy
of the Anti-commons in the South ¹**

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¹ The analysis on which this paper is based will be published in my forthcoming book (2006): *Governing Agrobiodiversity – Plant Genetics and Developing Countries* (Aldershot, UK: Ashgate)

² I would like to thank Arild Underdal, Cary Fowler, G. Kristin Rosendal, Morten Walløe Tvedt and Susan Høivik for their valuable comments on various parts of the analysis on which the paper is based. I would also like to thank Stephen B. Brush for sharing with me his experiences and reflections on the Anti-commons tragedy in the South.

Abstract

Plant genetic diversity is crucial to the breeding of food crops, and thus one of the central preconditions for food security. Access to diverse genetic resources is fundamental to modern plant breeding as well as for traditional small-scale farming, on which some 1.4 billion people all over the world depend. During the past 15 years a range of international regimes have been negotiated which decisively affect the management of these resources. As a result, intellectual property rights and access regulation are being introduced in an increasing number of countries in the South. This is creating a situation where more and more parties independently possess various forms of rights to exclude others from utilising these vital resources. Such a situation can aptly be described as a ‘tragedy of the anti-commons’, in contrast to Hardin’s well-known concept of the ‘tragedy of the commons’.

The present paper seeks to identify the driving forces behind this development, its dynamics and effects for food security in the South. The driving forces follow the classic North–South divide: Whereas most of the world’s plant genetic diversity stems from the South, the financial and institutional capacity to make efficient use of such systems has remained largely with Northern corporations and institutions. As a reaction to the emerging intellectual property rights systems, developing countries have demanded the equitable sharing of benefits from the utilisation of genetic resources. However, domestic regulations to this end have often proven to reduce accessibility dramatically.

The analysis takes a document review of the relevant international negotiation processes as its point of departure. The aggregate effects of the international regimes pertaining to plant genetic diversity are analysed with a case study from the Philippines. In explaining the dynamics behind these developments, the theories on structural power and on learning and norm diffusion have proved to have explanatory value, and the findings will be discussed in this light.

A key finding is that the international agreements on agrobiodiversity have, as an aggregate effect, served to restrict access to plant genetic resources for food and agriculture, despite explicit intentions or implicit expectations to the contrary. The explanation is to be found in their interaction. The trade-off between the demands for intellectual property rights and demands for fair and equitable benefit sharing has resulted in a lose–lose situation for all. An open discussion of this controversial issue might uncover viable approaches for dealing with the problem, and to introduce better systems for access to plant genetic resources for food and agriculture – in balance with the demands for fair and equitable benefit sharing.

1. Introduction

Biological diversity has usually been associated with wild animals and plants, and there is generally less political awareness of the crucial importance of genetic diversity in agriculture. Plant genetic diversity is crucial to the breeding of food crops and is thus one of the central preconditions for food security. Access to diverse genetic resources is vital to modern plant breeding, as it provides the genetic traits required to deal with crop pests and diseases, as well as with changing climate conditions. It is also essential for traditional small-scale farming, on which approximately 1.4 billion people worldwide depend for their livelihoods.³ Traditional small-scale farmers maintain the yields and quality of their crop varieties by exchanging of seeds and seedlings over short and long distances, as they have done since the dawn of agriculture. Without genetic renewal, yields will decrease and quality deteriorates. Thus, plant genetic diversity is an indispensable factor in the fight against poverty.

However, the diversity of domesticated plant varieties is disappearing at an alarming rate. For several major crops, the losses in variety have reportedly been up to 80–90 per cent over the past century.⁴ At the same time, interest in the commercial use of genetic resources has increased with the growing economic stakes of bio-technologies, followed by demands for intellectual property rights. As patent systems are costly institutions, the capacity of developing countries to develop and effectively use such systems is limited. There has been much protest against intellectual property rights from the South, along with demands for protecting the rights of farmers and indigenous peoples and ensuring a fair and equitable sharing of the benefits arising from the use of these vital resources.

The international community has responded with several regimes fully or partly pertaining to agricultural plant genetic resources: The Convention on Biological Diversity (CBD), the Agreement on Trade Related Intellectual Property Rights (TRIPS) of the World Trade Organisation,⁵ and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). These regimes have emerged from differing rationales and interests, resulting in more or less different functional scopes, goals and emphases. What they all have in common is that they affect the management of plant genetic resources for food and agriculture (PGRFA)⁶.

³ Approximately 1.4 billion people live in farm families that are largely self-reliant and self-provisioning as to seeds and other planting materials, according to Cary Fowler et al. (in Brush, 2000). According to the FAO database, the total number of people depending on agriculture in 2001 was 2.48 billion, including those depending on hunting, fishing or forestry and their non-working dependants.

⁴ There are few exact figures on the extent and pace of genetic erosion in agriculture. However, nearly all the 154 countries reporting to the FAO for the Leipzig Conference in 1996 (FAO, 1998) maintained that genetic erosion was a serious problem. In China an estimated 90 per cent of the 10,000 wheat varieties grown a century ago have been lost. In Mexico an estimated 80 per cent of the maize varieties grown in the 1930s are gone. These are estimates reported from the countries.

⁵ Following from the provisions in the TRIPS Agreement on intellectual property rights to plant varieties, also the International Union for the Protection of Varieties of Plants, UPOV, has become relevant in this context, as will be further explained below.

⁶ Plant genetic resources for food and agriculture encompass the diversity of genetic material in traditional varieties and modern cultivars, as well as crop wild relatives and other wild plant species used as food, according to the prevailing FAO definition (FAO, 1998). This paper focuses on the management of domesticated PGRFA.

The case of regimes pertaining to PGRFA is one example of the increasing number of regime constellations where two or more international agreements have overlapping functional scopes related to one and the same issue area.⁷ With these developments comes the need for an analytical grasp of the interaction between overlapping international agreements and its effects.

This paper analyses the aggregate effects⁸ of international regimes with overlapping functional scopes on access to PGRFA, as that is central to both their future existence and to food security. It focuses on how international regimes have affected access to PGRFA in developing countries – illustrated with examples from the Philippines. The theories of structural power and of learning and norm diffusion have proven to have explanatory value for explaining the dynamics behind these developments, and will be referred to here. Finally, the paper highlights the ‘anti-commons tragedy’ of PGRFA management in the South, and discusses approaches to solve the problems.

2. Basic facts on international agreements pertaining to PGRFA

The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) was adopted at the Thirty-first session of the Conference of the Food and Agriculture Organisation of the United Nations (FAO) in Rome on 3 November 2001. It entered into force on 29 June 2004, and is the first legally binding agreement to deal exclusively with PGRFA management. Its objectives are the conservation and sustainable use of these resources, and the fair and equitable sharing of the benefits arising from their use – in harmony with the Convention on Biological Diversity (CBD) – for sustainable agriculture and food security. The most important benefit to be provided from the use of PGRFA is that of access to these vital resources for food and agriculture. The predecessor of the ITPGRFA was the International Undertaking (IU), which aimed at conservation of and access to PGRFA. It was adopted in 1983 but was not legally binding.

The Convention on Biological Diversity (CBD) was the first international treaty to address the conservation, sustainable use and equitable sharing of benefits derived from the utilisation of biological diversity in general. It was opened for signature at the UN Conference on Environment and Development in Rio in 1992, and entered into force on 29 December 1993. In its general approach to biological diversity, it did not differentiate between types of biological diversity, such as terrestrial and marine biological diversity or domesticated and non-domesticated biological diversity. Later, the Conference of the Parties established thematic work programmes on various components of biological diversity, one of which is on agricultural biodiversity,⁹ and for which a working

⁷ Regime overlap was first defined by Oran Young (1996), and is understood as a situation that occurs when individual regimes, formed for more or less different purposes, intersect on a *de facto* basis. It implies that the functional scope of one regime extends into the functional scope of at least one other regime.

⁸ Aggregate effects refers to the sum of individual regime effects and the interaction effect (Sprinz, Hovi, Underdal and Mitchell, 2004).

⁹ The other working programmes address marine and coastal biodiversity, forest biodiversity, the biodiversity of inland waters, and dry and sub-humid lands.

programme with timetable and reporting schedule was adopted in 2002 (Decision VI 5 of the CBD Conference of the Parties).

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was adopted on 14 April 1994 as one of the three basic agreements on which the World Trade Organisation (WTO) was built.¹⁰ The WTO agreement, which established the new organisation, entered into force on 1 January 1995. The TRIPS Agreement came into effect one year later, on 1 January 1996 (Article 65.1). However, developing countries were entitled to extend their implementation of the TRIPS Agreement until 1 January 2000, and least-developed countries were granted a 10-year extension, until 1 January 2006 (Article 65.2), with the possibility of further extension of the period upon duly motivated requests to the TRIPS Council (Article 66.1).

The TRIPS Agreement provides minimum standards for the protection of intellectual property rights in its member states, and covers such intellectual property rights as copyrights, trademarks, geographical indications, industrial design, and patents. Article 27.3(b) provides that plants and animals other than micro-organisms, and essential biological processes for the production of plants or animals other than non-biological and microbiological processes can be excluded from patentability. The condition is that the members 'provide for the protection of plant varieties, either by patents or by an effective *sui generis* system or by any combination thereof'. The limits for a *sui generis* system and the meaning of an *effective sui generis* system are, however, not explicitly defined in the text, and there is confusion as to how this shall be understood. The International Union for the Protection of New Varieties of Plants (UPOV)¹¹ has advocated that the most effective way to comply with the provision of an effective *sui generis* system is to follow the model of the UPOV Convention. Although there are several other approaches to *sui generis* legislation, the trend seems to be for countries to follow UPOV in their implementation of the TRIPS Agreement.

The Convention for the Protection of New Varieties of Plants (UPOV Convention) was adopted in Paris in 1961 to provide uniform and clearly defined principles for the protection of plant breeders' rights – and it established the Union for the Protection of New Varieties of Plants. It was revised in 1972, 1978 and 1991, with the 1991 version entering into force in 1998. The main difference between the latter and the earlier versions is that farmers are no longer entitled to freely exchange and sell seeds they harvest from varieties protected by plant breeders' rights. In addition, breeders are required to obtain authorisation from the rights holder for the commercial marketing of a new variety if it is essentially derived from, or similar to, a protected variety, whereas there was earlier an unrestricted 'breeder's exemption' to encourage further breeding. UPOV used to be an organisation for OECD countries; it has become relevant for

¹⁰ The other two were the General Agreement on Tariffs and Trade (GATT), on goods, and the General Agreement on Trade in Services (GATS), on services. In addition there is the agreement establishing the WTO, and various additional agreements and annexes dealing with the special requirements of specific sectors and issues.

¹¹ The abbreviation is derived from the French name of the organisation, *Union internationale pour la protection des obtentions végétales*.

developing countries only through the TRIPS Agreement.¹² As of August 2004, 17 developing countries were members of UPOV – 15 memberships based on the 1978 Act, and 2 on the 1991 Act.¹³

The different agreements developed out of different rationales. The IU and the ITPGRFA emerged from the FAO, based on a rationale concerning agricultural production and food security. The CBD emerged from an initiative by the World Conservation Union (IUCN) (de Klemm, 1982: 120; McGraw, 2002: 10), based on an environmental rationale, and was negotiated under the auspices of the United Nations Environment Program (UNEP).¹⁴ Both regimes are embedded in the structures of the UN. The TRIPS Agreement as well as the UPOV Convention¹⁵ emerged from business initiatives (Fowler, 1994: 104 and 176–177; Doremus 1996; Yusuf, 1998: 6), but with the joint rationale of creating private incentive structures to promote economic development. Thus, the international regimes all concern PGRFA management in different ways, as shown in Table 1 below.

Table 1: What the international regimes are about (emphasis)

	Conservation, access and benefit sharing	Intellectual property rights
Biological diversity in general (including PGRFA)	CBD	Article 27.3(b) of the TRIPS Agreement
Plant genetic resources for food and agriculture	IU/ITPGRFA	UPOV

3. Brief introduction to the issue area

Whereas this paper focuses on access to PGRFA, it is fruitful to view the topic within the larger context of PGRFA management. Based on the most comprehensive account of the state of PGRFA from the UN Food and Agriculture Organisation (FAO, 1998), the following overview provides the topics of importance:

1. *In situ* management of PGRFA: On-farm maintenance and enhancement of genetic diversity between and among crops

¹² Only South Africa became a member of UPOV before the adoption of the TRIPS Agreement. It joined in 1977, during the Apartheid era.

¹³ Since the 1978 Act of UPOV has been closed for signatures, new members will have to adhere to the 1991 Act. Thus, any developing countries joining UPOV will have to accept the conditions of the 1991 Act. Members of UPOV 1978 may apply for membership in UPOV 1991, provided that they fulfil the conditions. In practice, the general trend is in this direction.

¹⁴ The original motivation was conservation of biodiversity, but during the course of negotiations, the sustainable use of its parts and components and the equitable sharing of the benefits thereof became important parts of the rationale, as we will see below.

¹⁵ UPOV was at its inception a separate regime, but was later linked to the World Intellectual Property Organisation, which is a specialised agency of the UN.

2. *Ex situ* conservation of PGRFA: Maintenance of seeds and other propagating material outside their natural habitats or on-farm conditions, normally in gene banks
3. Access to PGRFA: Legal entitlement or permission to obtain available PGRFA, or in countries or cases where this is not required, the free admission to acquire such resources
4. Utilisation of PGRFA: The utilisation of a wide range of crop species and varieties, covering a broad genetic base
5. Benefit sharing related to PGRFA use: Sharing of benefits from the use of PGRFA with the respective community/ies and the national government by the collector
6. Farmers' rights to PGRFA: The rights of farmers to maintain their practices as custodians and innovators of PGRFA, to be rewarded for their contribution, and to participate in relevant decision making¹⁶

A contentious topic with regard to PGRFA is intellectual property rights, such as patents and plant breeders' rights. The topic is not explicitly included in the list for two reasons. First, the list sets out the elements necessary to provide for sustained management of PGRFA. Intellectual property rights are not required for this purpose, but are more of an influencing factor. This leads us to the second reason: intellectual property rights affect several of the listed topics, and should therefore be analysed within these contexts. For example, intellectual property rights directly affect access to PGRFA, as will be further discussed below, and the scope for farmers' rights. We will also see that they indirectly affect the scope for benefit sharing as well as crop use.

4. Aggregate regime effects and detrimental achievements

The analysis of the aggregate effects of international regimes on PGRFA management follows three main steps:

- analysis of the regime formation and the interaction between the regimes pertaining to access to PGRFA
- comparative analysis of the texts of the respective agreements and core documents, interpreted in light of their regime formation, especially the overlap of functional scopes and the compatibility of norms and rules pertaining to access to PGRFA (aggregate negotiation output)
- preliminary analysis of the aggregate regime effects pertaining to the regulation of access in developing countries.

4.1 Regime formation and interaction pertaining to access to PGRFA

When the FAO International Undertaking was adopted in 1983, the USA opposed it because the developing countries were demanding that all types of genetic resources

¹⁶ The concept of farmers' rights has been debated since the mid-80s, and there is yet no international consensus as to how it should be defined. See the home page of The Farmers Rights' Project at <http://www.fni.no/farmers/main.html>.

should be seen as a common heritage of mankind, freely accessible for everyone (Fowler, 1994: 188). There was an obvious clash with the intellectual property rights regime then under development in the USA. Several OECD countries were generally sceptical to an international agreement, since they feared the politicisation of the issue (ibid. 186). However, nine years later, the positions were totally reversed due to the emerging intellectual property rights regime being negotiated as part of the Uruguay round leading up to the WTO with the TRIPS Agreement. In the parallel CBD negotiations, developing countries advocated the sovereign rights of States over their genetic resources and the sharing of benefits resulting from the use of these resources, in an attempt to counterbalance the TRIPS process.¹⁷ The USA argued against regulating access to genetic resources under the CBD (Rosendal 2000: 92) – but was also in the forefront in establishing the TRIPS regime, which restricted access to PGRFA from another angle.¹⁸ This tension spurred the demand from developing countries for regulation of access to *inter alia* PGRFA in order to ensure benefit sharing.

With the CBD, an international regime was created which provided for such a regulation of access and benefit sharing. It was achieved with relatively short negotiation period, in an effort to get the text ready for signature at the Rio Conference (McGraw 2002). As such, it represents a ‘snapshot’ of the state of negotiations at the time of Rio (Swanson, 1999: 309). The further formation of the CBD has been a continuous process along with its implementation.

In the Nairobi Final Act of 1992, which was the document adopting the text of the CBD prior to its signing in Rio de Janeiro, outstanding issues related to PGRFA were addressed and referred to the FAO for further negotiation. Among these issues was the question of access to gene-bank collections acquired prior to the entry into force of the CBD. Both the FAO and the Conference of the Parties to the CBD called for harmonisation of the International Undertaking with the Convention. These were the points of departure for the lengthy negotiations that led up to the adoption of the ITPGRFA in 2001.

In fact, the new constellations seriously affected the regulation of access to PGRFA (Andersen 2003). There is a basic difference between domesticated and non-domesticated plant genetic resources: Whereas domesticated plant genetic resources depend on human intervention to maintain and develop the properties necessary for their use in agriculture, non-domesticated resources normally thrive best in the absence of direct human intervention.¹⁹ Access to genetic resources is a precondition for the maintenance of domesticated resources, but this is not normally the case with regard to the *in situ* conservation of non-domesticated genetic resources. Since the CBD comprised all

¹⁷ Sovereign rights of countries over genetic resources had also been recorded in an agreed interpretation of the International Undertaking from 1991 (FAO Conference Resolution 3/91), in response to an earlier formulation (FAO Conference Resolution 4/89) accepting plant breeders’ rights as being in harmony with the Undertaking.

¹⁸ In addition, the UPOV Convention was amended to provide stronger intellectual property rights for plant varieties, a development that was to have implications for later implementation of the TRIPS regime.

¹⁹ Measures to conserve their habitats may be necessary.

biological diversity, without paying attention to their differing management needs, problems were bound to arise.

While there were no difficulties in adopting the overall objectives of the CBD, the rationales behind the two agreements differed in their weighting. The International Undertaking was born out of the need to facilitate access to genetic resources, whereas the CBD emphasised the need for fair and equitable sharing of the benefits arising out of the use of genetic resources, in addition to the necessity of conservation and sustainable use. In a PGRFA context, however, the question of benefits is a different one:

- An estimate comparing the commercial seed industry with the pharmaceutical sector showed huge differences with regard to the monetary potentials for benefit sharing (FAO, 1998: 290). The benefits to be returned to the source country of a plant-derived pharmaceutical product could, under a bilateral agreement, sometimes reach several million dollars, whereas the benefits to be returned to source countries from the commercial exploitation of PGRFA through plant varieties would hardly cover the respective transaction costs. One reason for this is that a plant variety is normally derived from a huge number of parent varieties, with an even larger number of potential countries of origin, whereas pharmaceutical products are often derived from only one plant variety stemming from one country.²⁰ The estimates indicated that few monetary benefits can be expected from the commercial utilisation of PGRFA under bilateral agreements.
- For developing countries, the most vital benefit so far has been access to PGRFA. Based on several studies, including a survey undertaken by Palacios (1998), Fowler, Smale and Gaiji (2001) document that individual developing countries in general receive more PGRFA than they provide.²¹ Therefore, as net receivers of PGRFA, all countries would benefit from the smoothest possible access to these vital resources.
- As long as no monetary or other benefits can be achieved except access to PGRFA, developing countries lose in double terms when they restrict access to PGRFA in order to provide for benefit sharing. They hinder each other in achieving access, and they do not get other benefits in return. Continued access to PGRFA is more vital to present and future food security than any other benefits.

Nevertheless, benefit-sharing arrangements would not be problematic, as long as they did not pose any substantial hurdles to access to PGRFA. This leads us to the second problem arising with the CBD: The way in which access facilitation was regulated. With a bilateral approach, the country of origin of a genetic resource should be the one to

²⁰ Also, plant varieties are under continuous development, and the time period within which one variety may be sold tends to be shorter than that of a successful medicine. In addition, commercial breeders often have well-stocked gene banks on their own, and for a range of crops they tend to be self-sufficient for decades to come (ten Kate and Laird, 1999: 137–142).

²¹ For example, countries in Southern Africa are between 65 per cent and 100 per cent dependent on main food crops that originated outside the region. Most countries were more than 90 % dependent. Ethiopia, generally considered the richest in PGRFA in Africa, was estimated to be between 28 and 56 per cent dependent generally on PGRFA from other regions. The situation is similar all over the globe, with developing countries depending on PGRFA originating in other regions in the South. Also industrialised countries are net receivers of PGRFA, even if they receive less due to their own well-filled gene banks.

control access and benefit sharing, subject to its legislation (Fowler, 2001; Andersen 2001). For wild resources it is normally possible to identify more or less where they originate, also with more than one country of origin. However, domesticated resources have been developed gradually via exchanges between farmers and breeders for hundreds and thousands of years, in several cases even since the dawn of agriculture. Determining the countries of origin of these resources, in accordance with the definitions set out in the CBD, i.e. the countries where they have developed their distinctive properties, is in most cases virtually impossible.²² That in turn means it would be generally impossible to identify the countries that could be rightfully authorised to provide access to them. In addition, plant breeding normally requires access to a huge amount of plant varieties, often from different source countries, and the bureaucratic hurdles of application processes in each country would be substantial. The bilateral approach to access facilitation was simply not appropriate for the purpose of PGRFA.

Thus, one sort of access restrictions, intellectual property rights, triggered another sort of access restrictions, regulation of access to PGRFA for the purpose of fair and equitable benefit sharing. Such a development has been dubbed an ‘arms race’ (Rosendal, forthcoming 2006). The result in this case was the steady development towards stricter limitations on access to PGRFA.

These were some of the major reasons why the negotiations leading to the ITPGRFA lasted for seven years, during which genetic erosion continued unabated. As countries were awaiting the new agreement, little was done to implement the Undertaking at the national level. Additionally, little political attention was given to PGRFA management, or to the FAO International Undertaking. The effect was a lack of political pressure for finalising the negotiations, as well as the use of the negotiations as a scapegoat for postponing action in this issue area. A policy vacuum emerged.

It was not easy to find solutions to the problems outlined above while also keeping the negotiation text in harmony with the CBD. The principle of fair and equitable benefit sharing, central also under the negotiations leading to the ITPGRFA, required a fundamentally different operationalisation approach than that of the CBD. The solution was to be a multilateral system to facilitate access and benefit sharing, established under the new Treaty and covering 35 important crops and 29 forage plants in the public domain of the Parties to the ITPGRFA. This solved the problem of the bilateral approach to access and benefit sharing, but only with regard to the crops on the list. Although those seven years of negotiations were more or less lost with regard to the international regulation of PGRFA management²³, the fact that the negotiations finally resulted in a

²² Gudrun Henne (1998: 144) argues that the principle of country of origin of genetic resources as the country with sovereignty over these resources introduces a new form of access regulation to natural resources in international law: Countries possessing genetic resources within their territory delegate this right to those that are countries of origin. This may cause problematic situations if the country of origin and the source country are not identical, as is often the case (ibid: 142). For genetic resources which do have an evident country of origin, but where this country of origin no longer possesses the genetic resource, there is actually no legal entity with sovereign rights over that resource (Henne 1998; Wolfrum and Stoll, 1996).

²³ The greatest achievement during this time was the establishment of the *International Network of Ex Situ Collection under the Auspices of the FAO* (Andersen, 2003). Thereby gene bank collections of the

treaty that was legally binding should be seen as a positive effect of the interaction between the International Undertaking and the CBD.

Meanwhile the TRIPS Agreement had entered into effect for most developing countries in 2000, exerting pressure on them to adopt legislation on patents or effective *sui generis* systems to plant varieties. As many developing countries chose to follow UPOV in implementing TRIPS on this point, to ensure that their legislation would be accepted by the TRIPS Council, this came to limit access to PGRFA from another angle.

Plant breeders' rights, as provided for by UPOV, did not stop farmers from using their traditional varieties, and usually did not stop them from using protected varieties in their traditional ways either. Protected varieties could be used as an input to strengthen and improve their own varieties, allowing parts of the harvest to be used for sowing, exchange and sometimes for sale, without paying royalties to the rights holders. However, the UPOV 1991 Act restricts the rights of farmers: governments may, as an optional rule, permit farmers to use protected varieties for propagating purposes on their own landholdings, but not to exchange or sell the seeds or harvest thereof. As the number of varieties protected by stricter plant breeder rights increases and the number of traditional varieties falls, the total number of varieties available²⁴ for traditional use by farmers will obviously decline, in turn affecting their ability to maintain yields and the resistance of their own crop varieties.

Another effect of the introduction of plant variety protection in a country is that it encourages the sale of improved varieties. In Brazil, for example, Monsanto increased its share of the maize seed market from zero to 60 per cent between 1997 and 1999, following the introduction of legislation on plant breeders' rights (CIPR, 2002: 65). Whereas the introduced varieties may have increased and improved production, at the same time they crowded out local varieties, contributing to further genetic erosion and subsequently to reduced availability of PGRFA.

4.2 Aggregate negotiation output pertaining the regulation of access to PGRFA

In essence, the *separate* negotiation output for the regimes pertaining to access to PGRFA can be summarised as follows:

- The IU provided, and the ITPGRFA provides, for expeditious access to PGRFA. Since the entry into force of the ITPGRFA, access is to be facilitated through a Multilateral System for Access and Benefit Sharing referring to a list of crops and forage plants.

Consultative Group on International Agricultural Research (CGIAR) were placed under the auspices of the FAO, making them accessible for plant breeding and direct use as an interim arrangement until the entry into force of the ITPGRFA. However, countries from which material was received could interfere and demand control over access to the collections from their countries.

²⁴ Fowler and Hodgkin (2004: 145) distinguish between 'access' and 'availability', where 'access' refers to the possibility to get permission or legal entitlements to obtain PGRFA, and 'availability' relates to whether the genetic resources exist in a usable form, can be identified and potentially obtained.

- Under the CBD, access to biological diversity is a norm, to be facilitated by the countries of origin of the plants in question upon prior informed consent on mutually agreed terms with the recipients of the material.²⁵
- TRIPS and UPOV regulate access to PGRFA which is patented or protected by plant breeders' rights; they do not provide for regulation of access to other plant material. The development of new varieties to be protected by intellectual property rights depends on the availability of and access to PGRFA.

We may divide the *aggregate* negotiation output as to PGRFA access into three phases:

1983–1993: In this period, the International Undertaking was the only international agreement on the general regulation of access to PGRFA²⁶. It was not legally binding, but provided a normative basis to facilitate PGRFA access across country borders. Towards the end of the period, however, this normative basis eroded due to agreed interpretations that recognised intellectual property rights as provided for by UPOV,²⁷ and emphasising the sovereign rights of states to control their genetic resources (FAO Conference resolutions 4/89 and 3/91)

1993–2004: The international regimes provided for restrictions on access to PGRFA. Two forms of legal restrictions were introduced for national implementation: (1) acts and regulations governing access to genetic resources upon prior informed consent and on mutually agreed terms; and (2) – towards the end of the period for developing countries – intellectual property rights to plant genetic resources (plant breeders' rights and patents). Since the International Undertaking was non-binding and countries tended to await the results of the negotiations towards the ITPGRFA for decisions on PGRFA, there was no counterbalance during this period.

2004– present: The ITPGRFA provides for facilitated access to 35 food crops and 29 forage plants under the Multilateral System of Access and Benefit Sharing (Articles 10–13). These include such important food crops as rice, wheat, maize, rye, potatoes, beans, cassava and bananas, listed in Annex 1 to the Treaty and frequently referred to as the Annex I crops. Other important crops, among them soybeans, oil palm, cotton, sugarcane, cocoa, groundnuts, most vegetables (including tomatoes), and important tropical forage plants, are not included. Parties to the Treaty are obliged to facilitate access to all PGRFA under their control and management and in the public domain listed in Annex I, to all legal and natural persons under the jurisdiction of any Contracting Party. With the entry

²⁵ The Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of Benefits Arising out of their Utilisation, adopted by the Conference of the Parties to the CBD in 2002, confirm this understanding and strengthens it: *Providers should only supply genetic resources and/or traditional knowledge when they are entitled to do so* (Decision VI/24, II/C/16/c/i). It is, however, explicitly stated that the guidelines are without prejudice to the access and benefit-sharing provisions of the ITPGRFA.

²⁶ The UPOV did not really affect access to PGRFA in this period, because important exceptions were made with regard to these intellectual property rights. Plant breeders were allowed to use protected varieties for breeding purposes, and farmers could use the harvest of a protected variety as they wished. Moreover, in this period UPOV was largely an organisation for OECD countries.

²⁷ Intellectual property rights was a highly contentious issue in the FAO, due to their fast expansion in the area of PGRFA since the 1970s.

into force of the ITPGRFA, the following legal situation has emerged with regard to access to PGRFA:

Table 2: Legal situation regarding facilitation of access to PGRFA

FAO ↓	CBD ⇒	Accessions acquired <i>prior to the entry into force of the CBD</i>	Accessions acquired <i>after the entry into force of the CBD</i>
ITPGRFA Annex 1 crops under the management and control of a Contracting Party and in the public domain		1. Access to PGRFA from and by Contracting Parties is to be facilitated under the Multilateral System of the International Treaty.	2. Access to PGRFA from and by Contracting Parties is to be facilitated under the Multilateral System of the International Treaty.
PGRFA <i>not listed</i> under the Multilateral System of the International Treaty		3. Access to PGRFA is not regulated by any international agreement. <u>Exception:</u> Materials held by International Agricultural Research Centres (IARCS), as specified in ITPGRFA, Art. 15.	4. Access to PGRFA is regulated internationally by the CBD, but in the case of materials held by the IARCS, they may be made available under specific ITPGRFA conditions (Art. 15).

All crops listed in Annex 1 to the ITPGRFA that are under the management and control of the contracting parties and in the public domain are accessible under the Multilateral System, whether acquired prior to or after the entry into force of the CBD (boxes 1 and 2). If access is regulated under the CBD (box 4), those requesting such access will have to apply to national authorities, where such are established, to attain accessions of specified PGRFA. Whether they will be granted access, and on what conditions, will depend on the efficacy of procedures in the respective country and its approach to benefit sharing. Materials kept by the International Agricultural Research Centres (IARCs) can be made available due to agreements between the IARCs and ‘the country of origin, or the country which has acquired the material in accordance with the CBD’ (Para. 15.3). If access is not regulated by any international body (box 3), the countries possessing these resources can decide whether to provide access or not. If access is denied or severely restricted, this may mean severe consequences for the further development and use of these resources, and their contribution to food and agriculture. However, material stored by IARCs that have Agreements with the FAO is to be made available in accordance with the provisions of a Standard Material Transfer Agreement (MTA) pursuant to agreements between the IARCs and the FAO (Para. 15.1. [b]). As this overview indicates, the multilateral system has solved the difficulties involved in facilitated access to PGRFA for some important crops, but not for all, and the future for the international management of the diversity of these resources is highly uncertain. As for the multilateral system itself, its efficiency and effectiveness depends on the more detailed procedures, particularly the Standard Material Transfer Agreement, still under negotiation.

4.3 Aggregate regime effects concerning regulation of access in developing countries

While negotiations have continued within the FAO – and the terms and conditions on which the ITPGRFA are to be implemented are still not sorted out – the CBD and TRIPS

have been implemented in many countries over the past ten to twelve years. This creates difficult conditions for the later implementation of the Treaty with regard to access facilitation. Here we will focus on the aggregate regime effects pertaining to the regulation of access as they have developed up to the present. This means that we will concentrate on the aggregate regime outcome in developing countries in terms of legislation. In the South, access- and benefit regulation has been or is in the process of being adopted in 43 countries (ten Kate and Laird, 1999: 16; GRAIN 2004):

Table 3: Developing countries with, or in process of adapting, CBD-related regulation of access

Asia	Africa	Latin America	Pacific region
Bangladesh India Indonesia Laos PDR Malaysia Pakistan Philippines Republic of Korea Thailand Turkey Vietnam Yemen	Cameroon Eritrea Ethiopia Gambia Ghana Kenya Lesotho Malawi Mozambique Namibia Nigeria Seychelles South Africa Tanzania Zimbabwe	Argentina Belize Bolivia Brazil Colombia Costa Rica Ecuador Guatemala Mexico Panama Peru Venezuela	Fiji Papua New Guinea Samoa Solomon Islands

Glowka (1998) suggests categorising the legislation on access in five groups:

- environmental framework laws charging competent national authorities to provide more specific guidelines
- sustainable development, nature conservation or biodiversity laws with more detailed provisions on access regulation, *inter alia* with regard to prior informed consent and mutually agreed terms
- ‘stand-alone’ national laws or decrees on access to genetic resources with detailed regulation
- modifications of existing laws and regulations, often related to national parks and forest management and mainly intended to regulate access within these areas
- regional measures like the common access regime established by the Andean Community.

Of these groups, particularly the second, the third, and the fifth are relevant with regard to access to PGRFA. ten Kate and Laird (1999: 17–33 and 293–312), who have analysed the first generation of access legislation, found the laws in many cases to be bureaucratic, overly restrictive and time-consuming.

Intellectual property rights to PGRFA have been introduced or are being developed in many countries of the South, in their effort to comply with the TRIPS Agreement, as part of the WTO requirements, or due to conditions set in bilateral trade agreements with developed countries ('TRIPS-plus' agreements). The following countries have developed such legislation or are in the process of doing so (based on GRAIN, 2004):

Table 4: Developing countries with or in the process of adopting intellectual property rights legislation pertaining to PGRFA

Asia	Africa	Latin America	Pacific region
Bangladesh Bhutan China India Iraq Jordan Oman Pakistan Philippines Republic of Korea Saudi Arabia Sri Lanka Taiwan Thailand Vietnam	Algeria Egypt Kenya Mauritius Morocco South Africa Zimbabwe	Belize Bolivia Brazil Chile Colombia Costa Rica Ecuador Nicaragua Panama Paraguay Peru Trinidad and Tobago Venezuela	

The decisive point with regard to access is whether the laws allow for breeders' and farmers' exemptions from the rights of the rights holder – and how. Some acts and regulations follow, or are closer to, UPOV 1991; some are closer to UPOV 1978; several are somewhere in the middle. A few seek to combine legislation on plant breeders' rights with regulation of farmers' rights to local plant varieties. In most cases, the legislation represents a departure from earlier access to commercial varieties, where these varieties had to be bought (including license if it was protected – in countries where there was legislation on plant breeders' rights), but could thereafter be used as the farmer or breeder wished. The extent to which access is restricted differs from country to country. Most acts are still so recent that it is too early to assess their implementation. A particularly interesting piece of legislation is the Indian Protection of Plant Varieties and Farmers' Rights Act of 2001, intended to distribute rights equitably between breeders and farmers.

Generally, the international transfer of genetic resources has decreased considerably since 1992.²⁸ Of the several reasons for this, legislation implementing the CBD rules on access to genetic resources and the fair and equitable sharing of the benefits arising from their use is considered particularly important (ten Kate and Laird, 1999: 32). The development of intellectual property rights has in turn spurred the development of access regulation.

²⁸ See the database of the CGIAR System-wide Information Network for Genetic Resources (SINGER) at <http://www.singer.cgiar.org/SINGER/Overview/Distribution/User/user.htm>, and enter 'transfer' by 'user type and year'. See also ten Kate and Laird (1999: 312).

In short, access to PGRFA has increasingly been limited in developing countries due to legislation on access regulation and on intellectual property rights. This was not the intention with the IU/ITPGRFA or the CBD, nor was it desired by the driving forces behind TRIPS and UPOV. Nevertheless, due to regime interaction, this has been the aggregate effect of the four international regimes on the South.²⁹

5. Examples from the Philippines

Two examples from the Philippines illustrate how international agreements increasingly contributed to restrict access to PGRFA. First, the Philippines pioneered the first CBD-derived regulation on access and benefit sharing worldwide in 1995. Due to heavy criticism, however, it was partly replaced by the new Wildlife Act of 2001. The second example is the Plant Variety Protection Act of 2002, introducing UPOV-like plant breeders' rights to the Philippines.

Both these cases show that international agreements do not affect developing countries by their mere existence. To see how they affect developing countries, we need to understand the mechanisms of influence through which they are brought into the domestic context. In the first case, the influence can be explained in a learning and norm-diffusion perspective: advocacy coalitions (Jenkins-Smith and Sabatier, 1993; 1994) were motivated by shared ideas of sovereignty and national democratic control over own resources to pioneer the implementation of elements of the CBD in the Philippines, not least in response to the TRIPS Agreement. In the second case, the influence can be explained in a structural-power perspective (Strange, 1988), where powerful actors – motivated by economic interests – used the TRIPS Agreement as leverage to radically change the politico-economic structures of the seed market, overruling Philippine efforts towards a more CBD-friendly path.³⁰ In both cases, the result has been reduced legal access to PGRFA, although illegal access remains widespread and generally tolerated.

5.1 Philippine regulation of access and benefit sharing³¹

On 18 May 1995, President Fidel Ramos of the Philippines signed Executive Order 247 on the prospecting for biological and genetic resources.³² The implementing rules and regulations of EO 247 were approved by the Department on Environment and Natural Resources Secretary on 21 June 1996 as Department Administrative Order No. 96–20. The executive order, known as EO 247, entered into effect as the first comprehensive regulation worldwide to implement the CBD provisions on access and benefit sharing.

²⁹ A comprehensive analysis of this development within a broad analytical framework based on theories of structural power (Strange, 1988), advocacy coalition frameworks (Jenkins-Smith and Sabatier, 1993) and institutional factors (Hanf and Underdal, 1998) will be published in Andersen (forthcoming 2006).

³⁰ The scope of this paper does not allow for deeper elaboration of these mechanisms, as it focuses on a presentation of the empirical findings. See Andersen, forthcoming 2006, for the analytical context.

³¹ The full analysis of this case is presented in Andersen, forthcoming 2006. Unless otherwise stated, the findings are documented in that book.

³² Full title: *Prescribing Guidelines and Establishing a Regulatory Framework for the Prospecting of Biological and Genetic Resources, Their By-Products and Derivatives, for Scientific and Commercial Purposes, and for Other Purposes*

As its title indicates, EO 247 regulates the prospecting of genetic and biological resources, and thus also of PGRFA. It covers all forms of bio-prospecting – whether it takes place in the public domain, on private property or on ancestral lands; is undertaken by local or foreign individuals, entities or organisations; or whether the results are to be used for the public good or for private commercial interests. EO 247 also addresses the traditional uses³³ of biological and genetic resources by indigenous and local communities which are exempted from the requirements posed in the Order.

In general, the Order provides that bioprospecting can be accepted only upon the approval of an application for a research agreement between the collector(s) and the government, specifying minimum terms concerning *inter alia* limits of samples to be collected, information requirements, technology co-operation and benefit sharing and environmental protection. To implement the Order, the Inter-Agency Committee for Biological and Genetic Resources (IACBGR) was established, located at the Protected Areas and Wildlife Bureau (PAWB) of the Department of Environment and Natural Resources (DENR) of the Philippines.

The procedures for obtaining a research agreement as outlined in EO 247 and its implementing rules and regulations were quite demanding for an applicant, including many steps of communication with the IACBGR. Various documents needed to be prepared, and an environmental impact assessment conducted in addition to a research proposal and a certificate of prior informed consent – the latter takes at least 60 days and involves considerable effort. An exemption was made for collection for conservation purposes, in that these activities do not require prior informed consent (Swiderska, Dano and Dubois, 2001: 32). Nevertheless, applications for such activities still needed to be conveyed to the IACBGR, and were subject to benefit-sharing arrangements.

The required procedures were also time-consuming. According to a note by the Technical Secretariat of the IACBGR,³⁴ a speedy handling of the evaluation and decision process would at best take five months. This is a highly optimistic assumption, given the institutional capacity of Philippine state institutions. The estimate does not include the work of the applicant. In a breeding context, five months is a long time, on the border of being acceptable in view of the need to respond to crop pests and diseases from season to season. In fact, much more time was actually needed.

In addition to the work and time related to the application process, there were also further requirements. The EO 247 prescribes the following minimum terms:

- There must be a limit on the number of samples to be collected.
- The approved list of plants and samples is to be followed strictly.

³³ According to EO 247 (definitions), *traditional use* refers to the customary utilisation of biological and genetic resources by local communities or indigenous people in accordance with written or unwritten rules, usages, customs and practices traditionally observed, accepted and recognised by them.

³⁴ Technical Secretariat of the IACBGR (2001): Status of Executive Order 247 Implementation. Internal brief received during a visit at the Secretariat/PAWB in 2002, p. 7.

- A complete set of all specimens collected is to be deposited with the National Museum.
- Access to these specimens and all relevant data is to be allowed to all Filipino citizens.
- Information must be provided to all concerned parties with regard to discoveries and commercial use of the material.
- The terms and conditions must be fixed for payment of royalties to concerned parties if commercial use is derived from the resources.
- The Philippine government can unilaterally terminate the Agreement.
- Regular status reports must be submitted to the Inter-Agency Committee.
- There are various provisions on technical co-operation between foreign and Philippine counterparts.

Whereas these terms may be understandable in light of the benefit-sharing goals of the CBD – i.e. in an equity perspective – some of the requirements impose a work load on breeders seeking access to PGRFA which seems quite unreasonable, particularly considering the number of parent varieties needed to produce one new plant variety. It may be difficult to know in advance which plant varieties to search for, and not very conducive to have to adhere to that list if unexpected and promising plants should be discovered. For gene-bank collectors, this rule is not very conducive.

Only five out of 40 proposals were signed between 1995 and 2002 (Liebig et al, 2002: 36), none of which related to domesticated PGRFA. The processes took from one to four years. An application from the International Rice Research Institute (on PGRFA) filed in early 1999 was still pending in March 2002 (it had been approved, but not signed). Basically three factors explained the length of the application process:

- It takes considerable time to obtain prior informed consent, due to the trust-building measures necessary, the distribution of information in local languages and the 60-day waiting period to enable potential response from those consulted.
- The IACBGR was in periods not operational, because meetings were not held, or the required quorum not being present.
- The secretaries responsible for signing the agreements after these have been approved have in most cases taken unacceptably long time to do this (Liebig et al, 2002: 36). The University of the Philippines system had to wait for one and a half years for signature after an agreement had been approved; during this time they could not start their activities. In other cases, the waiting time for Secretaries' signatures ranged from four months to a year.

Most applicants (actual as well as potential) considered the bureaucratic procedures too burdensome (see e.g. Swiderska, Daño and Dubois, 2001; Liebig et al, 2002; Benavidez, 2004). The result was that applicants withdrew their applications, ended their collaboration agreements in the Philippines, or stopped responding to the inquiries of the IACBGR. Many potential applicants probably did not even try. Some of these, perhaps many, simply continued their practice without seeking approval – some knowingly, and

others because they were not informed about the Order. Others again decided to turn to other countries in South East Asia for access to genetic resources (Liebig et al. 2002).

With all the efforts to ensure benefit sharing, a crucial question is whether the EO 247 actually accomplished this. The regulation provided a sophisticated system for benefit sharing, covering a wide variety of benefits and beneficiaries over a broad time span. In a few cases there were some examples of benefit sharing, but no actual or potential benefits were achieved with regard to plant genetic resources for food and agriculture. And why? From my interviews with all kinds of stakeholders,³⁵ my impression is that EO 247 was either not known, and therefore not followed, or deemed too demanding for the purpose of plant breeding, and therefore in some cases ignored. However, there is also the possibility that project ideas were not pursued due to the barriers posed by EO 247, as perceived by breeders. Thus we can conclude that, in terms of PGRFA, EO 247 was much ado about nothing. It obstructed access to PGRFA without giving anything in return. Despite the best intentions, this result was not in line with the CBD.

On the other hand, we should keep in mind that EO 247 was the very first attempt to implement the provisions of the CBD on access and benefit sharing, and was as such a pioneering work. Since then, lessons have been drawn and assessments carried out. The resultant Wildlife Act represents a simplification of the rules, but without including PGRFA. It thereby produced a new problem: it has replaced EO 247 with regard to non-domesticated biological and genetic resources, but not PGRFA. Great confusion remains about the legal status pertaining to access to PGRFA, and whether EO 247 still applies. However, that issue is beyond the scope of the present paper.³⁶

The story of Executive Order 247 is the story of a bottom-up initiative by a small group of scientists. It built an advocacy coalition with civil society organisations, particularly environmental NGOs, and key people in relevant government agencies, and worked strategically towards a fully fledged regulation on access and benefit sharing of biological and genetic resources in the Philippines. Whereas this strategy proved successful with regard to the adoption of the policy – the advocacy coalition ‘won’ the EO 247 – it was not conducive to a sustained policy on access and benefit sharing, since it failed to take into consideration the perspectives of the target group of the regulation – the bio-prospectors themselves.

Normally, balancing the views of different stakeholders would be the responsibility of the government institutions in charge of the process. However, in this case the central government officials were part of the advocacy coalition, and the mediating role was not sufficiently attended to. Due to weak institutional capacity, implementation was dependent on their presence. After the 1998 elections, central government officials were replaced, resulting in a drastic deterioration of performance in implementing EO 247. Due to these factors, there was no real future for EO 247.

³⁵ In May 2000 and March 2002, talking with approximately 80 stakeholders in the Philippines.

³⁶ See Andersen, forthcoming 2006, for a more detailed presentation and analysis.

The CBD provided the rationale for core actors in the formulation of EO 247, and was the most decisive factor for the development of the document into a fully fledged regulation, including the signature of the President. It became the framework for the advocacy coalition and was also a driving force for central leaders in relevant government agencies who were part of this advocacy coalition. The main motivation was to provide for benefit sharing – for the benefit of the nation and the conservation of its natural resources, as set out in the CBD. This motivation was additionally spurred by resistance against the TRIPS agreement among core actors, who saw bio-prospecting and intellectual property rights as closely interlinked. With this background, benefit sharing was promoted, to the detriment of access to genetic resources – which also reflects the distinction between these two norms in the CBD.

Few actors with specific responsibilities for PGRFA management participated in the decisive phases of formulating the new regulation. Most of them did not participate at all. In addition, actors involved in PGRFA management did not realise the potential implications of the new regulation. There was no awareness of the differences between the two categories of resources with regard to the different management approaches required to maintain them. This lack of awareness was related to the general perception that the IU was not in function, and that no new domestic steps could be taken until a new international treaty on PGRFA was in place. The CBD was therefore the sole basis from which the Executive Order was derived, and it did not specify any differences between the PGRFA and other genetic resources. The CBD did not help avoid the problem, but rather encouraged it, by merging the PGRFA with other genetic resources – without any distinction between them as to management issues.

5.2 Regulation of plant breeders' rights with a view to the access issue³⁷

The Plant Variety Protection Act (Republic Act No. 9168)³⁸ was approved by President Gloria Macapagal Arroyo on 7 June 2002. Its implementing rules and regulations were adopted on 24 February 2003 as Administrative Order 07 of the Department of Agriculture of the Philippines.

The overall goal for the Plant Variety Protection Act (PVP Act) is to contribute to food security in the Philippines (Section 2). For this purpose, the Act provides for the protection of exclusive rights over plant varieties to breeders who have bred them, particularly when beneficial to the people. The basic assumption is that the protection of plant breeders' rights will contribute to higher levels of food security. This is a controversial assumption in the Philippines, and there are good arguments for as well as against it.

The PVP Act is the Philippine answer to the TRIPS Agreement Article 27.3(b). Plant breeders' rights are introduced as a means to encourage the participation of private enterprises and to provide incentives to necessary investments in developing new plant

³⁷ The full analysis of this case is provided in Andersen 2006, forthcoming. Unless otherwise stated, the findings are documented in that book.

³⁸ Full title: *An Act to Provide Protection to New Plant Varieties, Establishing a National Plant Variety Protection Board and for Other Purposes*

varieties, and to secure exclusive rights of scientists and other ‘gifted citizens’³⁹ to their intellectual properties and creations. A breeder is defined as the person who bred or discovered and developed a new plant variety, or his/her employer (Section 3, c). The act is to be implemented in a way which is supportive to the obligation of maintaining a healthy ecology in accord with the rhythms and harmony of nature.

Any breeder – foreign or Filipino – may apply for a Certificate of Plant Variety Protection (Section 17). If the country of nationality of the foreign citizen or company affords similar privileges to Filipino citizens, the Act obliges the Philippine authorities to issue a Certificate of Plant Variety Protection, provided that the conditions in the Act are met (Section 23, national treatment). It is generally accepted that this reciprocity benefits foreign parties in the Philippines, as Philippine breeders are normally not in a financial and institutional position to use the system abroad.⁴⁰ Also in the Philippines, Philippine breeders will normally need to be subcontracted by an international corporation in the country with more financial and institutional capacity in order to protect a plant variety – which means they will then have to share the benefits with that corporation.

The criteria for granting a Certificate of Plant Variety Protection follow the UPOV guidelines of novelty, distinctness, uniformity and stability. It is generally recognised that these criteria are hard to fulfil for farmer breeders in the Philippines, who will therefore not be in a position to use the system for their own breeding efforts.

Holders of Certificates of Plant Variety Protection have the exclusive right to authorise the production and reproduction, conditioning for the purpose of propagation, offering for sale, selling or marketing, exporting, importing and stocking for any of the mentioned purposes (Section 36). This right includes harvested material (Section 38). Following UPOV 1991, the right also extends to varieties which are not clearly distinct from the protected variety, and essentially derived varieties⁴¹ (Section 39). These rights imply extensive possibilities to exclude others from the use of the variety in addition to similar varieties, compared to traditional plant breeders’ rights as provided for in UPOV 1978 and earlier.

As provided for in UPOV 1991 (optional), there are exemptions to the rights of plant breeders in the PVP Act (Section 43). These are, however, wider than in UPOV 1991. As in UPOV 1991, acts done for non-commercial and/or experimental purposes are exempted. Also in line with UPOV 1991, acts done for breeding other varieties are exempted in the PVP Act (Section 43), if these new varieties are not essentially derived from the protected variety and are clearly distinguishable from it. The difference from UPOV 1991 lies in the wording as well as the exemptions for small-scale farmers. The farmers’ tradition of saving, using, exchanging, sharing and selling their farm produce is termed a *right*, and is exempted from the rights of the plant breeders, as long as a sale is not for the purpose of reproduction under a commercial marketing agreement. This

³⁹ ‘Gifted citizens’ is the wording used in the Philippine act.

⁴⁰ Based on approximately 80 interviews with stakeholders from all parties in the Philippines in May 2000 and March 2002.

⁴¹ These terms are explained in section 5.3.2.

exemption also extends to the exchange and sale of seeds among and between farmers, if done for reproduction and replanting in their own land. In contrast, UPOV emphasises that the legitimate rights of the breeder must be protected, and makes it optional for governments to permit farmers to reuse their harvest from protected varieties for propagating purposes on their own landholdings, but not to exchange or sell such material.

However, a National Plant Variety Protection Board is to decide the conditions upon which the exemptions are to apply. It is to be headed by the Secretary of the Department of Agriculture and is composed of the directors of the central government institutions concerned with agriculture and the seed industry, the President of the Philippine Seed Industry Association (private business representative), and two representatives from civil society. One of the latter representatives is to be nominated by the Secretary of Agriculture from a federation of small farmers' organisations; the other representative is to be nominated by the National Academy of Science and Technology from the scientific community. The composition of the board and the procedures for nominating the representatives from civil society are controversial, because the nominations are not to be made by civil society as such.

An important question with regard to legislation on plant breeders' rights is how to establish an overview over *prior art* – plant varieties already existing – in order to ensure the novelty of a plant variety for which a Certificate of Plant Variety Protection is applied, and that farmers' varieties are not illegitimately protected. Farmers are made responsible for registering their own varieties, and the burden of proof rests with them and their organisations. They will have the work and costs involved in establishing community inventories, informing the registrar, obtaining and reading the Gazette, and filing opposition when necessary. In such cases, they will have to prove that the variety existed before the issuance of the Certificate. Proving that may be difficult, since one criterion for novelty is that the variety has been 'discovered' and 'developed', and it is uncertain how much or little a breeder must add in terms of novelty to qualify for a Certificate.

Implementation of the PVP Act is still in a transitional period. The institutional infrastructure is under development, workshops have been conducted to inform potential applicants of their options and procedures, and provisional Certificates have been issued (Golez, 2004: 20–23). There is as yet little empirical evidence as to how the Act will affect access to PGRFA in the Philippines. However, it is possible to reason on the basis of its provisions and experience from other countries – assuming, of course, that the Act is in fact implemented according to its intentions.

The PVP Act can be expected to be conducive to the introduction of new varieties of plants in the Philippines by seed companies with the financial capacity to apply for Certificates of Plant Variety Protection and to uphold these Certificates through payment of annual fees. It may increase accessibility to such varieties for farmers who can afford them. Under favourable environmental conditions, this might increase productivity – particularly important, given the rapidly growing population in urban areas.

For small-scale breeders in the Philippines, including farmer breeders, the Act is likely to represent a challenge. They would normally not be able to afford expensive seeds or have the financial capacity to make use of the system. Their access to protected varieties for breeding purposes would be more restricted than before, and they would have the burden of proof in cases where their own plant varieties were protected by others who ‘discover and develop’ them. For farmers, the new legislation must be said to represent a limitation of their rights to make use of PGRFA, compared to the situation earlier.

An increased market share of improved plant varieties – following from the Act – could help increase food production under the right conditions, but would also contribute to the replacement of traditional or more locally bred varieties, leading to a lack of access to such varieties. Such a situation would particularly affect the large majority of farmers who cannot regularly afford expensive licensed seeds and propagating material, and who depend on access to a wide diversity of PGRFA.

The act has no cross-references to EO 247 or provisions pertaining to the disclosure of the source of parent varieties used for the new plant variety to be protected. Although such options were thoroughly discussed and proposed in several drafts, with references to the CBD and the FAO, none of these attempts succeeded. Theoretically, the Philippines had an opportunity to develop such a *sui generis* system in response to the TRIPS Agreement – but ended up with an act which was almost an exact copy of UPOV 1991. There are no traces of an equity dimension in this regard.

Again it is important to know the story behind the legislation, in order to understand how this situation came about, i.e. why the Philippines did not make use of this opportunity to ensure some sort of balance between the equity aspects of intellectual property rights and the effectiveness of this system.

The story of the Plant Variety Protection Act is a story about how an initiative for a genuine *sui generis* system in the Philippines was changed into an attempt to make the Philippines a member of UPOV’91, and how a foreign power had a crucial influence on that process. In my field work in the Philippines I traced and documented how the US Agency for International Development (USAID) intervened in the process to link it towards UPOV’91, and succeeded. There were allies and supporters, but USAID was the main actor.

In short and very broadly,⁴² from 1995 to 1999 various Philippine Congress representatives worked on a *sui generis* system for plant variety protection which sought to integrate concerns of equity derived from the CBD and with reference to the FAO. Specifically, applicants for Certificates of Plant Variety Protection would have to disclose the sources of the parent varieties to the new plant, and document prior informed consent by those who provided them with the material. There were also several other suggestions on how to ensure equity.

⁴² This history is long and nuanced, and documented in detail in Andersen, forthcoming 2006.

In 1999, a fully revised draft was proposed, almost identical to UPOV 1991. The bill was proposed by a Senator, but had been drafted by a consultant of AGILE. AGILE stands for Accelerating Growth, Investment, and Liberalisation with Equity, and was a programme under USAID. AGILE was set up in 1997 to provide technical services to Philippine counterparts in terms of training, consultants and production of information materials.⁴³ The overall goal was to revitalise the economy and transform governance, in order to accelerate sustainable growth. Towards this end, several outcomes were defined, including increased competition in agriculture and trade.⁴⁴ The latter is the outcome towards which the AGILE engagement in the plant variety protection act was directed.

The main implementing institution of AGILE was the US-based consultancy firm, Development Alternatives, Inc. (DAI), subcontracted by USAID. DAI in turn established satellite offices in at least 14 government agencies in the Philippines, including the Department of Agriculture.⁴⁵ For these offices, DAI subcontracted several Philippine consultants.⁴⁶ The DAI consultants in the Department of Agriculture worked as employees of the Department and represented it in various external contexts, but were paid by DAI and reported to DAI.⁴⁷ Among their main tasks was to ensure the adoption of a PVP Act.⁴⁸ This is how DAI reported about its experiences in the Philippine:

In the Philippines, DAI (...) is working with the Department of Agriculture, redrafting PVP legislation to make it compliant with UPOV standards. DAI also is advocating for the PVP law in Congress, where it is pending. The key to DAI's strategy in the Philippines is to separate PVP from controversial issues of GMOs and the rights of indigenous communities. These issues are governed by separate legislation that requires environmental clearances before GMOs can be tested or marketed and that protects the rights of indigenous groups. DAI took key officials and congress persons to Argentina and the United States to learn about PVP programs and legislation. The Filipino Congress is expected to pass the PVP law within the next months. Anticipating the passage of the law, DAI staff have been preparing the ground for its implementation by helping the Department of Agriculture develop rules and regulations, and establish the PVP board, which is responsible for registration and enforcement of breeders' rights. (Kent and Bash, 2000)

⁴³ Embassy of the United States in Manila (2003): U.S. Embassy Statement on Agile, at:

<http://manila.usembassy.gov/wwwhagil.html>

⁴⁴ AGILE (2001): AGILE Concise Work Plan 2001–03 Showing Linkages With The Medium Term Philippine Development Plan For 2001–2004 And the July 2001 State of The Nation Address. Internal document obtained at USAID.

⁴⁵ According to the brochure *AGILE Accelerating Growth, Investment and Liberalization with Equity*, produced by AGILE.

⁴⁶ According to an interview with a DAI consultant at AGILE in March 2002, and confirmed in *The Manila Times*, 28 February 2003: 'AGILE: The basic facts', by Rene Q. Bas, at: <http://manilatimes.net/others/special/2003/feb/28/20030228spe1.html>

⁴⁷ This is self-experienced (documented in Andersen 2006).

⁴⁸ According to the DAI Statement of Work for November 2001 (p. 50), a 'key expected accomplishment' of the work in the area of intellectual property rights was 'Plant Variety Protection (PVP) legislation enacted by February 2002'. The DAI Statement of Work is an internal publication for AGILE in the Philippines, received at USAID.

The DAI objectives for PVP legislation materialised within few years, despite repeated attempts to develop a genuine *sui generis* system for the Philippines.

Short before the signing of the Administrative Order of the new act, Philippine newspapers got hold of the story of AGILE and how it had been influencing Philippine politics. In a Senate meeting on 18 February 2003, Senator Ralph Recto disclosed that AGILE maintained satellite offices in a range of central government agencies and lobbied for the passage of several laws.⁴⁹ Senator Sergio Osmeña raised concern over AGILE's threat to the country's sovereignty, noting the powerful influence of its agents on the administration of the President of the Philippines. He claimed that AGILE was crafting various legislation that involved foreign interests, and asked whether his country was again becoming a US colony.

In a Senate Hearing on 19 February 2003, Senator Manual Villar said that it was only now that he realised that all the bills that had been given priority in the Legislative-Executive Development Advisory Council had been sponsored by AGILE. Now he understood why so little attention had been paid to bills on health, education and other topics that matter to the people.⁵⁰ Also Senator Osmeña claimed that he had not been aware of AGILE's strategy, and that he felt duped. He demanded that the subversion and infiltration of the bureaucracy, particularly connected with policy formulation, be investigated.⁵¹ The Senate called AGILE officials to the hearing, but these claimed protection through an old law from 1952 that provided diplomatic immunity.

On 26 February, US ambassador Ricciardone went out in the media claiming that AGILE had rendered services to Philippine senators, including those attacking the group, by providing technical assistance in their legislative work. He, however, declined to mention any names.⁵² This was considered a threat and provoked harsh criticism in the media against the US ambassador. Soon after, the topic disappeared from the Senate – and from the newspapers. Nothing was done to address the acts that had been lobbied by AGILE. Today AGILE no longer exists, and all references to the programme have been deleted from the home page of the US embassy, except for one statement.

Whereas the US embassy holds that AGILE was a joint project between the governments of the USA and the Philippines,⁵³ and that the assistance was demand-driven,⁵⁴ the above documents a different situation – one of intervening in internal processes in the Congress

⁴⁹ See for example *Daily Tribune*, 19 February 2003: 'US funded lobby group rapped for espionage'. Article by Angie M. Rosales.

⁵⁰ *Daily Tribune*, 20 February 2003: 'BAP chief's firm linked to AGILE-USAID-DAI funds'. Article by Angie M. Rosales.

⁵¹ *Manila Times* Internet Edition, 21 February 2003: 'Senators ignore USAID exec's defense of AGILE'.

⁵² *Daily Tribune*, 27 February: 'Senators rap Ricciardone as AGILE protector'. Article by Angie M. Rosales.

⁵³ Embassy of the United States in Manila: U.S. Embassy Statement on AGILE, at: <http://usembassy.state.gov/posts/rp1/wwwhagil.html>

⁵⁴ In the AGILE brochure *AGILE Accelerating Growth, Investment and Liberalization with Equity*, published by USAID and the Republic of the Philippines.

of the Philippines. From June 1998 until June 2003, the US Congress earmarked a total of USD 41,212,527 for AGILE – covering all its work in the fields of politics in the Philippines.⁵⁵

We see that there were strong and powerful foreign interests involved in the process that led to the adoption of the PVP Act and its initial implementation. As documented in detail in Andersen (forthcoming 2006), these interests effectively weeded out all references to prior informed consent, benefit sharing, and other provisions that had been proposed to ensure an equity dimension in the new Act (referring particularly the Convention on Biological Diversity). Thereby they used the TRIPS Agreement as leverage, and argued that UPOV-compatible legislation would be the only safe way to ensure that the TRIPS Council would accept the Act as Philippine compliance with Article 27.3(b).

5.3 Lessons from the Philippines

Understanding the mechanisms of influence through which international agreements affect PGRFA management in developing countries is vital in order to identify the windows of opportunity for improvements. The scope of this paper does not permit an in-depth discussion of these lessons, but a few indications will be highlighted:

NGOs have historically played important roles in implementing international environmental agreements domestically (Swanson and Johnston 1999: 209; Nagel, 2002: 99). In the Philippines they were central with regard to implementation of the CBD, and also sought to influence implementation of the TRIPS Agreement from a CBD/FAO angle:

- In the first case, where learning and norm diffusion was the key mechanism of influence, the advocacy coalition pursued a short-sighted strategy aimed at the adoption of a regulation, and not at sustained implementation of a policy. Moreover, insufficient attention was paid to factors related to the institutional capacity of government agencies. Nevertheless, the strategy of the advocacy coalition was decisive with regard their success with the adoption of the act – and the failure of its implementation. This is a point of departure from which to derive lessons.
- In the second case, where structural power was the key mechanism of influence, NGOs protested vehemently against any sort of plant breeders' rights, but did not seek alliances with the progressive forces in the Congress who had been trying to develop a genuine *sui generis* path for the Philippines – and who stood alone without any support structures. The NGOs were also not united in their efforts, and failed to have any significant influence on the developments. The common denominator was protest as a strategy. This too provides a point of departure from which to derive lessons.

⁵⁵ Information previously available from the DAI website at http://www.dai.com/projects/text_only/asia_text_only/agile_text_only.htm printed out on 20 February 2003 (no longer available on the Internet).

The role of NGOs in developing countries and their interaction with other actors from state and business with regard to environmental policies in general and PGRFA policies in particular is an important field for further research. Particularly relevant are studies of the interaction between NGOs and government agencies with weak institutional capacity.

Another set of lessons concerns the position of PGRFA management in the political landscape. One reason why PGRFA has received so little political attention is the lack of responsible political structures. The following anecdote can illustrate the problem: During my fieldwork in the Philippines in 2000, when I asked central people at the Department of Agriculture about the unit responsible for the management of agricultural biodiversity, they referred me to the Department of Environment and Natural Resources (DENR), because this was about *biodiversity*. At DENR I was referred back to the Department of Agriculture, because this was about *agricultural* biodiversity. Also the Department of Science and Technology was mentioned, because it had to do with discoveries and inventions. Several co-ordinating structures have been established in a response to this confusing situation, covering various aspects of PGRFA management. But also these are partly overlapping, and have to struggle with scarce financial and institutional resources.

The problem has roots in the CBD and the promising approach of viewing all biological diversity in a holistic perspective. The problems started when the DENR was given responsibility for the implementation of the CBD, as lead agency. Before that, PGRFA had been under the Department of Agriculture only. There is reason to believe that the Philippines is not alone in this experience. It is to be hoped that implementation of the ITPGRFA will help to resolve the problem.

6. The tragedy of the anti-commons

Without access to PGRFA, there can be no benefits to share. Access to PGRFA is thus far the most important benefit from the use of these vital resources – and a precondition for food security.⁵⁶ It is therefore vital that benefit-sharing arrangements do not pose barriers to such access. However, with the emergence of intellectual property rights in gene-rich developing countries, benefit-sharing arrangements seem necessary to ensure equity. This ‘arms race’ (Rosendal, forthcoming 2006) between benefit-sharing arrangements and intellectual property rights erodes access to these vital resources and leads to a ‘tragedy of the anti-commons’.

The term ‘anti-commons tragedy’, in contrast to Hardin’s classic ‘tragedy of the commons’ (1968), was first coined by Heller and Eisenberg (1998), referring to the situation of biomedical research. Ramanna (2003) used the term to highlight how Indian legislation on intellectual property rights to PGRFA and farmers’ rights may pose problems through overlapping claims of ownership to genetic resources, resulting in an ‘anti-commons tragedy’ with negative effect on agricultural development. This stand is

⁵⁶ Access is also important for breeders who protect their new plant varieties. Large corporations are well stocked with genetic resources for a range of crops for the short run, but for all other breeders, and with regard to other crops, access to plant genetic resources is vital. In the long run it is necessary for all.

developed further in Ramanna and Smale (2004). Brush (2004 and 2005) uses the concept to describe how the tension between intellectual property rights and access and benefit-sharing legislation leads a ‘tragedy of the anti-commons’, where multiple owners have the right to exclude others from utilising scarce resources and no one gets the effective privilege of use. He highlights the dangers of an access system based on market negotiations between purported ‘owners’ and ‘users’ of genetic resources, as this is likely to ‘abuse the rights of people who have long been involved in the common pool of genetic resources but find themselves arbitrarily excluded in contracting’ (2004: 255). The findings presented in this paper underscore the gravity of this point and further document how PGRFA management is emerging as a tragedy of the anti-commons in the South.

The irony of the situation is that the introduction of access regimes to PGRFA has not brought about any significant benefits in the South. There are few documented examples worldwide on benefit-sharing arrangements pertaining to PGRFA – and none of these are linked to benefit-sharing regimes (Andersen, 2005).⁵⁷ Nevertheless all evidence points in the direction of restricted access to PGRFA globally. Surely this is a lose – lose situation.

The ITPGRFA aims at facilitating access to genetic resources that are covered by the Multilateral System, ensuring that no intellectual property rights will be claimed for resources from the system – in the form they are received. It further provides for benefit sharing in cases of commercialisation of varieties derived from resources in the System. This is a promising approach with regard to Annex 1 crops, but the terms and conditions for its implementation have not yet been determined. Its effects remain to be seen.

Basically, there are two points of departure for ensuring benefit sharing: such arrangements are attached either to (1) access procedures or to (2) the commercialisation of the products, for example when applying for a Certificate of Plant Variety Protection. The latter approach has been suggested several times, but been silenced in the TRIPS Council and explicitly rejected in UPOV. The Philippine case shows that powerful actors obstructed such a development in that country. There is reason to believe that this is not the only case where such forces have been at work (Andersen, 2006). Most attempts towards benefit-sharing arrangements have so far been attached to procedures for access, thereby increasing the bureaucracy of these procedures considerably.

There is an obvious and urgent need to rethink the ways in which benefit sharing is organised. Whether benefit sharing is to be linked to access procedures or to the commercialisation process, e.g. procedures for intellectual property rights, the aim must be to ensure that plant genetic resources for food and agriculture are available for present and future food security in the world.

⁵⁷ Most of them are development co-operation projects.

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